



Australian Government

ICA05 Information and Communications Technology Training Package

Release: 3.1

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Modification History

Version modification history

The version details of this endorsed Training Package are in the table below. The latest information is at the top of the table.

Version Modification History		
Version	Release Date	Comments
3.1	26 July 2010	Modifications applied to qualifications to meet the flexibility rules, this affects: - ICA10105 - Certificate I in Information Technology - ICA20105 - Certificate II in Information Technology - ICA30105 - Certificate III in Information Technology
3.0	3 March 2009	Addition of new qualifications: ICA60308 Advanced Diploma of Information Technology (E-security) ICA60208 Advanced Diploma of Information Technology (Network Security) Addition of new units for RFID and E-security: Analysis and Design ICAA5245A Evaluate RFID systems ICAA5246A Design an RFID implementation Build ICAB4247A Link an RFID system to a database ICAI4244A Install and maintain an RFID system ICAI4249A Implement and evaluate data security ICAI4251A Implement and evaluate network and telecommunication security ICAI5250A Develop, implement and evaluate system and application security ICAI5252A Develop, Implement and evaluate an Incident response plan ICAI5253A Implement and evaluate systems for regulatory and standards compliance Support

		ICAS2248A Protect and secure information assets ICAS6254A Manage IT security Inclusion of RFID and E-security units in: ICA20105 Certificate II in Information Technology ICA40105 Certificate IV in Information Technology (General) ICA40405 Certificate IV in Information Technology (Networking) ICA50105 Diploma of Information Technology (General) ICA50405 Diploma of Information Technology (Networking) ICA60105 Advanced Diploma of Information Technology Minor change to packaging of electives in: ICA40805 Certificate IV in Information Technology (Multimedia) Minor adjustments to some units and their titles. Removal of non mandated co-requisites to meet "Training Package Development Handbook" requirements Updating of ICA05 units for next generation networks and wireless broadband. Replacement of heading "Prerequisites" in Individual Qualifications Summary for qualifications at Certificate III and above with the more appropriate title of "Entry requirements". Imported competencies have been updated to the new version where there is a direct equivalent.
2.0	21/09/2007	Employability Skills mandatory text included in the introduction, qualification guidelines, assessment guidelines and each unit of competency. Employability Skills Summary included in all qualifications. Employability Skills mandatory statement inserted in all units and Employability Skills explicitly expressed in all units - 'maintain knowledge of industry products and services' added to Role Context in every unit. Minor additions to the following units to enhance Employability Skills: ICAS3234B Care for computer hardware ICAU1128B Operate a personal computer ICAU2005B Operate computer hardware ICAU2006B Operate computing packages ICAU2013B Integrate commercial computing packages

		ICAU2231B Use computer operating system. Category 1 changes made to correct typos, unit titles, minor formatting errors and clarification to prerequisite requirements for entry to qualifications.
1.0	November 2005	ICA05 replaces the predecessor package ICA99 Information Technology Training Package (Version 3.0).

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Training Package Volume Number	Training Package Volume Name
1	Information and Communications Technology Training Package (Volume I)
2	Information and Communications Technology Training Package (Volume II)

Training Package Volume Number	Training Package Volume Statement
1	This document contains part of the endorsed components of the Training Package. It should not be used in isolation but must be used in the context of the whole endorsed Training Package.
2	This document contains part of the endorsed components of the Training Package. It should not be used in isolation but must be used in the context of the whole endorsed Training Package.

Training Package Volume Number	Training Package Volume Description
1	The material contained within this volume is part of the endorsed component of the ICA05 Information and Communications Technology Training Package endorsed by the National Quality Council (NQC) on 20 December 2008.
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Preliminary Information

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Important Note to Users

Training Packages are not static documents; they are amended periodically to reflect the latest industry practices and are version controlled. It is essential that the latest version is always used.

Check the version number before commencing training or assessment

This Training Package is Version 3.1 – check whether this is the latest version by going to the National Training Information Service (www.ntis.gov.au) and locating information about the Training Package. Alternatively, contact Innovation and Business Industry Skills Council at <http://www.ibsa.org.au> to confirm the latest version number.

Explanation of version number conventions

The primary release Training Package is Version 1.0. When changes are made to a Training Package, sometimes the version number is changed and sometimes it is not, depending on the extent of the change. A significant change would mean assigning the version identifier ‘Version 2.0’ to the Training Package.

When a Training Package is reviewed it is considered to be a new Training Package for the purposes of version control (i.e. a new year identifier in the code is added, for example TDT02 becomes TDT07), then it is called Version 1.0.

Do not confuse the version number with the Training Package’s national code (which remains the same during its period of endorsement).

Version modification history

The version details of this endorsed Training Package are in the table below. The latest information is at the top of the table.

Version Modification History		
Version	Release Date	Comments
3.1	TBC	Modifications applied to qualifications to meet the flexibility rules, this affects: - ICA10105 - Certificate I in Information Technology - ICA20105 - Certificate II in Information Technology - ICA30105 - Certificate III in Information Technology
3.0	TBC	Addition of new qualifications: ICA60308 Advanced Diploma of Information Technology (E-security) ICA60208 Advanced Diploma of Information Technology (Network

		Security) Addition of new units for RFID and E-security: Analysis and Design ICAA5245A Evaluate RFID systems ICAA5246A Design an RFID implementation Build ICAB4247A Link an RFID system to a database ICAI4244A Install and maintain an RFID system ICAI4249A Implement and evaluate data security ICAI4251A Implement and evaluate network and telecommunication security ICAI5250A Develop, implement and evaluate system and application security ICAI5252A Develop, Implement and evaluate an Incident response plan ICAI5253A Implement and evaluate systems for regulatory and standards compliance Support ICAS2248A Protect and secure information assets ICAS6254A Manage IT security Inclusion of RFID and E-security units in: ICA20105 Certificate II in Information Technology ICA40105 Certificate IV in Information Technology (General) ICA40405 Certificate IV in Information Technology (Networking) ICA50105 Diploma of Information Technology (General) ICA50405 Diploma of Information Technology (Networking) ICA60105 Advanced Diploma of Information Technology Minor change to packaging of electives in: ICA40805 Certificate IV in Information Technology (Multimedia) Minor adjustments to some units and their titles. Removal of non mandated co-requisites to meet "Training Package Development Handbook" requirements Updating of ICA05 units for next generation networks and wireless broadband. Replacement of heading "Prerequisites" in Individual Qualifications Summary for qualifications at Certificate III and above with the more

		appropriate title of "Entry requirements". Imported competencies have been updated to the new version where there is a direct equivalent.
2.0	21/09/2007	Employability Skills mandatory text included in the introduction, qualification guidelines, assessment guidelines and each unit of competency. Employability Skills Summary included in all qualifications. Employability Skills mandatory statement inserted in all units and Employability Skills explicitly expressed in all units - 'maintain knowledge of industry products and services' added to Role Context in every unit. Minor additions to the following units to enhance Employability Skills: ICAS3234B Care for computer hardware ICAU1128B Operate a personal computer ICAU2005B Operate computer hardware ICAU2006B Operate computing packages ICAU2013B Integrate commercial computing packages ICAU2231B Use computer operating system. Category 1 changes made to correct typos, unit titles, minor formatting errors and clarification to prerequisite requirements for entry to qualifications.
1.0	November 2005	ICA05 replaces the predecessor package ICA99 Information Technology Training Package (Version 3.0).

History

Summary of AQF qualifications in this Training Package

AQF Qualifications	
Code	Title

ICA10105	Certificate I in Information Technology
ICA20105	Certificate II in Information Technology
ICA30105	Certificate III in Information Technology
ICA40105	Certificate IV in Information Technology (General)
ICA40205	Certificate IV in Information Technology (Support)
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ICA60308	Advanced Diploma of Information Technology (E-security)

Units of Competency in this Training Package and their prerequisites

Code	Title	Prerequisites
ICAA4041C	Determine and confirm client business expectations and needs	
ICAA4047B	Determine project specifications and secure client agreement	ICAA4041C Determine and confirm client business expectations and needs
ICAA4051B	Develop client user interface	
ICAA4058B	Apply skills in object-oriented design	
ICAA4142C	Design a website to meet technical requirements	ICAB4135B Create a simple mark-up language document to specification ICAB4137B Produce basic client side script for dynamic web pages CUFMEM07A Apply principles of visual design and communication to the development of a multimedia product
ICAA4233B	Determine and apply appropriate development methodologies	
ICAA5035C	Research and review hardware technology options for organisations	
ICAA5044C	Develop system infrastructure design plan	ICAA4041C Determine and confirm client business expectations and needs ICAA5144B Determine best-fit topology for a local network ICAA5145B Identify best-fit topology for a wide area network ICAD4217B Create technical documentation
ICAA5045C	Produce network architecture design	ICAD4217B Create technical documentation
ICAA5046B	Model preferred system solutions	
ICAA5048B	Develop configuration management protocols	ICAB4076B Implement configuration management
ICAA5049B	Develop high-level object-oriented class specifications	ICAA4233B Determine and apply appropriate development methodologies

ICAA5050B	Develop detailed component specifications from project specifications	
ICAA5054C	Validate quality and completeness of system design specifications	
ICAA5055B	Confirm transition strategy	ICAT5077B Develop detailed test plan
ICAA5056B	Prepare disaster recovery and contingency plans	
ICAA5138B	Determine acceptable developers for projects	
ICAA5139B	Design a database	
ICAA5140C	Design a server	ICAA4041C Determine and confirm client business expectations and needs ICAI4029C Install network hardware to a network ICAS3120C Configure and administer a network operating system
ICAA5141C	Design dynamic websites to meet technical requirements	ICAA4142C Design a website to meet technical requirements
ICAA5143C	Implement process re-engineering strategies in an organisation	
ICAA5144B	Determine best-fit topology for a local network	
ICAA5145B	Identify best-fit topology for a wide area network	
ICAA5146B	Develop website information architecture	
ICAA5147B	Determine suitability of database functionality and scalability	ICAA4041C Determine and confirm client business expectations and needs
ICAA5148B	Select new technology models for business	
ICAA5150C	Evaluate vendor products and equipment	
ICAA5151B	Gather data to identify business	ICAA4041C Determine and confirm client

	requirements	business expectations and needs ICAA4233B Determine and apply appropriate development methodologies
ICAA5153B	Model data objects	
ICAA5154B	Model data processes	
ICAA5156B	Review and plan to minimise risk to business solutions	
ICAA5158B	Translate business needs into technical requirements	ICAA4233B Determine and apply appropriate development methodologies
ICAA5241C	Design an enterprise wireless local area network	
ICAA5245A	Evaluate RFID systems	ICAA4041C Determine and confirm client business expectations and needs ICAD4217B Create technical documentation
ICAA5246A	Design an RFID implementation	ICAA4041C Determine and confirm client business expectations and needs ICAD4217B Create technical documentation
ICAA6052B	Design an IT security framework	ICAA4041C Determine and confirm client business expectations and needs
ICAA6053B	Design system security and controls	
ICAA6149B	Implement quality assurance processes for business solutions	
ICAA6157B	Develop technical requirements for a business solution	
ICAB3018B	Develop macros and templates for clients using standard products	ICAU3126B Use advanced features of computer applications
ICAB4057B	Manage a reuse library	ICAB4075B Use a library or pre-existing components
ICAB4059B	Develop detailed technical design	
ICAB4060B	Identify physical database requirements	ICAA4041C Determine and confirm client business expectations and needs

ICAB4061B	Monitor physical database implementation	ICAS4125B Monitor and administer a database
ICAB4064B	Prepare software development review	
ICAB4075B	Use a library or pre-existing components	
ICAB4076B	Implement configuration management	
ICAB4135B	Create a simple mark-up language document to specification	
ICAB4136B.	Use structured query language to create database structures and manipulate data	ICAB4225B Automate processes
ICAB4137B	Produce basic client side script for dynamic web pages	
ICAB4163B	Create a common gateway interface script	
ICAB4169B	Use development software and IT tools to build a basic website	
ICAB4170B	Build a database	
ICAB4171B	Develop cascading style sheets	
ICAB4178B	Build a graphical user interface	
ICAB4219B	Apply introductory object-oriented language skills	ICAB4225B Automate processes
ICAB4220B	Create scripts for networking	ICAB4225B Automate processes
ICAB4222B	Apply introductory programming skills in another language	ICAB4225B Automate processes
ICAB4224B	Apply mathematical techniques for software development	
ICAB4225B	Automate processes	
ICAB4229B	Apply intermediate programming skills in another language	ICAB4222B Apply introductory programming skills in another language

ICAB4232B	Maintain open source code programs	ICAB4222B Apply introductory programming skills in another language
ICAB4235B	Build basic perimeter security into a network	
ICAB4236B	Build security into a virtual private network	
ICAB4239C	Build a small wireless local area network	
ICAB4240C	Build an enterprise wireless network	
ICAB4247A	Link an RFID system to a database	ICAB4136B Use structured query language to create database structures and manipulate data
ICAB5062B	Perform data conversion	
ICAB5063B	Monitor and support data conversion	
ICAB5065B	Prepare for the build phase	
ICAB5066B	Coordinate the build phase	ICAB5065B Prepare for the build phase
ICAB5067B	Prepare for software development using rapid application development	
ICAB5068B	Build using rapid application development	
ICAB5071B	Review developed software	
ICAB5072B	Develop integration blueprint	
ICAB5073B	Pilot the developed system	
ICAB5074B	Monitor the system pilot	
ICAB5159C	Build a security shield for a network	ICAS5192B Configure an internet gateway
ICAB5160C	Build and configure a server	ICAA5140C Design a server
ICAB5161B	Build a document using extensible	

	mark-up language	
ICAB5162B	Install, configure and test a payment gateway	
ICAB5164B	Create a data warehouse	ICAB4170B Build a database
ICAB5165B	Create dynamic web pages	
ICAB5177B	Build Java applets	
ICAB5179B	Build decks using wireless mark-up language	
ICAB5180C	Integrate database with a website	
ICAB5223B	Apply intermediate object-oriented language skills	ICAB4219B Apply introductory object-oriented language skills
ICAB5226B	Apply advanced object-oriented language skills	ICAB5223B Apply intermediate object-oriented language skills
ICAB5227B	Apply advanced programming skills in another language	ICAB4229B Apply intermediate programming skills in another language
ICAB5228B	Maintain functionality of legacy code programs	ICAB4222B Apply introductory programming skills in another language
ICAB5230B	Maintain custom software	ICAB4222B Apply introductory programming skills in another language
ICAB5237B	Build a high performance security perimeter	
ICAB5238B	Build a highly secure firewall	
ICAD2003B	Receive and process oral and written communication	
ICAD2012B	Design organisational documents using computing packages	ICAU1128B Operate a personal computer
ICAD3218B	Create user documentation	
ICAD4043B	Develop and present a feasibility report	
ICAD4190B	Maintain information standards	ICAD4217B Create technical documentation

ICAD4198B	Develop guidelines for uploading information to a website	ICAD3218B Create user documentation ICAD4217B Create technical documentation
ICAD4209B	Write content for web pages	
ICAD4217B	Create technical documentation	
ICAD5092B	Update and document operational procedures	ICAD3218B Create user documentation ICAD4217B Create technical documentation
ICAD5210B	Analyse information and assign meta-tags	
ICAI2015B	Install software applications	
ICAI3020B	Install and optimise operating system software	
ICAI3021B	Connect internal hardware components	
ICAI3101B	Install and manage network protocols	
ICAI3110C	Implement system software changes	ICAI3020B Install and optimise operating system software
ICAI4029C	Install network hardware to a network	
ICAI4030B	Install software to networked computers	
ICAI4091B	Conduct post-implementation review	ICAA4041C Determine and confirm client business expectations and needs
ICAI4097C	Install and configure a network	ICAI3101B Install and manage network protocols
ICAI4099B	Build an intranet	ICAI3101B Install and manage network protocols ICAS312B Configure and administer a network operating system ICAI4029C Install network hardware to a network
ICAI4175C	Select and install a router	ICAI3101B Install and manage network

		protocols
ICAI4188B	Install and maintain a server	ICAI3020B Install and optimise operating system software ICAI3101B Install and manage network protocols ICAS3120C Configure and administer a network operating system
ICAI4189B	Ensure website content meets technical protocols and standards	
ICAI4244A	Install and maintain an RFID system	ICAI3101B Install and manage network protocols ICAI4029C Install network hardware to a network
ICAI4249A	Implement and evaluate data security	ICAS3024B Provide basic system administration ICAS4124B Monitor and administer network security
ICAI4251A	Implement and evaluate network and telecommunication security	ICAS4124B Monitor and administer network security ICAS4119B Monitor and administer system security
ICAI5085B	Review site in preparation for implementation	
ICAI5086B	Scope implementation requirements	
ICAI5087B	Acquire system components	
ICAI5088B	Evaluate and negotiate vendor offerings	
ICAI5089B	Implement and hand over system components	
ICAI5090B	Conduct pre-installation audit for software installation	
ICAI5096B	Complete data transition	
ICAI5098C	Install and manage complex networks	ICAI4097C Install and configure a network

ICAI5100C	Build an internet infrastructure	ICAB5160C Build and configure a server
ICAI5152B	Implement risk management processes	
ICAI5172B	Implement backbone technologies in a local area network	
ICAI5173B	Install and configure a single-segment local area network switch	ICAI2015B Install software applications ICAI3101B Install and manage network protocols
ICAI5174B	Install high-end switches in multi-switched local area networks	ICAI5173B Install and configure a single-segment local area network switch
ICAI5176C	Install and configure router	ICAI3101B Install and manage network protocols
ICAI5196B	Implement secure encryption technologies	
ICAI5197B	Install and maintain valid authentication processes	
ICAI5212B	Implement quality assurance process for websites	
ICAI5216B	Monitor and improve knowledge management system	
ICAI5250A	Develop, implement and evaluate system and application security	ICAB4225B Automate processes
ICAI5252A	Develop, implement and evaluate an incident response plan	ICAP4037B Contribute to the development of a strategy plan ICAI5152B Implement risk management processes
ICAI5253A	Implement and evaluate systems for regulatory and standards compliance	ICAA4041C Determine and confirm client business expectations and needs
ICAI6187B	Implement change management processes	
ICAP4037B	Contribute to the development of a strategy plan	ICAA4041C Determine and confirm client business expectations and needs

ICAP5036B	Determine appropriate IT strategies and solutions	ICAP4037B Contribute to the development of a strategy plan
ICAP5039B	Match IT needs with the strategic direction of the enterprise	ICAA4041C Determine and confirm client business expectations and needs
ICAP5155B	Plan process re-engineering strategies for business	
ICAP6038B	Develop strategic and action plans	ICAP4037B Contribute to the development of a strategy plan
ICAP6040B	Develop contracts and manage contracted performance	
ICAS1193B	Connect a workstation to the internet	
ICAS2008B	Maintain inventories for equipment, software and documentation	
ICAS2009B	Interact with clients	
ICAS2010B	Apply problem solving techniques to routine malfunctions	
ICAS2014B	Connect hardware peripherals	
ICAS2016B	Record client support requirements	
ICAS2017B	Maintain system integrity	
ICAS2243B	Detect and protect from spam and destructive software	
ICAS2248A	Protect and secure information assets	ICAU2231B Use computer operating system
ICAS3024B	Provide basic system administration	
ICAS3031B	Provide advice to clients	
ICAS3032B	Provide network systems administration	ICAI3101B Install and manage network protocols ICAS3024B Provide basic system administration

ICAS3034B	Determine and action network problems	ICAS3024B Provide basic system administration ICAT3025B Run standard diagnostic tests
ICAS3115B	Maintain equipment and software in working order	
ICAS3120C	Configure and administer a network operating system	ICAI3020B Install and optimise operating system software ICAS3032B Provide network systems administration
ICAS3121B	Administer network peripherals	
ICAS3234B	Care for computer hardware	
ICAS4022B	Determine and action client computing problems	
ICAS4023B	Provide one-to-one instruction	
ICAS4033B	Assist with policy development for client support procedures	
ICAS4106B	Action and complete change requests	
ICAS4107B	Manage resolution of system faults on a live system	ICAS3024B Provide basic system administration ICAT3025B Run standard diagnostic tests ICAT4221B Locate equipment, system and software faults
ICAS4108B	Complete database back-up and recovery	
ICAS4109B	Evaluate system status	ICAT3025B Run standard diagnostic tests
ICAS4112B	Optimise system performance	ICAI3110C Implement system software changes
ICAS4113C	Identify and resolve common database performance problems	
ICAS4114B	Implement maintenance procedures	ICAT3025B Run standard diagnostic tests
ICAS4116B	Undertake capacity planning	

ICAS4119B	Monitor and administer system security	ICAI3020B Install and optimise operating system software ICAS3024B Provide basic system administration
ICAS4124B	Monitor and administer network security	ICAS3032B Provide network systems administration
ICAS4125B	Monitor and administer a database	ICAS3024B Provide basic system administration
ICAS4127B	Support system software	ICAI3020B Install and optimise operating system software
ICAS4134C	Provide first-level remote help desk support	ICAS3031B Provide advice to clients
ICAS4191B	Maintain website performance	
ICAS4200B	Monitor traffic and compile website traffic reports	
ICAS4201B	Transfer content to a website using commercial packages	
ICAS5102B	Establish and maintain client user liaison	
ICAS5103B	Establish and maintain client user liaison during support activity	ICAW4027B Relate to clients on a business level
ICAS5104B	Determine maintenance strategy	ICAT3025B Run standard diagnostic tests
ICAS5105B	Coordinate change requests	ICAP4037B Contribute to the development of a strategy plan
ICAS5111B	Review and manage delivery of maintenance services	
ICAS5118C	Manage system security	
ICAS5122C	Identify and resolve network problems	ICAI4097C Install and configure a network
ICAS5123C	Manage network security	ICAS4124B Monitor and administer network security
ICAS5192B	Configure an internet gateway	ICAI4097C Install and configure a network

ICAS5199B	Manage business websites and servers	ICAS4191B Maintain website performance
ICAS5202B	Ensure privacy for users	
ICAS5203B	Evaluate and select a web hosting service	
ICAS6254A	Manage IT security	ICAI4249A Implement and evaluate data security ICAI4251A Implement and evaluate network and telecommunication security ICAI5250A Develop, implement and evaluate system and application security ICAI5252A Develop, Implement and evaluate an Incident response plan
ICAT1206B	Check site security	
ICAT3025B	Run standard diagnostic tests	
ICAT4183B	Confirm accessibility of website for people with special needs	
ICAT4184B	Ensure site usability for full range of users	
ICAT4185B	Create a website testing procedure	
ICAT4186B	Conduct operational acceptance tests of websites	ICAT4184B Ensure site usability for full range of users
ICAT4194B	Ensure basic website security	ICAI3101B Install and manage network protocols
ICAT4195B	Ensure dynamic website security	ICAI3020B Install and optimise operating system software ICAT4194B Ensure basic website security
ICAT4221B	Locate equipment, system and software faults	
ICAT4242B	Perform unit test for a class	
ICAT5077B	Develop detailed test plan	
ICAT5079B	Perform integration test	
ICAT5081B	Perform systems test	ICAT3025B Run standard diagnostic tests

ICAT5082B	Manage the testing process	ICAT5077B Develop detailed test plan
ICAT5083B	Develop and conduct client acceptance test	ICAW4027B Relate to clients on a business level
ICAT5084B	Perform stress and load testing on integrated platform	
ICAU1128B	Operate a personal computer	
ICAU1129B	Operate a word processing application	
ICAU1130B	Operate a spreadsheet application	
ICAU1131B	Operate a database application	
ICAU1132B	Operate a presentation package	
ICAU1133B	Send and retrieve information using web browsers and email	
ICAU1204B	Locate and use relevant on-line information	
ICAU1211B	Operate accounting applications	ICAU1128B Operate a personal computer
ICAU1213B	Conduct on-line transactions	
ICAU1215B	Use personal productivity tool	
ICAU2005B	Operate computer hardware	ICAU1128B Operate a personal computer
ICAU2006B	Operate computing packages	
ICAU2007B	Maintain equipment and consumables	
ICAU2013B	Integrate commercial computing packages	ICAU1128B Operate a personal computer
ICAU2231B	Use computer operating system	ICAU1128B Operate a personal computer
ICAU3004B	Apply occupational health and safety procedures	
ICAU3019B	Migrate to new technology	
ICAU3028B	Customise packaged software	ICAU3126B Use advanced features of

	applications for clients	computer applications
ICAU3126B	Use advanced features of computer applications	
ICAU4205B	Select and employ software and hardware tools	
ICAU4207B	Apply web authoring tool to convert client data for websites	
ICAU5208B	Use site server tools for transaction management	
ICAW2001B	Work effectively in an IT environment	
ICAW2002B	Communicate in the workplace	
ICAW2011B	Work individually or as a team member to achieve organisational goals	
ICAW4026B	Coordinate and maintain work teams	
ICAW4027B	Relate to clients on a business level	
ICAW4214B	Maintain ethical conduct	

Imported units of competency in this Training Package

Code	Title	Origin
BSBCMN106A	Follow workplace safety procedures	BSB01 Business Services
BSBCMN304A	Contribute to personal skill development and learning	BSB01 Business Services
BSBEBUS501A	Evaluate e-business opportunities	BSB01 Business Services
BSBEBUS503A	Design an e-business	BSB01 Business Services
BSBEBUS504A	Implement an e-business strategy	BSB01 Business Services
BSBEBUS505A	Implement new technologies for business	BSB01 Business Services

BSBEBUS510A	Manage e-business outsourcing	BSB01 Business Services
BSBEBUS511A	Implement a knowledge management strategy for an e-business	BSB01 Business Services
BSBEBUS512A	Implement electronic communication policy	BSB01 Business Services
BSBEBUS513A	Plan e-learning	BSB01 Business Services
BSBEBUS514A	Implement e-learning	BSB01 Business Services
BSBEBUS515A	Facilitate e-learning	BSB01 Business Services
BSBEBUS601A	Develop an e-business strategy	BSB01 Business Services
BSBEBUS605A	Identify and implement e-business innovation	BSB01 Business Services
BSBEBUS609A	Develop a knowledge management strategy for an e-business	BSB01 Business Services
BSBMGT516A	Facilitate continuous improvement	BSB07 Business Services
BSBFLM510B	Facilitate and capitalise on change and innovation	BSB01 Business Services
BSBWOR502A	Ensure team effectiveness	BSB07 Business Services
BSBFLM514A	Manage people	BSB01 Business Services
BSBMGT615A	Contribute to organisation development	BSB07 Business Services
BSBMGT608B	Manage innovation and continuous improvement	BSB07 Business Services
BSBPMG501A	Manage application of project integrative processes	BSB07 Business Services
BSBPMG505A	Manage project quality	BSB07 Business Services
BSBPMG508A	Manage project risk	BSB07 Business Services
BSBPMG601A	Direct the integration of multiple projects/programs	BSB07 Business Services
BSBPMG602A	Direct the scope of multiple projects/programs	BSB07 Business Services
BSBPMG603A	Direct time management of multiple projects/programs	BSB07 Business Services

BSBPMG604A	Direct cost management of multiple projects/programs	BSB07 Business Services
BSBPMG605A	Direct quality management of multiple projects/programs	BSB07 Business Services
BSBPMG606A	Direct human resources management of multiple projects/programs	BSB07 Business Services
BSBPMG607A	Direct communications management of multiple projects/programs	BSB07 Business Services
BSBPMG608A	Direct risk management of multiple projects/programs	BSB07 Business Services
BSBPMG609A	Direct procurement and contracts of multiple projects/programs	BSB07 Business Services
BSBPMG510A	Manage projects	BSB07 Business Services
BSBRKG608B	Plan management of records over time	BSB07 Business Services
CUFANM01A	Develop and implement designs for animation	CUF01 Film, TV, Radio and Multimedia
CUFCAM01A	Set up and operate a basic video camera	CUF01 Film, TV, Radio and Multimedia
CUFCAM03A	Compose camera shots and operate a camera	CUF01 Film, TV, Radio and Multimedia
CUFCAM501A	Shoot material for screen productions under special conditions	CUF07 Screen and Media
CUFGEN01A	Develop and apply industry knowledge	CUF01 Film, TV, Radio and Multimedia
CUFDIG303A	Produce and prepare photo images	CUF07 Screen and Media
CUFANM301A	Create 2D digital animation	CUF07 Screen and Media
CUFANM302A	Create 3D digital animation	CUF07 Screen and Media
CUFIMA05A	Create 3D digital models and images	CUF01 Film, TV, Radio and Multimedia
CUFANM403A	Create titles for screen productions	CUF07 Screen and Media
CUFDIG302A	Author interactive sequences	CUF07 Screen and Media

CUFDIG401A	Author interactive media	CUF07 Screen and Media
CUFDIG501A	Coordinate the testing of interactive media products	CUF07 Screen and Media
CUFPOS402A	Manage multimedia assets	CUF07 Screen and Media
CUFDIG502A	Design web environments	CUF07 Screen and Media
CUFMEM07A	Apply principles of visual design and communication to the development of a multimedia product	CUF01 Film, TV, Radio and Multimedia
CUFDIG504A	Design games	CUF07 Screen and Media
CUFMEM10A	Design and create a multimedia interface	CUF01 Film, TV, Radio and Multimedia
CUFDIG505A	Design information architecture	CUF07 Screen and Media
CUFDIG201A	Maintain interactive content	CUF07 Screen and Media
CUFMEM13A	Incorporate, design and edit digital video	CUF01 Film, TV, Radio and Multimedia
CUFRAD01A	Originate and develop a concept	CUF01 Film, TV, Radio and Multimedia
CUFWRT601A	Write scripts	CUF07 Screen and Media
CUFWRT07A	Write an interactive sequence for multimedia	CUF01 Film, TV, Radio and Multimedia
CUSADM07A	Establish and maintain work and contractual relationships	CUS01 Music
CUSADM08A	Address copyright requirements	CUS01 Music
CUSGEN03A	Collaborate with colleagues in planning and producing a project	CUS01 Music
CUVVSP11B	Apply techniques to produce digital images	CUV03 Visual Arts and Craft
ICPKN315B	Apply knowledge and requirements of the multimedia sector	ICP05 Printing and Graphic Arts
ICPMM263B	Access and use the Internet	ICP05 Printing and Graphic Arts

ICPMM321B	Capture a digital image	ICP05 Printing and Graphic Arts
ICPMM344B	Manipulate and incorporate audio into multimedia presentations	ICP05 Printing and Graphic Arts
ICPMM346B	Incorporate video into multimedia presentations	ICP05 Printing and Graphic Arts
ICPMM581B	Manage multimedia production	ICP05 Printing and Graphic Arts
ICPMM582B	Manage multimedia projects	ICP05 Printing and Graphic Arts
ICPPP311B	Develop a detailed design concept	ICP05 Printing and Graphic Arts
ICPPP325B	Create graphics using a graphics application	ICP05 Printing and Graphic Arts
ICTCC121A	Use an enterprise information system	ICT02 Telecommunications
ICTTC168A	Design and Implement an enterprise VoIP and unified communication network	ICT02 Telecommunications
ICTCC330A	Manage customer relationships	ICT02 Telecommunications
PRSSM503A	Assess security risk management options	PRS03 Asset Security
PRSSM504A	Prepare security risk management plan	PRS03 Asset Security
PRSTS301A	Identify technical security requirements	PRS03 Asset Security
PSPPM402B	Manage simple projects	PSP04 Public Sector
PSPPM404A	Carry out simple project activities	PSP04 Public Sector
PSPPM405A	Administer simple projects	PSP04 Public Sector
PSPPM501B	Design complex projects	PSP04 Public Sector
PSPPM502B	Manage complex projects	PSP04 Public Sector
PSPPM503B	Close complex projects	PSP04 Public Sector
PSPPM504A	Carry out complex project activities	PSP04 Public Sector
PSPPM601B	Direct complex project activities	PSP04 Public Sector

TAAASS501B	Lead and coordinate assessment systems and services	TAA04 Training and Assessment
TAADEL503B	Provide advanced facilitation to support learning	TAA04 Training and Assessment
TAADES501B	Design and develop learning strategies	TAA04 Training and Assessment
TAAENV501B	Maintain and enhance professional practice	TAA04 Training and Assessment

Summary Mapping

The chart below shows the correlation between qualifications and competency units previously contained in Version 2.0 of ICA05 Information and Communications Technology Training Package and those contained in the current ICA05 Information and Communications Technology Training Package, Version 3.1, including previous unit codings and current unit codings.

Please note that the following provides a brief explanation of changes to units and should only be used as an indicative tool. It is important that organisations review existing material and resources to ensure that specific changes to units of competency have been noted and their delivery and assessment materials adapted where necessary.

ICA05 Information and Communications Technology Training Package - Mapping of Qualifications

Related qualification in ICA05 Version 2.0	Qualification code and title in ICA05 Version 3.1	Comment in relation to ICA05 Version 2.0
ICA10105 Certificate I in Information Technology	ICA10105 Certificate I in Information Technology	No change
ICA20105 Certificate II in Information Technology	ICA20105 Certificate II in Information Technology	Unit added to electives: - ICAS2248A Protect and secure information assets Outcomes deemed as equivalent
ICA30105 Certificate III in Information Technology	ICA30105 Certificate III in Information Technology	No change
ICA40105 Certificate IV in Information Technology (General)	ICA40105 Certificate IV in Information Technology (General)	Units added Specialist Elective Stream - Networking: - ICAB4247A Link an RFID system to a database - ICAI4244A Install and maintain

Related qualification in ICA05 Version 2.0	Qualification code and title in ICA05 Version 3.1	Comment in relation to ICA05 Version 2.0
		an RFID system - ICAI4249A Link an RFID system to a network - ICAI4251A Implement and evaluate network and telecommunication security Outcomes deemed as equivalent
ICA40205 Certificate IV in Information Technology (Support)	ICA40205 Certificate IV in Information Technology (Support)	No change
ICA40305 Certificate IV in Information Technology (Websites)	ICA40305 Certificate IV in Information Technology (Websites)	No change
ICA40405 Certificate IV in Information Technology (Networking)	ICA40405 Certificate IV in Information Technology (Networking)	Units added to electives: - ICAB4247A Link an RFID system to a database - ICAI4244A Install and maintain an RFID system - ICAI4249A Link an RFID system to a network - ICAI4251A Implement and evaluate network and telecommunication security Outcomes deemed as equivalent
ICA40505 Certificate IV in Information Technology (Programming)	ICA40505 Certificate IV in Information Technology (Programming)	No change
ICA40605 Certificate IV in Information Technology (Testing)	ICA40605 Certificate IV in Information Technology (Testing)	No change
ICA40705 Certificate IV in Information Technology (Systems Analysis and Design)	ICA40705 Certificate IV in Information Technology (Systems Analysis and Design)	No change
ICA40805 Certificate IV in Information Technology (Multimedia)	ICA40805 Certificate IV in Information Technology (Multimedia)	Units added to Games Development electives: - ICAB4224B Apply mathematical techniques for

Related qualification in ICA05 Version 2.0	Qualification code and title in ICA05 Version 3.1	Comment in relation to ICA05 Version 2.0
		software development Outcomes deemed as equivalent
ICA50105 Diploma of Information Technology (General)	ICA50105 Diploma of Information Technology (General)	Units added Specialist Elective Stream - Networking: - ICAA5245A Evaluate RFID systems - ICAA5246A Design an RFID implementation - ICAI5250A Develop, implement and evaluate system and application security - ICAI5252A Develop, implement and evaluate an incident response plan - ICAI5253A Implement and evaluate systems for regulatory standards compliance - ICTTC168A Design and Implement an enterprise VoIP and unified communication network Outcomes deemed as equivalent
ICA50205 Diploma of Information Technology (Project Management)	ICA50205 Diploma of Information Technology (Project Management)	Unit added to electives: - ICAT5077B Develop detailed test plan Outcomes deemed as equivalent
ICA50305 Diploma of Information Technology (Systems Administration)	ICA50305 Diploma of Information Technology (Systems Administration)	No change
ICA50405 Diploma of Information Technology (Networking)	ICA50405 Diploma of Information Technology (Networking)	Units added to specialist electives: - ICAA5245A Evaluate RFID systems - ICAA5246A Design an RFID implementation - ICAI5250A Develop, implement and evaluate system and application security - ICAI5252A Develop, implement and evaluate an incident response plan

Related qualification in ICA05 Version 2.0	Qualification code and title in ICA05 Version 3.1	Comment in relation to ICA05 Version 2.0
		- ICAI5253A Implement and evaluate systems for regulatory standards compliance - ICTTC168A Design and Implement an enterprise VoIP and unified communication network Outcomes deemed as equivalent
ICA50505 Diploma of Information Technology (Database Design and Development)	ICA50505 Diploma of Information Technology (Database Design and Development)	No change
ICA50605 Diploma of Information Technology (Website Development)	ICA50605 Diploma of Information Technology (Website Development)	No change
ICA50705 Diploma of Information Technology (Software Development)	ICA50705 Diploma of Information Technology (Software Development)	No change
ICA50805 Diploma of Information Technology (Systems Analysis and Design)	ICA50805 Diploma of Information Technology (Systems Analysis and Design)	No change
ICA50905 Diploma of Information Technology (Multimedia)	ICA50905 Diploma of Information Technology (Multimedia)	No change
ICA60105 Advanced Diploma of Information Technology	ICA60105 Advanced Diploma of Information Technology	Units added to electives: - ICAI5253A Implement and evaluate systems for regulatory standards compliance - ICTTC168A Design and Implement an enterprise VoIP and unified communication network Outcomes deemed as equivalent
ICA60205 Advanced Diploma of Information Technology (Network Security)	ICA60208 Advanced Diploma of Information Technology (Network Security)	Units added to electives: - ICAA5245A Evaluate RFID systems - ICAA5246A Design an RFID implementation - ICAI5250A Develop, implement

Related qualification in ICA05 Version 2.0	Qualification code and title in ICA05 Version 3.1	Comment in relation to ICA05 Version 2.0
		and evaluate system and application security - ICAI5252A Develop, implement and evaluate an incident response plan - ICAI5253A Implement and evaluate systems for regulatory standards compliance - ICTTC168A Design and Implement an enterprise VoIP and unified communication network Unit removed from core: - ICPPP411A Undertake a complex design brief Replacement Qualification
	ICA60308 Advanced Diploma of Information Technology (E-security)	New Qualification

ICA05 Information and Communications Technology Training Package - Mapping of Units

ICA05 v2.0 units		ICA05 v3.0 units		Comment in relation to ICA05 Version 2.0
Code	Name	Code	Name	
ICAA4041B	Determine and confirm client business expectations and needs	ICAA4041C	Determine and confirm client business expectations and needs	PC minor change ROV change
ICAA4047B	Determine project specifications and secure client agreement	ICAA4047B	Determine project specifications and secure client agreement	No change
ICAA4051B	Develop client user interface	ICAA4051B	Develop client user interface	No change

ICA05 v2.0 units		ICA05 v3.0 units		Comment in relation to ICA05 Version 2.0
Code	Name	Code	Name	
ICAA4058B	Apply skills in object-oriented design	ICAA4058B	Apply skills in object-oriented design	No change
ICAA4142B	Design a website to meet technical requirements	ICAA4142C	Design a website to meet technical requirements	Element renamed
ICAA4233B	Determine and apply appropriate development methodologies	ICAA4233B	Determine and apply appropriate development methodologies	No change
ICAA5035B	Research and review hardware technology options for organisations	ICAA5035C	Research and review hardware technology options for organisations	ROV change
ICAA5044B	Develop system infrastructure design plan	ICAA5044C	Develop system infrastructure design plan	ROV change
ICAA5045B	Produce network architecture design	ICAA5045C	Produce network architecture design	PC minor change ROV change
ICAA5046B	Model preferred system solutions	ICAA5046B	Model preferred system solutions	No change
ICAA5048B	Develop configuration management protocols	ICAA5048B	Develop configuration management protocols	No change
ICAA5049B	Develop high-level object-oriented class specifications	ICAA5049B	Develop high-level object-oriented class specifications	No change
ICAA5050B	Develop detailed component specifications from project specifications	ICAA5050B	Develop detailed component specifications from project specifications	No change

ICA05 v2.0 units		ICA05 v3.0 units		Comment in relation to ICA05 Version 2.0
Code	Name	Code	Name	
ICAA5054B	Validate quality and completeness of system design specifications	ICAA5054C	Validate quality and completeness of system design specifications	PC minor change
ICAA5055B	Confirm transition strategy	ICAA5055B	Confirm transition strategy	No change
ICAA5056B	Prepare disaster recovery and contingency plans	ICAA5056B	Prepare disaster recovery and contingency plans	No change
ICAA5138B	Determine acceptable developers for projects	ICAA5138B	Determine acceptable developers for projects	No change
ICAA5139B	Design a database	ICAA5139B	Design a database	No change
ICAA5140B	Design a server	ICAA5140C	Design a server	Deleted incorrect Prerequisite ICAI3101B Performance criteria 4.2 clarified
ICAA5141B	Design dynamic websites to meet technical requirements	ICAA5141C	Design and develop dynamic websites to meet technical requirements	Title change
ICAA5143B	Implement process re-engineering strategies in an organisation	ICAA5143C	Implement process re-engineering strategies in an organisation	Element 1 PC format corrected
ICAA5144B	Determine best-fit topology for a local network	ICAA5144B	Determine best-fit topology for a local network	No change
ICAA5145	Identify best-fit	ICAA5145B	Identify best-fit	No change

ICA05 v2.0 units		ICA05 v3.0 units		Comment in relation to ICA05 Version 2.0
Code	Name	Code	Name	
B	topology for a wide area network		topology for a wide area network	
ICAA5146B	Develop website information architecture	ICAA5146B	Develop website information architecture	No change
ICAA5147B	Determine suitability of database functionality and scalability	ICAA5147B	Determine suitability of database functionality and scalability	No change
ICAA5148B	Select new technology models for business	ICAA5148B	Select new technology models for business	No change
ICAA5150B	Evaluate vendor products and equipment	ICAA5150C	Evaluate vendor products and equipment	ROV change
ICAA5151B	Gather data to identify business requirements	ICAA5151B	Gather data to identify business requirements	No change
ICAA5153B	Model data objects	ICAA5153B	Model data objects	No change
ICAA5154B	Model data processes	ICAA5154B	Model data processes	No change
ICAA5156B	Review and plan to minimise risk to business solutions	ICAA5156B	Review and plan to minimise risk to business solutions	No change
ICAA5158B	Translate business needs into technical requirements	ICAA5158B	Translate business needs into technical requirements	No change
ICAA5241B	Design an enterprise wireless local area network	ICAA5241C	Design an enterprise wireless local area network	ROV change

ICA05 v2.0 units		ICA05 v3.0 units		Comment in relation to ICA05 Version 2.0
Code	Name	Code	Name	
		ICAA5245A	Evaluate RFID systems	New unit
		ICAA5246A	Design an RFID implementation	New unit
ICAA6052B	Design an IT security framework	ICAA6052B	Design an IT security framework	No change
ICAA6053B	Design system security and controls	ICAA6053B	Design system security and controls	No change
ICAA6149B	Implement quality assurance processes for business solutions	ICAA6149B	Implement quality assurance processes for business solutions	No change
ICAA6157B	Develop technical requirements for a business solution	ICAA6157B	Develop technical requirements for a business solution	No change
ICAB3018B	Develop macros and templates for clients using standard products	ICAB3018B	Develop macros and templates for clients using standard products	No change
ICAB4057B	Manage a reuse library	ICAB4057B	Manage a reuse library	No change
ICAB4059B	Develop detailed technical design	ICAB4059B	Develop detailed technical design	No change
ICAB4060B	Identify physical database requirements	ICAB4060B	Identify physical database requirements	No change
ICAB4061B	Monitor physical database implementation	ICAB4061B	Monitor physical database implementation	No change
ICAB4064B	Prepare software development review	ICAB4064B	Prepare software development review	No change

ICA05 v2.0 units		ICA05 v3.0 units		
Code	Name	Code	Name	Comment in relation to ICA05 Version 2.0
ICAB4075B	Use a library or pre-existing components	ICAB4075B	Use a library or pre-existing components	No change
ICAB4076B	Implement configuration management	ICAB4076B	Implement configuration management	No change
ICAB4135B	Create a simple mark-up language document to specification	ICAB4135B	Create a simple mark-up language document to specification	No change
ICAB4136B	Use structured query language to create database structures and manipulate data	ICAB4136B	Use structured query language to create database structures and manipulate data	No change
ICAB4137B	Produce basic client side script for dynamic web pages	ICAB4137B	Produce basic client side script for dynamic web pages	No change
ICAB4163B	Create a common gateway interface script	ICAB4163B	Create a common gateway interface script	No change
ICAB4169B	Use development software and IT tools to build a basic website	ICAB4169B	Use development software and IT tools to build a basic website	No change
ICAB4170B	Build a database	ICAB4170B	Build a database	No change
ICAB4171B	Develop cascading style sheets	ICAB4171B	Develop cascading style sheets	No change
ICAB4178B	Build a graphical user interface	ICAB4178B	Build a graphical user interface	No change
ICAB4219B	Apply introductory object-oriented	ICAB4219B	Apply introductory object-oriented	No change

ICA05 v2.0 units		ICA05 v3.0 units		Comment in relation to ICA05 Version 2.0
Code	Name	Code	Name	
	language skills		language skills	
ICAB4220B	Create scripts for networking	ICAB4220B	Create scripts for networking	No change
ICAB4222B	Apply introductory programming skills in another language	ICAB4222B	Apply introductory programming skills in another language	No change
ICAB4224B	Apply mathematical techniques for software development	ICAB4224B	Apply mathematical techniques for software development	No change
ICAB4225B	Automate processes	ICAB4225B	Automate processes	No change
ICAB4229B	Apply intermediate programming skills in another language	ICAB4229B	Apply intermediate programming skills in another language	No change
ICAB4232B	Maintain open source code programs	ICAB4232B	Maintain open source code programs	No change
ICAB4235B	Build basic perimeter security into a network	ICAB4235B	Build basic perimeter security into a network	No change
ICAB4236B	Build security into a virtual private network	ICAB4236B	Build security into a virtual private network	No change
ICAB4239B	Build a small wireless local area network	ICAB4239C	Build a small wireless local area network	ROV change
ICAB4240B	Build an enterprise wireless network	ICAB4240C	Build an enterprise wireless network	ROV change
		ICAB4247A	Link an RFID system to a database	New unit

ICA05 v2.0 units		ICA05 v3.0 units		
Code	Name	Code	Name	Comment in relation to ICA05 Version 2.0
ICAB5062 B	Perform data conversion	ICAB5062B	Perform data conversion	No change
ICAB5063 B	Monitor and support data conversion	ICAB5063B	Monitor and support data conversion	No change
ICAB5065 B	Prepare for the build phase	ICAB5065B	Prepare for the build phase	No change
ICAB5066 B	Coordinate the build phase	ICAB5066B	Coordinate the build phase	No change
ICAB5067 B	Prepare for software development using rapid application development	ICAB5067B	Prepare for software development using rapid application development	No change
ICAB5068 B	Build using rapid application development	ICAB5068B	Build using rapid application development	No change
ICAB5071 B	Review developed software	ICAB5071B	Review developed software	No change
ICAB5072 B	Develop integration blueprint	ICAB5072B	Develop integration blueprint	No change
ICAB5073 B	Pilot the developed system	ICAB5073B	Pilot the developed system	No change
ICAB5074 B	Monitor the system pilot	ICAB5074B	Monitor the system pilot	No change
ICAB5159 B	Build a security shield for a network	ICAB5159C	Build a security shield for a network	Minor changes to ROV and K&S
ICAB5160 B	Build and configure a server	ICAB5160C	Build and configure a server	Deleted incorrect prerequisite ICAS3120C
ICAB5161 B	Build a document using extensible mark-up language	ICAB5161B	Build a document using extensible mark-up language	No change

ICA05 v2.0 units		ICA05 v3.0 units		
Code	Name	Code	Name	Comment in relation to ICA05 Version 2.0
ICAB5162B	Install, configure and test a payment gateway	ICAB5162B	Install, configure and test a payment gateway	No change
ICAB5164B	Create a data warehouse	ICAB5164B	Create a data warehouse	No change
ICAB5165B	Create dynamic web pages	ICAB5165B	Create dynamic web pages	No change
ICAB5177B	Build Java applets	ICAB5177B	Build Java applets	No change
ICAB5179B	Build decks using wireless mark-up language	ICAB5179B	Build decks using wireless mark-up language	No change
ICAB5180B	Integrate database with a website	ICAB5180C	Integrate database with a website	Minor wording changes to K&S
ICAB5223B	Apply intermediate object-oriented language skills	ICAB5223B	Apply intermediate object-oriented language skills	No change
ICAB5226B	Apply advanced object-oriented language skills	ICAB5226B	Apply advanced object-oriented language skills	No change
ICAB5227B	Apply advanced programming skills in another language	ICAB5227B	Apply advanced programming skills in another language	No change
ICAB5228B	Maintain functionality of legacy code programs	ICAB5228B	Maintain functionality of legacy code programs	No change
ICAB5230B	Maintain custom software	ICAB5230B	Maintain custom software	No change
ICAB5237B	Build a high performance	ICAB5237B	Build a high performance	No change

ICA05 v2.0 units		ICA05 v3.0 units		Comment in relation to ICA05 Version 2.0
Code	Name	Code	Name	
	security perimeter		security perimeter	
ICAB5238B	Build a highly secure firewall	ICAB5238B	Build a highly secure firewall	No change
ICAD2003B	Receive and process oral and written communication	ICAD2003B	Receive and process oral and written communication	No change
ICAD2012B	Design organisational documents using computing packages	ICAD2012B	Design organisational documents using computing packages	No change
ICAD3218B	Create user documentation	ICAD3218B	Create user documentation	No change
ICAD4043B	Develop and present a feasibility report	ICAD4043B	Develop and present a feasibility report	No change
ICAD4190B	Maintain information standards	ICAD4190B	Maintain information standards	No change
ICAD4198B	Develop guidelines for uploading information to a website	ICAD4198B	Develop guidelines for uploading information to a website	No change
ICAD4209B	Write content for web pages	ICAD4209B	Write content for web pages	No change
ICAD4217B	Create technical documentation	ICAD4217B	Create technical documentation	No change
ICAD5092B	Update and document operational procedures	ICAD5092B	Update and document operational procedures	No change
ICAD5210B	Analyse information and assign meta-tags	ICAD5210B	Analyse information and assign meta-tags	No change

ICA05 v2.0 units		ICA05 v3.0 units		Comment in relation to ICA05 Version 2.0
Code	Name	Code	Name	
ICAI2015B	Install software applications	ICAI2015B	Install software applications	No change
ICAI3020B	Install and optimise operating system software	ICAI3020B	Install and optimise operating system software	No change
ICAI3021B	Connect internal hardware components	ICAI3021B	Connect internal hardware components	No change
ICAI3101B	Install and manage network protocols	ICAI3101B	Install and manage network protocols	No change
ICAI3110B	Implement system software changes	ICAI3110C	Implement system software changes	Minor ROV change
ICAI4029B	Install network hardware to a network	ICAI4029C	Install network hardware to a network	Minor ROV change
ICAI4030B	Install software to networked computers	ICAI4030B	Install software to networked computers	No change
ICAI4091B	Conduct post-implementation review	ICAI4091B	Conduct post-implementation review	No change
ICAI4097B	Install and configure a network	ICAI4097C	Install and configure a network	Minor ROV change
ICAI4099B	Build an intranet	ICAI4099B	Build an intranet	No change
ICAI4175B	Select and install a router	ICAI4175C	Select and install a router	Minor ROV change
ICAI4188B	Install and maintain a server	ICAI4188B	Install and maintain a server	No change
ICAI4189B	Ensure website content meets technical protocols	ICAI4189B	Ensure website content meets technical protocols	No change

ICA05 v2.0 units		ICA05 v3.0 units		Comment in relation to ICA05 Version 2.0
Code	Name and standards	Code	Name and standards	
		ICAI4244A	Install and maintain an RFID system	New unit
		ICAI4249A	Implement and evaluate data security	New unit
		ICAI4251A	Implement and evaluate network and telecommunication security	New unit
ICAI5085B	Review site in preparation for implementation	ICAI5085B	Review site in preparation for implementation	No change
ICAI5086B	Scope implementation requirements	ICAI5086B	Scope implementation requirements	No change
ICAI5087B	Acquire system components	ICAI5087B	Acquire system components	No change
ICAI5088B	Evaluate and negotiate vendor offerings	ICAI5088B	Evaluate and negotiate vendor offerings	No change
ICAI5089B	Implement and hand over system components	ICAI5089B	Implement and hand over system components	No change
ICAI5090B	Conduct pre-installation audit for software installation.doc	ICAI5090B	Conduct pre-installation audit for software installation.doc	No change
ICAI5096B	Complete data transition	ICAI5096B	Complete data transition	No change

ICA05 v2.0 units		ICA05 v3.0 units		Comment in relation to ICA05 Version 2.0
Code	Name	Code	Name	
ICAI5098B	Install and manage complex networks	ICAI5098C	Install and manage complex networks	ROV change
ICAI5100B	Build an internet infrastructure	ICAI5100C	Build an internet infrastructure	Deleted incorrect prerequisites ICAI13101B, ICAS3120C, ICAI4029C
ICAI5152B	Implement risk management processes	ICAI5152B	Implement risk management processes	No change
ICAI5172B	Implement backbone technologies in a local area network	ICAI5172B	Implement backbone technologies in a local area network	No change
ICAI5173B	Install and configure a single-segment local area network switch	ICAI5173B	Install and configure a single-segment local area network switch	No change
ICAI5174B	Install high-end switches in multi-switched local area networks	ICAI5174B	Install high-end switches in multi-switched local area networks	No change
ICAI5176B	Install and configure router	ICAI5176C	Install and configure router	Minor ROV change
ICAI5196B	Implement secure encryption technologies	ICAI5196B	Implement secure encryption technologies	No change
ICAI5197B	Install and maintain valid authentication processes	ICAI5197B	Install and maintain valid authentication processes	No change
ICAI5212B	Implement quality assurance process for websites	ICAI5212B	Implement quality assurance process for websites	No change

ICA05 v2.0 units		ICA05 v3.0 units		Comment in relation to ICA05 Version 2.0
Code	Name	Code	Name	
ICAI5216B	Monitor and improve knowledge management system	ICAI5216B	Monitor and improve knowledge management system	No change
		ICAI5250A	Develop, implement and evaluate system and application security	New unit
		ICAI5252A	Develop, implement and evaluate an incident response plan	New unit
		ICAI5253A	Implement and evaluate systems for regulatory and standards compliance	New unit
ICAI6187B	Implement change management processes	ICAI6187B	Implement change management processes	No change
ICAP4037B	Contribute to the development of a strategy plan	ICAP4037B	Contribute to the development of a strategy plan	No change
ICAP5036B	Determine appropriate IT strategies and solutions	ICAP5036B	Determine appropriate IT strategies and solutions	No change
ICAP5039B	Match IT needs with the strategic direction of the enterprise	ICAP5039B	Match IT needs with the strategic direction of the enterprise	No change
ICAP5155B	Plan process re-engineering strategies for business	ICAP5155B	Plan process re-engineering strategies for business	No change

ICA05 v2.0 units		ICA05 v3.0 units		Comment in relation to ICA05 Version 2.0
Code	Name	Code	Name	
ICAP6038B	Develop strategic and action plans	ICAP6038B	Develop strategic and action plans	No change
ICAP6040B	Develop contracts and manage contracted performance	ICAP6040B	Develop contracts and manage contracted performance	No change
ICAS1193B	Connect a workstation to the internet	ICAS1193B	Connect a workstation to the internet	No change
ICAS2008B	Maintain inventories for equipment, software and documentation	ICAS2008B	Maintain inventories for equipment, software and documentation	No change
ICAS2009B	Interact with clients	ICAS2009B	Interact with clients	No change
ICAS2010B	Apply problem solving techniques to routine malfunctions	ICAS2010B	Apply problem solving techniques to routine malfunctions	No change
ICAS2014B	Connect hardware peripherals	ICAS2014B	Connect hardware peripherals	No change
ICAS2016B	Record client support requirements	ICAS2016B	Record client support requirements	No change
ICAS2017B	Maintain system integrity	ICAS2017B	Maintain system integrity	No change
ICAS2243B	Detect and protect from spam and destructive software	ICAS2243B	Detect and protect from spam and destructive software	No change
		ICAS2248A	Protect and secure information assets	New unit
ICAS3024B	Provide basic system	ICAS3024B	Provide basic system	No change

ICA05 v2.0 units		ICA05 v3.0 units		Comment in relation to ICA05 Version 2.0
Code	Name	Code	Name	
	administration		administration	
ICAS3031B	Provide advice to clients	ICAS3031B	Provide advice to clients	No change
ICAS3032B	Provide network systems administration	ICAS3032B	Provide network systems administration	No change
ICAS3034B	Determine and action network problems	ICAS3034B	Determine and action network problems	No change
ICAS3115B	Maintain equipment and software in working order	ICAS3115B	Maintain equipment and software in working order	No change
ICAS3120B	Configure and administer a network operating system	ICAS3120C	Configure and administer a network operating system	Deleted incorrect prerequisite ICAS3024B
ICAS3121B	Administer network peripherals	ICAS3121B	Administer network peripherals	No change
ICAS3234B	Care for computer hardware	ICAS3234B	Care for computer hardware	No change
ICAS4022B	Determine and action client computing problems	ICAS4022B	Determine and action client computing problems	No change
ICAS4023B	Provide one-to-one instruction	ICAS4023B	Provide one-to-one instruction	No change
ICAS4033B	Assist with policy development for client support procedures	ICAS4033B	Assist with policy development for client support procedures	No change
ICAS4106B	Action and complete change requests	ICAS4106B	Action and complete change requests	No change
ICAS4107B	Manage resolution	ICAS4107B	Manage resolution	No change

ICA05 v2.0 units		ICA05 v3.0 units		Comment in relation to ICA05 Version 2.0
Code	Name	Code	Name	
	of system faults on a live system		of system faults on a live system	
ICAS4108B	Complete database back-up and recovery	ICAS4108B	Complete database back-up and recovery	No change
ICAS4109B	Evaluate system status	ICAS4109B	Evaluate system status	No change
ICAS4112B	Optimise system performance	ICAS4112B	Optimise system performance	No change
ICAS4113B	Identify and resolve common database performance problems	ICAS4113C	Identify and resolve common database performance problems	Some PC reworded
ICAS4114B	Implement maintenance procedures	ICAS4114B	Implement maintenance procedures	No change
ICAS4116B	Undertake capacity planning	ICAS4116B	Undertake capacity planning	No change
ICAS4119B	Monitor and administer system security	ICAS4119B	Monitor and administer system security	No change
ICAS4124B	Monitor and administer network security	ICAS4124B	Monitor and administer network security	No change
ICAS4125B	Monitor and administer a database	ICAS4125B	Monitor and administer a database	No change
ICAS4127B	Support system software	ICAS4127B	Support system software	No change
ICAS4134B	Provide first-level remote help desk support	ICAS4134C	Provide first-level remote help desk support	ROV change

ICA05 v2.0 units		ICA05 v3.0 units		Comment in relation to ICA05 Version 2.0
Code	Name	Code	Name	
ICAS4191B	Maintain website performance	ICAS4191B	Maintain website performance	No change
ICAS4200B	Monitor traffic and compile website traffic reports	ICAS4200B	Monitor traffic and compile website traffic reports	No change
ICAS4201B	Transfer content to a website using commercial packages	ICAS4201B	Transfer content to a website using commercial packages	No change
ICAS5102B	Establish and maintain client user liaison	ICAS5102B	Establish and maintain client user liaison	No change
ICAS5103B	Establish and maintain client user liaison during support activity	ICAS5103B	Establish and maintain client user liaison during support activity	No change
ICAS5104B	Determine maintenance strategy	ICAS5104B	Determine maintenance strategy	No change
ICAS5105B	Coordinate change requests	ICAS5105B	Coordinate change requests	No change
ICAS5111B	Review and manage delivery of maintenance services	ICAS5111B	Review and manage delivery of maintenance services	No change
ICAS5118B	Manage system security	ICAS5118C	Manage system security	ROV change
ICAS5122B	Identify and resolve network problems	ICAS5122C	Identify and resolve network problems	ROV change
ICAS5123B	Manage network security	ICAS5123C	Manage network security	ROV change

ICA05 v2.0 units		ICA05 v3.0 units		Comment in relation to ICA05 Version 2.0
Code	Name	Code	Name	
ICAS5192B	Configure an internet gateway	ICAS5192B	Configure an internet gateway	No change
ICAS5199B	Manage business websites and servers	ICAS5199B	Manage business websites and servers	No change
ICAS5202B	Ensure privacy for users	ICAS5202B	Ensure privacy for users	No change
ICAS5203B	Evaluate and select a web hosting service	ICAS5203B	Evaluate and select a web hosting service	No change
		ICAS6254A	Manage IT security	New unit
ICAT1206B	Check site security	ICAT1206B	Check site security	No change
ICAT3025B	Run standard diagnostic tests	ICAT3025B	Run standard diagnostic tests	No change
ICAT4183B	Confirm accessibility of website for people with special needs	ICAT4183B	Confirm accessibility of website for people with special needs	No change
ICAT4184B	Ensure site usability for full range of users	ICAT4184B	Ensure site usability for full range of users	No change
ICAT4185B	Create a website testing procedure	ICAT4185B	Create a website testing procedure	No change
ICAT4186B	Conduct operational acceptance tests of websites	ICAT4186B	Conduct operational acceptance tests of websites	No change
ICAT4194B	Ensure basic website security	ICAT4194B	Ensure basic website security	No change
ICAT4195B	Ensure dynamic website security	ICAT4195B	Ensure dynamic website security	No change
ICAT4221	Locate equipment,	ICAT4221B	Locate equipment,	No change

ICA05 v2.0 units		ICA05 v3.0 units		Comment in relation to ICA05 Version 2.0
Code	Name	Code	Name	
B	system and software faults		system and software faults	
ICAT4242B	Perform unit test for a class	ICAT4242B	Perform unit test for a class	No change
ICAT5077B	Develop detailed test plan	ICAT5077B	Develop detailed test plan	No change
ICAT5079B	Perform integration test	ICAT5079B	Perform integration test	No change
ICAT5081B	Perform systems test	ICAT5081B	Perform systems test	No change
ICAT5082B	Manage the testing process	ICAT5082B	Manage the testing process	No change
ICAT5083B	Develop and conduct client acceptance test	ICAT5083B	Develop and conduct client acceptance test	No change
ICAT5084B	Perform stress and load testing on integrated platform	ICAT5084B	Perform stress and load testing on integrated platform	No change
ICAU1128B	Operate a personal computer	ICAU1128B	Operate a personal computer	No change
ICAU1129B	Operate a word processing application	ICAU1129B	Operate a word processing application	No change
ICAU1130B	Operate a spreadsheet application	ICAU1130B	Operate a spreadsheet application	No change
ICAU1131B	Operate a database application	ICAU1131B	Operate a database application	No change
ICAU1132B	Operate a presentation package	ICAU1132B	Operate a presentation package	No change

ICA05 v2.0 units		ICA05 v3.0 units		
Code	Name	Code	Name	Comment in relation to ICA05 Version 2.0
ICAU1133B	Send and retrieve information using web browsers and email	ICAU1133B	Send and retrieve information using web browsers and email	No change
ICAU1204B	Locate and use relevant on-line information	ICAU1204B	Locate and use relevant on-line information	No change
ICAU1211B	Operate accounting applications	ICAU1211B	Operate accounting applications	No change
ICAU1213B	Conduct on-line transactions	ICAU1213B	Conduct on-line transactions	No change
ICAU1215B	Use personal productivity tool	ICAU1215B	Use personal productivity tool	No change
ICAU2005B	Operate computer hardware	ICAU2005B	Operate computer hardware	No change
ICAU2006B	Operate computing packages	ICAU2006B	Operate computing packages	No change Note: Equivalent to completion of: ICAU1129B ICAU1130B ICAU1131A
ICAU2007B	Maintain equipment and consumables	ICAU2007B	Maintain equipment and consumables	No change
ICAU2013B	Integrate commercial computing packages	ICAU2013B	Integrate commercial computing packages	No change
ICAU2231B	Use computer operating system	ICAU2231B	Use computer operating system	No change
ICAU3004	Apply occupational health and safety	ICAU3004B	Apply occupational health and safety	No change

ICA05 v2.0 units		ICA05 v3.0 units		Comment in relation to ICA05 Version 2.0
Code	Name	Code	Name	
B	procedures		procedures	
ICAU3019B	Migrate to new technology	ICAU3019B	Migrate to new technology	No change
ICAU3028B	Customise packaged software applications for clients	ICAU3028B	Customise packaged software applications for clients	No change
ICAU3126B	Use advanced features of computer applications	ICAU3126B	Use advanced features of computer applications	No change
ICAU4205B	Select and employ software and hardware tools	ICAU4205B	Select and employ software and hardware tools	No change
ICAU4207B	Apply web authoring tool to convert client data for websites	ICAU4207B	Apply web authoring tool to convert client data for websites	No change
ICAU5208B	Use site server tools for transaction management	ICAU5208B	Use site server tools for transaction management	No change
ICAW2001B	Work effectively in an IT environment	ICAW2001B	Work effectively in an IT environment	No change
ICAW2002B	Communicate in the workplace	ICAW2002B	Communicate in the workplace	No change
ICAW2011B	Work individually or as a team member to achieve organisational goals	ICAW2011B	Work individually or as a team member to achieve organisational goals	No change
ICAW4026B	Coordinate and maintain work teams	ICAW4026B	Coordinate and maintain work teams	No change
ICAW4027B	Relate to clients on a business level	ICAW4027B	Relate to clients on a business level	No change

ICA05 v2.0 units		ICA05 v3.0 units		Comment in relation to ICA05 Version 2.0
Code	Name	Code	Name	
ICAW4214B	Maintain ethical conduct	ICAW4214B	Maintain ethical conduct	No change

Explanation of the review date

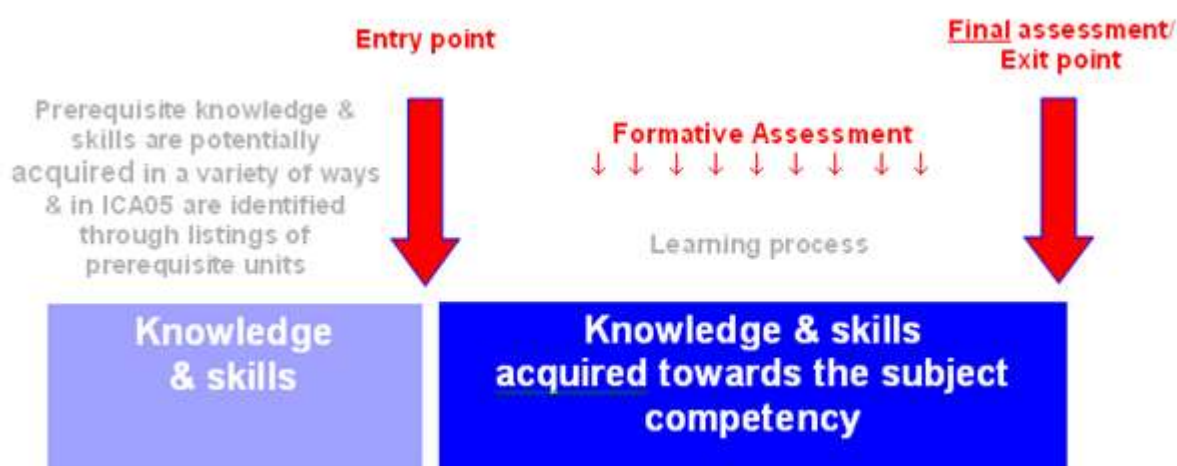
The review date (shown on the title page and in the footer of each page) indicates when the Training Package is expected to be reviewed in the light of changes such as changing technologies and circumstances. The review date is not an expiry date. Endorsed Training Packages and their components remain current until they are reviewed or replaced.

Note To User

Understanding ICA05 Units with Prerequisite, Concurrent and Linked Units

The ICA05 ICT Training Package contains a high proportion of complex and technical ICT units. In order to maximize the flexibility and opportunity for people to enter at appropriate points in the ICA05 Qualifications Framework, stakeholders asked that the prerequisite requirements for each unit be made clear. This section accordingly forms part of the guidance material in respect of those requirements. It is designed to explain the intention of and differences between prerequisite, concurrent and linked units in respect of any ICA05 unit.

All ICA05 units have the same basic structure but technical content, depth of guidance, level of complexity, extent of linkage with other units vary widely between individual units. For details of prerequisites on a unit by unit basis refer to the table later in this section. Individual ICA05 units contain the same plus some additional information.



The following unit of competency, *ICAB4219B Apply introductory object-oriented language skills* can be found in the new ICA05 Information and Communications Technology Training Package in the 'field' known as *Build*.

This particular unit has been selected as an exemplar for the purpose of explaining the intention and composition of particular components within ICA05 ICT Training Package units. The text is extracted from the *Build* unit.

Unit Code, Title and Field

ICAB4219B	Apply introductory object-oriented language skills
Field	Build

The unit titles in ICA05 have been constructed in such a way as to provide a short summary of the unit's primary focus. It is a unique code both within and across Training Packages.

The unit codes in ICA05 all share the same general structure and their unique construction has been explained earlier in this section.

Unit Descriptor, Prerequisite, Concurrent, Linked and Interdependent Units

Unit descriptor	This unit defines the competency required to undertake introductory programming tasks using an object-oriented programming language. Competency includes tool usage, documentation, debugging and testing techniques in support of the programming activities.
<i>(See Note 1 below)</i>	The following unit is a prerequisite for this competency: ICAB4225B Automate processes
<i>(See Note 2 below)</i>	There may be benefit in concurrent learning with the following units:

ICAB4224B Apply mathematical techniques for software development

(See Note 3 below) The following units are linked and form an appropriate cluster:

ICAA4058B Apply skills in object-oriented design

On the basis of industry feedback and provider experience, the success of the learning process associated with some units requires pre-existing skills and knowledge from another unit(s).

Note 1: Prerequisite Units

The ICT Training Package ICA05 contains a large number of technical units of competency particularly in higher level specialist qualifications. In a number of these cases, it may be difficult to achieve to a level of workplace technical competence without pre-existing competence in another unit.

Note 2: Concurrent Units

Similarly, on the basis of industry feedback and provider experience, the learning process associated with some units may benefit by concurrent learning of the skills and knowledge in another unit. These units are listed under the *Unit description* of each unit where relevant. See Note 2 above for an example of how this is expressed in the text of individual units. Their specification may assist individuals and training organisations in the planning and execution of training.

Note 3: Linked units

Some ICA05 units show linked or clustered units under the primary unit's descriptor. See Note 3. above for an example of how this is expressed in the text of individual units. The listing of such linked units indicates a potential relationship between the units and may provide some guidance to individuals and training organisations in the following ways:

Units which may have a degree of logical connection for example in the workplace

Identification of a 'natural cluster' of units to assist in elective or stream choice

Some commonality in underpinning skills and knowledge which may assist in the planning or structuring of the learning process

However, such information is merely provided by way of guidance, will vary in its relevance depending on the configuration of particular qualifications and is not designed to dictate elective choice. It should also be noted that listed linked units may not necessarily coincide with qualification electives lists even if the primary unit is a core. In this case where a client of the package chooses to activate the linkage between such units, the linked unit can be incorporated into a qualification through the electives "free choice" facility built into all ICA05 qualifications.

Employability Skills

A standard Employability Skills statement appears in each unit of competency. This statement directs trainers and assessors to consider the information contained in the Employability Skills Summary in which the unit of competency is packaged.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
Elements describe the essential outcomes of a unit of competency	Performance Criteria describe the required performance needed to demonstrate achievement of the element. Where italicised text is used, further information is detailed in the required skills and knowledge and/or the Range Statement. Assessment of performance is to be consistent with the Evidence Guide.
Apply basic language syntax and layout	1.1 Demonstrate understanding and application of basic language syntax rules and best practices 1.2 Select and use language data types, operators and expressions to create clear and concise code 1.3 Use the appropriate language syntax for sequence, selection and iteration constructs - Use a modular programming approach within member/function logic - Apply arrays, including arrays of objects to introductory programming tasks - Use standard array processing algorithms 1.4 Use the facilities of the language to read and write data from/to text files and record outcomes
Apply basic object-oriented principles in the target language	2.1 Implement a class that contains primitive member/instance variables 2.2 Implement a class that contains multiple options for object construction 2.3 Implement a class that uses user-defined aggregation (object instance/member variables) 2.4 Use the facilities provided in the language to implement inheritance to at least two levels of depth 2.5 Use polymorphism at a simple level through inheritance to enable easy extension of code

(Note: Elements 3–6 are not shown.)

The *Elements and Performance Criteria* of ICA05 units have been assembled in such a way as to express outcomes to a standard expected in the workplace. They provide a functional and task focus within each unit and express those benchmarks against which an individual's competence or otherwise will be measured and assessed. They have been written in the active voice and generally represent a logical flow of tasks and activities.

Unit Terminology

By its very technical nature, the ICT sector has spawned terminology that may have different meanings from that used in a non-ICT context. It is important to clearly establish the focus within each unit, using the *Range Statement* and *Variables* as starters. It is not feasible to publish or maintain an accurate and up to date glossary to cover all terminology within the ICT package. Accordingly, where further clarification or explanation of ICT terminology and concepts are required, it is suggested that package users consider accessing one of the excellent and up to date online web dictionaries and associated links. All common search engines provide a good starting point using their facility to ask ‘*What is XXX?*’

Range Statement, Variables and Scope

RANGE STATEMENT

The Range Statement contextualises the unit of competency and provides a focus for assessment. The information provided is intended to define the scope of assessment and to assist assessors define the performance to be achieved by an individual in the workplace. The Range Statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Italicised wording in the Performance Criteria is as follows.

VARIABLE

SCOPE

Integrated development environment	May include but is not limited to Visual C++, Visual Studio suite, Eclipse, J-Edit, Code Warrior, JBuilder
Document	May include internal program documentation, class diagrams
Reuse	Class design should lend itself to reuse through inheritance
Coding standards	May include Java coding standard, GNU coding standard
Language	May include but is not limited to Java, C++, Small Talk, VB.net, C#.net
Design specification	May include but is not limited to technical requirements, user problem statement, current system functionality
Standard array processing algorithms	May include but are not limited to search, insertion and deletion algorithms
Object-oriented design document	May include use-cases, class diagrams and supplementary specifications

Linkages between individual *Performance Criteria* and *Variables* are shown by italicised text. Generally, there is sufficient guidance provided in the *Scope* of each *Variable* within the *Range Statement*. However, because the ICT industry is changing rapidly and updated or new versions of commercial products (operating systems, software, applications etc) are released continuously, it may be important to consider other aspects relevant to the unit beyond those listed in *Scope*.

Under the provisions for unit contextualisation, training organisations may make amendments and additions to the *Range Statement* or add detail to the *Evidence Guide* so long as the inherent integrity of the unit's outcomes remains intact. This provides the opportunity to incorporate local requirements or to accommodate emerging or evolving technologies.

Evidence Guide and Critical Aspects of Evidence

EVIDENCE GUIDE

The Evidence Guide provides advice on assessment and must be read in conjunction with the Performance Criteria, required skills and knowledge, the Range Statement and the assessment guidelines for this Training Package.

Critical aspects of evidence Assessment must confirm that application programs are designed and built from a provided problem scenario and program specification.

Code documentation must be generated. Testing must be used to confirm that created application meets original specification and solves original problem.

Within the ICT Training Package each unit provides a statement of intent around those aspects of evidence (of competency) that must be covered and confirmed by assessment. These statements often include the expected end 'product' or outcome generated by the assessment process and suggestions around the assessment starting point e.g. an original specification or problem scenario. These 'benchmark' statements are designed to guide assessors in the planning, construction and execution of the competency assessment process.

Underpinning Knowledge and Skills

Knowledge and skills Knowledge includes:

- Object-oriented programming concepts
- Object-oriented programming language
- Small size application development
- Using a GUI to interact with operator

Skills include:

- Reading and interpreting program specifications
- Translating requirements from problem space to machine space
- Integrated development environment usage
- Programming techniques
- Internal (code) documentation techniques
- Debugging techniques
- Testing techniques
- Documentation techniques

Workplace competency requires the ability to apply relevant knowledge, skills and attitudes consistently over time and in the required workplace situations and environments.

Knowledge identifies what a person needs to know to perform the work in an informed and effective manner. *Skills* describe the application of that knowledge to situations where understanding is converted into a workplace outcome. Each ICA05 unit contains lists of required knowledge and skills that would be expected in an individual assessed as competent in the subject unit.

The content of these lists may be common or partially duplicated across a number of ICA05 related units. For example, within ICA05 the activity of ‘testing’ (software, website components etc) is a commonly applied skill; however there will be different levels of application depending on the particular unit to which this applies. Using the above example, a competent individual would be expected to have achieved and demonstrated a level of skill commensurate with this unit in the application of ‘Testing techniques’. The subject unit, *ICAB4219B Apply introductory object-oriented language* is a programming unit and is core at Certificate IV specifically, (ICA40505 Cert IV in IT [Programming]) in this package.

While at a broad level, ‘testing’ would appear to be similar across other units or other qualifications within the package, this is not the case. It is important to understand the context within which such a skill is applied. Drawing on the above example again, the level of expertise in ‘testing’ techniques may differ to other units in ICA05 despite them all referring to ‘testing’ techniques or skills, e.g.

ICAT4195B Ensure dynamic website security is also a core in an ICA05 Certificate IV qualification. However, its testing technique differs from the above with one of the skills areas listed as ‘auditing and penetration testing techniques’

ICAT5079B Perform integration test is also different in the composition of its underpinning skills which include static testing and the evaluation of system testing and best practice techniques. The application of testing techniques in this case is as a core unit at Diploma level.

Assessment Guidance

Assessment guidance

(See Note 4 below)

The purpose of this unit is to define the standard of performance to be achieved in the workplace. The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1.

Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency.

Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.

In the case of this unit, it could be assessed in a holistic manner with:

ICAA4058B Apply skills in object-oriented design

All units within ICA05 include some guidance on assessment. Some units contain more specific guidance than others, for example where there is a listing of other units that could form a holistic assessment process for the subject unit.

All unit-specific assessment guidance provided should be read in conjunction with whole of package assessment guidance contained elsewhere in Section 1. of this package. In the case of ICA05 there are specific sections relating to areas such as formative and summative assessment as well as the use of simulated environments for learning and assessment against this package.

Note 4: Holistic or interdependent assessment

The final reference to other units with the text of the primary unit may be contained in the *Evidence Guide* under the heading of *Assessment Guidance*. A number of ICA05 units include the following text where there is seen to be some benefit in a ‘holistic’ or interdependent assessment process.

In some cases, the unit listed may match a ‘linked’ unit as per Note 3. above, but not always. The purpose of this guidance to user of the package is to highlight the opportunities which may present for more holistic assessment (as distinct from perhaps single-unit, independent assessment). There may be a number of reasons why a unit is listed for potentially holistic assessment including:

Common underpinning knowledge or skills

Closely related outcomes, for example one unit logically flowing one to another

A degree of logic in grouping units for holistic assessment within the context of a project-oriented learning environment

Resources

Resources	To demonstrate competency in this unit the person will require access to: Software development environment Technical requirements

Each ICA05 unit provides some indication of the nature of resources required to teach and assess against the subject unit. These suggestions are by way of minimum needs and users of the package should consider developing a comprehensive list of resources appropriate for the circumstances of the individual and learning/assessment context. Considerations could include the location of training/assessment (workplace/classroom), the feasibility of accessing ‘live’ systems or cost of consumables. In some cases, the inadequacy of available resources may call into question an organisation’s ability to deliver and assess particular units of competency within this package.

Role Context

Role context Programming in object-oriented languages is a software development methodology that offers the programmer standard reusable software modules (components), rather than requiring the developer to write custom programming code each time. Using standard components reduces development time (because the writing and testing of those components has already been done by other programmers), and ensures a standard look and feel for programs using the same components. Object-oriented languages are an important feature of software development processes world-wide. The breadth, depth and complexity of knowledge and skills in this competency would cover a broad range of varied activities or application in a wider variety of contexts most of which are complex and non-routine. Leadership and guidance would be involved when organising activities of self and others as well as contributing to technical solutions of a non-routine or contingency nature.

Performance of a broad range of skilled applications including the requirement to evaluate and analyse current practices, develop new criteria and procedures for performing current practices and provision of some leadership and guidance to others in the application and planning of the skills would be characteristic.

Applications may involve responsibility for, and limited organisation of, others.

An individual demonstrating this competency would be able to:

- Demonstrate understanding of a broad knowledge base incorporating some theoretical concepts;
- Apply solutions to a defined range of unpredictable problems;
- Identify and apply skill and knowledge areas to a wide variety of contexts, with depth in some areas;
- Identify, analyse and evaluate information from a variety of sources;
- Take responsibility for own outputs in relation to specified quality standards;
- Take limited responsibility for the quantity and quality of the output of others.

The stages of the development methodology should be followed within the scope of a project or scenario, and the relevant supporting documentation produced.

Additionally, an individual demonstrating this competency would be able to:

- Understand a range of development object-oriented methodologies and their application
- Demonstrate theoretical knowledge of object-oriented language development
- Apply a methodology to a project or scenario
- Produce documentation required by the chosen methodology.

Role context statements within ICA05 units generally contain a mixture of descriptions which express:

The circumstances in which the particular competency or in some cases ‘natural clusters’ of units are used in the wider ICT industry environment; or

Descriptions around what an individual would be expected to do, their ‘level’ of operation or relative responsibilities for own or other’s outputs.

Overall these ‘outcomes’ statements provide a guide as to the level of complexity in task, management and contingency skills as well as the level of responsibilities of the workplace (including working with others) which are resident in the particular unit.

Overview

Overview

What is a Training Package?

A Training Package is an integrated set of nationally endorsed competency standards, assessment guidelines and Australian Qualifications Framework (AQF) qualifications for a specific industry, industry sector or enterprise.

Each Training Package:

- provides a consistent and reliable set of components for training, recognising and assessing people's skills, and may also have optional support materials
- enables nationally recognised qualifications to be awarded through direct assessment of workplace competencies
- encourages the development and delivery of flexible training which suits individual and industry requirements
- encourages learning and assessment in a work-related environment which leads to verifiable workplace outcomes.

How do Training Packages fit within the National Training Framework?

The National Training Framework is made up of the nationally agreed quality arrangements for the vocational education and training sector, the Australian Quality Training Framework 2007 (AQTF2007), and Training Packages endorsed by the National Quality Council (NQC).

How are Training Packages developed?

Training Packages are developed by Industry Skills Councils or enterprises to meet the identified training needs of specific industries or industry sectors. To gain national endorsement of Training Packages, developers must provide evidence of extensive research, consultation and support within the industry area or enterprise.

How do Training Packages encourage flexibility?

Training Packages describe the skills and knowledge needed to perform effectively in the workplace without prescribing how people should be trained.

Training Packages acknowledge that people can achieve vocational competency in many ways by emphasising what the learner can do, not how or where they learned to do it. For example, some experienced workers might be able to demonstrate competency against the units of competency, and even gain a qualification, without completing a formal training program.

With Training Packages, assessment and training may be conducted at the workplace, off-the-job, at a training organisation, during regular work, or through work experience, work placement, work simulation or any combination of these.

Who can deliver and assess using Training Packages?

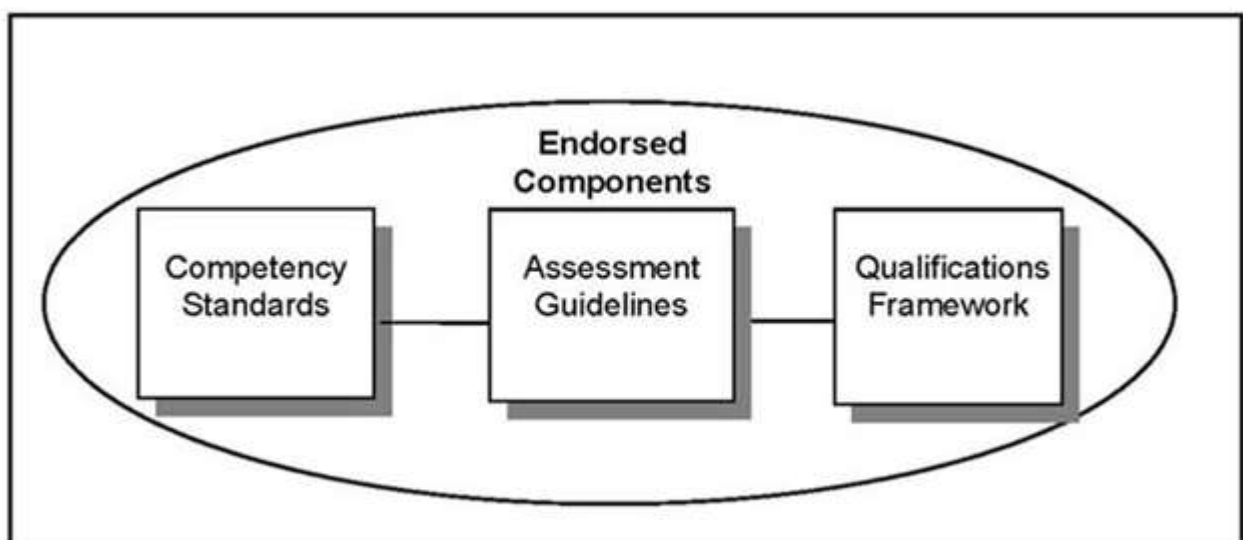
Training and assessment using Training Packages must be conducted by a Registered Training Organisation (RTO) that has the qualifications or specific units of competency on its scope of registration, or that works in partnership with another RTO as specified in the *AQTF2007 Standards for Registered Training Organisations*.

Training Package Components

Training Packages are made up of mandatory components endorsed by the NQC, and optional support materials.

Training Package Endorsed Components

The nationally endorsed components include the Competency Standards, Assessment Guidelines and Qualifications Framework. These form the basis of training and assessment in the Training Package and, as such, they must be used.



Competency Standards

Each unit of competency identifies a discrete workplace requirement and includes the knowledge and skills that underpin competency as well as language, literacy and numeracy; and occupational health and safety requirements. The units of competency must be adhered to in training and assessment to ensure consistency of outcomes.

Assessment Guidelines

The Assessment Guidelines provide an industry framework to ensure all assessments meet industry needs and nationally agreed standards as expressed in the Training Package and the *Standards for Registered Training Organisations*. The Assessment Guidelines must be followed to ensure the integrity of assessment leading to nationally recognised qualifications.

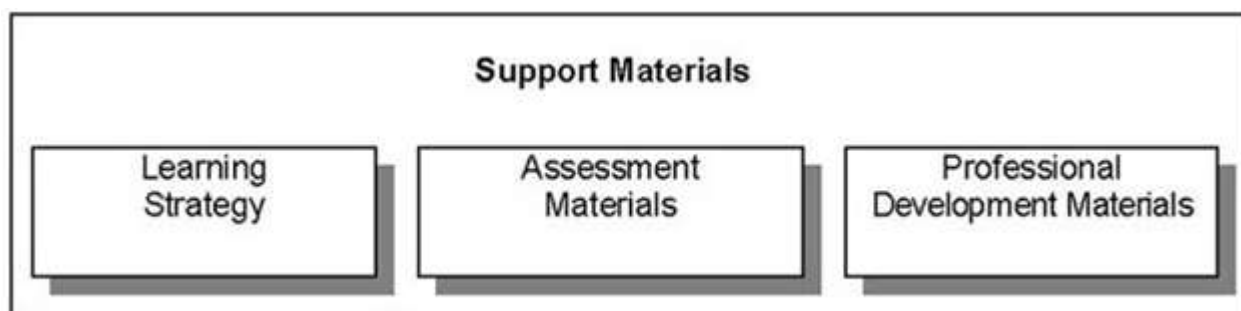
Qualifications Framework

Each Training Package provides details of those units of competency that must be achieved to award AQF qualifications. The rules around which units of competency can be combined to make up a valid AQF qualification in the Training Package are referred to as the "packaging rules". The packaging rules must be followed to ensure the integrity of nationally recognised qualifications issued.

Training Package Support Materials

The endorsed components of Training Packages are complemented and supported by optional support materials that provide for choice in the design of training and assessment to meet the needs of industry and learners.

Training Package support materials can relate to single or multiple units of competency, an industry sector, a qualification or the whole Training Package. They tend to fall into one or more of the categories illustrated below.



Training Package support materials are produced by a range of stakeholders such as RTOs, individual trainers and assessors, private and commercial developers and Government agencies.



Where such materials have been quality assured through a process of 'noting' by the NQC, they display the following official logo. Noted support materials are listed on the National Training Information Service (NTIS), together with a detailed description and information on the type of product and its availability (www.ntis.gov.au).

It is not compulsory to submit support materials for noting; any resources that meet the requirements of the Training Package can be used.

Training Package, Qualification and Unit of Competency Codes

There are agreed conventions for the national codes used for Training Packages and their components. Always use the correct codes, exactly as they appear in the Training Package, and with the title always following the code.

Training Package Codes

Each Training Package has a unique five-character national code assigned when the Training Package is endorsed, for example ICA05. The first three characters are letters identifying the Training Package industry coverage and the last two characters are numbers identifying the year of endorsement.

Qualification Codes

Within each Training Package, each qualification has a unique eight-character code, for example ICA10105. The first three letters identify the Training Package; the first number identifies the qualification level (noting that Arabic numbers are not used in qualification titles themselves); the next two numbers identify the position in the sequence of the qualification at that level; and the last two numbers identify the year in which the qualification was endorsed. (Where qualifications are added after the initial Training Package endorsement, the last two numbers may differ from other Training Package qualifications as they identify the year in which those particular qualifications were endorsed).

Unit of Competency Codes

Within each Training Package, each unit of competency has a unique code. The unit of competency codes are assigned when the Training Package is endorsed, or when new units of competency are added to an existing endorsed Training Package.

A typical code is made up of 12 characters, normally a mixture of uppercase letters and numbers, as in ICAA4041C Determine and confirm client business expectations and needs. The first three characters signify the Training Package (ICA05 Information and Communications Training package in the above example) and up to eight characters, relating to an industry sector, function or skill area, follow. The last character is always a letter and identifies the unit of competency version. The A in the example above indicates that this is the original unit of competency. An incremented version identifier usually means that minor changes have been made. Typically this would mean that wording has changed in the range statement or evidence guide, providing clearer intent. Where changes are made that alter the outcome, a new code is assigned and the title is changed.

Training Package, Qualification and Unit of Competency Titles

There are agreed conventions for titling Training Packages and their components. Always use the correct titles, exactly as they appear in the Training Package, and with the code always placed before the title.

Training Package Titles

The title of each endorsed Training Package is unique and relates the Training Packages broad industry coverage.

Qualification Titles

The title of each endorsed Training Package qualification is unique. Qualification titles use the following sequence:

- firstly, the qualification is identified as either Certificate I, Certificate II, Certificate III, Certificate IV, Diploma or Advanced Diploma
- this is followed by the words "in" for Certificates I to IV and "of" for Diploma and Advanced Diploma
- then the industry descriptor follows, for example Telecommunications, and
- if applicable, the occupational or functional stream follows in brackets, for example (Computer Systems).

For example:

- ICA10105 Certificate I in Information Technology

Unit of Competency Titles

Each unit of competency title is unique. Unit of competency titles describe the competency outcome concisely, and are written in sentence case.

For example:

- ICAA4041C Determine and confirm client business expectations and needs

History of Responsible Organisations

Over time, those organisations with responsibility for ICT Training Packages have changed. The following provides a snapshot of governance arrangements:

Training Package	Date	Organisation
Information Technology Client Support Training Package ICA98	1998	IT ITAB
Information Technology Training Package ICA99	May 1999	InfoComp
Information Technology Training Package ICA99	August 1999	InfoComp
Information Technology Training	November 2001	IT&Titab

Package ICA99		
Information Technology Training Package ICA99	April 2002	IT&Titab
Information Technology Training Package ICA99 revision	June 2003	IT Skills Hub
Information Technology Training Package ICA99 (under revision) <i>and</i> Information and Communications Technology Training Package ICA05 (proposed)	July 2004	Innovation & Business Skills Australia (IBSA)
ICA05 Information and Communications Technology Training Package	November 2005	Innovation & Business Skills Australia (IBSA)

Scope and Coverage of ICA05

This Training Package is titled Information and Communications Technology (ICT) in recognition of the broad scope of its industry application and also the convergent nature of its own and related technologies. The predecessor package was titled Information Technology (IT). While the package itself is ICT, the qualifications titles have retained their IT nomenclature in recognition of the particular characteristics of the IT training marketplace.

Australia is experiencing major changes in its workforce. These changes are around the ageing population and the impact this will have in the next 5, 10 and 20 years as well as issues around outsourcing and off shoring of ICT service provision and product development. These changes will have a major impact on all industry sectors including ICT and the education and training industry itself.

The ICT workforce falls into two broad categories: the ICT specialist and the ICT user (these categories range from basic to advanced users and whose level of ICT skill requirement will vary depending on their particular work role).

The credibility of both specialist and user ICT education and training will be directly related to the demonstration of its industry-led nature, the opportunities for business and individuals to grow through attaining ICT skills and credibility and currency of training attained through the specification of its relationship with vendor certifications and more 'global' skills frameworks.

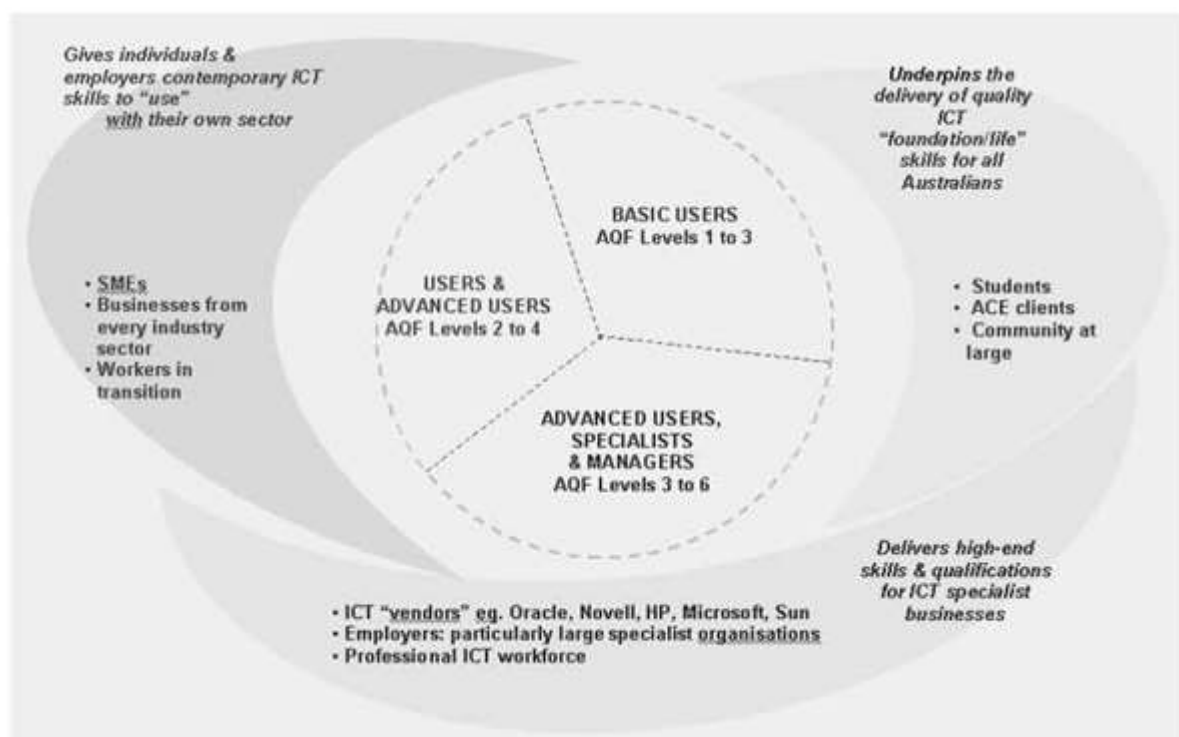
ICT underpins all Australian industries and helps businesses and individuals achieve national objectives, including:

- Progress towards a knowledge-based nation
- Innovation and education as economic drivers
- Enhanced employability through transferable knowledge and skills

- Access to and use of the information economy
- ICT resources pool to underpin a strong, vibrant ICT industry.

ICA05 ICT Training Package: Impact and Influence

Similarly, the ICA05 Training Package's impact and influence spans all industry sectors by virtue of its coverage of 'user' level foundation ICT skills through 'advanced' users/ICT enabled industries to the specialist ICT technical workforce (including in Higher Education). The following diagram is based on the ICT industry's analysis of the Australian ICT workforce, which roughly split the workforce into three equal portions of 'support' jobs, 'ICT industry' jobs and ICT jobs in 'other' industries.



List of AQF Qualifications

Extensive review of ICA99 Version 3.0 qualifications resulted in the development of all new qualifications for ICA05. While some titles remained the same or similar, the configuration and unit content of each qualification is substantially different.

The enhancement of ICA05 undertaken in 2008 resulted in the updating of many of the qualifications and the addition of a new qualification in E-security.

The 23 qualifications that make up the ICA05 Version 3.0 Training Package are listed below. They are more fully described later in *Qualifications Framework*.

1. ICA10105 Certificate I in Information Technology
2. ICA20105 Certificate II in Information Technology

3. ICA30105 Certificate III in Information Technology
4. ICA40105 Certificate IV in Information Technology (General)
5. ICA40205 Certificate IV in Information Technology (Support)
6. ICA40305 Certificate IV in Information Technology (Websites)
7. ICA40405 Certificate IV in Information Technology (Networking)
8. ICA40505 Certificate IV in Information Technology (Programming)
9. ICA40605 Certificate IV in Information Technology (Testing)
10. ICA40705 Certificate IV in Information Technology (Systems Analysis and Design)
11. ICA40805 Certificate IV in Information Technology (Multimedia)
12. ICA50105 Diploma of Information Technology (General)
13. ICA50205 Diploma of Information Technology (Project Management)
14. ICA50305 Diploma of Information Technology (Systems Administration)
15. ICA50405 Diploma of Information Technology (Networking)
16. ICA50505 Diploma of Information Technology (Database Design and Development)
17. ICA50605 Diploma of Information Technology (Website Development)
18. ICA50705 Diploma of Information Technology (Software Development)
19. ICA50805 Diploma of Information Technology (Systems Analysis and Design)
20. ICA50905 Diploma of Information Technology (Multimedia)
21. ICA60105 Advanced Diploma of Information Technology
22. ICA60208 Advanced Diploma of Information Technology (Network Security)
23. ICA60308 Advanced Diploma of Information Technology (E-security)

ICA05 Information and Communications Technology Training Package Version 3.0 Units of Competency

Below is a brief overview of all units that comprise ICA05.

All units within ICA05 fall into one of three categories:

- 'Old' ICA99 Version 3.0 units that have been revised
- New ICA05 units that were developed in the course of the review for Version 1.0
- New ICA05 units that were developed in the course of the review for Version 3.0 which include 7 E-security units and 4 RFID units

Additionally, it should be noted that a small number of 'old' ICA99 units have either been deleted and replaced with new, or deleted and not replaced. Neither of these types of units appear in this Training Package.

All ICT units in ICA05 are clustered with like units into 1 of 9 'fields' as follows:

- Analyse and Design

- Build
- Documentation
- Implement
- Strategy Planning
- Support
- Team Work
- Test
- Use.

The predecessor ICA99 Training Package Version 3.0 contained 219 units of competency plus 109 imported units. The ICA05 Training Package includes 240 units and the published titles, descriptor and elements of 90 imported units.

The difference in unit numbers is not a simple plus and minus but rather a complex configuration of changes resulting from aggregation, disaggregation, deletions and additions of new units. From a base of 219, 18 units were deleted outright and 28 units were added to equal 229 ICA05 units in Version 1.0. In Version 3.0 an additional 7 E-security units and 4 RFID units were added bringing the total to 240 units.

The specification and handling of prerequisites in predecessor Training Packages was less clear than appropriate for implementation. Considerable effort has been made to ensure that users of ICA05 have clear guidance in respect of prerequisites. There are a number of places where this information can be found in Section 1, as well as in the text of each unit where requisites apply. Guidance in respect of imported units should be sought from the appropriate custodian of the originating Training Package.

Imported Units

The imported units included in this package have been imported without change and have retained their originating Training Package codes and titles. These units are available on the NTIS website (www.ntis.gov.au). Further information about both ICA05 and imported units (summary table) is included.

ICA05 developers approached the issue of imported units from several perspectives:

- Were the previously imported units serving industry well in the context of the ICT Training Package?
- Would a 'free choice' option for electives choice be better than a specified 'electives list'?
- Had they changed (and therefore were less appropriate)?
- Could some imported units be used to overcome deficiencies in ICT units or be used where there was need but no development monies available?

The resultant imports were considered to more effectively meet the new configurations of ICT qualifications which in turn reflected stakeholders concerns with some earlier qualifications as well as satisfying contemporary industry needs.

Several suites of units have been retained such as in the areas of e business and creative design and multimedia while the package has imported some project management units from different packages based on better 'fit' with proposed qualifications.

Units have been imported from the following packages:

- BSB01 Business Services
- BSB07 Business Services
- CUF01 Film, TV, Radio and Multimedia
- CUF07 Screen and Media
- CUS01 Music
- CUV03 Visual Arts, Craft and Design
- ICP05 Printing and Graphic Arts
- ICT02 Telecommunications
- PRS03 Asset Security
- PSP04 National Public Services
- TAA04 Training and Assessment

When accessing imported units of competency users are advised to check with the host Industry Skills Council or the NTIS (<http://www.ntis.gov.au>) to ensure the most current version is being used.

Additionally, a number of skills areas of interest to ICT employers have been handled in a different way. Rather than directly importing large numbers of units in some lesser fields, ICA05 has specifically referenced clusters of units from a number of other packages as possible selections as part of the 'free choice' option for selecting electives in ICA05. Some areas covered include innovation, training, small to medium enterprises (SMEs), sales and marketing and project management.

Mapping of Qualifications

Extensive review of the 34 qualifications in ICA99 Version 3.0 had resulted in the development of 22 new qualifications for ICA05 Version 1.0. While some titles were the same or similar, the configuration and unit content of each qualification was substantially different and the 22 qualifications that made up ICA05 Version 1.0 were complete revisions. RTOs that have been delivering qualifications from ICA99 Version 3.0 will need to review the changes carefully as an improved degree of robustness has been introduced in most of the new qualifications.

In addition to other changes to qualifications that have been applied to ICA05 Version 3.0, a new Advanced Diploma in E-security is now included in the Training Package.

The relationships between qualifications in ICA99 Version 3.0 and this package are more fully described later in the Qualifications Framework. The primary changes between qualifications in the two packages includes:

- Retitling and coding
- Overall reduction in number of qualifications
- Rationalisation of all content and unit configurations
- Enhanced clarity around prerequisite
- Expanded descriptors and job role information

- Enhanced flexibility in electives choice with generally a higher proportion of non-ICA05 units possible
- Incorporation of some 'common' units across most or all qualifications at the same level
- Enhanced guidance in respect of preferred sources of electives
- The use of 'streams' within some qualifications and 'natural clusters' of units to highlight potential vocational specialties

The following table shows the numbers of qualifications between ICA99 Version 3.0 and ICA05 Training Packages.

Qualification	ICA99 Version 3.0 (no.)	ICA05 Versions 1 and 2 (no.)	ICA05 Version 3.0 (no.)
Certificate I	2	1	1
Certificate II	2	1	1
Certificate III	3	1	1
Certificate IV	11	8	8
Diploma	11	9	9
Advanced Diploma	5	2	3
TOTAL QUALIFICATIONS	34	22	23

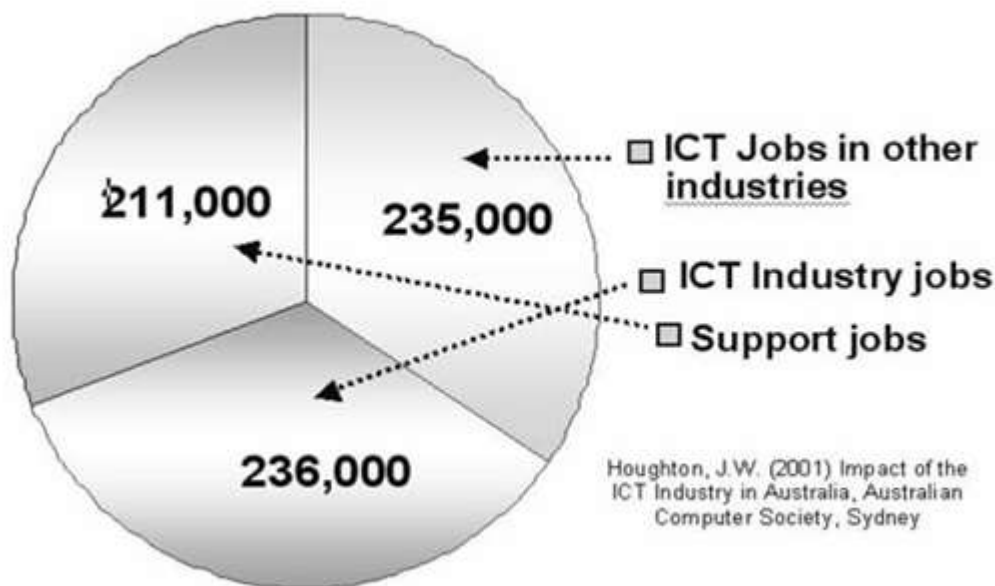
Introduction

Introduction

Introduction to the ICA05 Information and Communications Technology Training Package

ICT as a 'Broader' Industry Sector

Expanding on the theme of a wider than ICT specialist industry, the following diagram, while designed to 'classify' Australia's ICT workforce, also serves the purpose of identifying those broad segments of businesses that make up the Australian ICT 'industry'.



The traditional notion of Information and Communications Technology (ICT) as an individual and separate industry holds less true in 2005 as ICT skills are increasingly being used across all industries and society in general.

The European Commission descriptions of the ‘industry’ broadly matches the above ACS workforce classifications as follows:

‘Core IT&T Industries’ (viz ICT Industry jobs), for whom development and manipulation of IT&T/ICT are their principle activities. These are businesses involved in hardware and component manufacturing, software development, provision of computer services, system design, architecture and maintenance, communications services and communications equipment manufacturing and maintenance.

‘Information Society industries’ or ‘Enabled industries’ (viz ICT Jobs in other industries), such as multimedia enterprises, contact centres and online publishers that use IT&T/ICT as enablers for their businesses. These new industries have and are developing on the back of emerging enabling technologies.

‘The Information Society’ (viz and Support jobs plus the community at large) constitutes people and businesses that make use of information technology but do not deal in ICT themselves. These are all industries that increasingly use ICT for productivity improvement and sustainable economic success. Small to Medium Enterprises (SMEs) are accelerating the use of ICT technologies to enhance and operate their businesses. Additionally, all members of society, whether in paid employment or not, are increasingly requiring ICT user skills to enable engagement in the information society.

ICT has become truly ‘all pervasive’ and is fast becoming the ‘new literacy’ as ICT competencies are increasingly necessary for profitability in business and survival in society.

The ICT Training Package seeks to address the ICT skill requirements of all these components in the ICT industry as expressed in the following table:

Qualification	Workforce Activity	Examples of Primary Targets
Advanced Diploma	ICT Advanced specialists ICT Managers	Discipline transfer HE graduates VET Dip graduates
Diploma	ICT 'junior' managers ICT specialists	HE graduates/VET cert graduates Existing ICT workforce Overseas market/school leavers
Certificate IV	ICT 'junior' specialists Advanced ICT users	VET Cert graduates Existing ICT workers School leavers
Certificate III	Advanced users Basic ICT users	Existing non-ICT workforce School students ACE clients
Certificate II	Basic ICT users	Government programs School students ACE clients
Certificate I	Basic ICT users	Government programs School students Ace clients

Outcomes of the ICA99 review (in brief)

The work undertaken as part of the review of ICA99 Version 3.0 was focused on reviewing and revising rather than redeveloping the package. Resource constraints required the reviewers to focus on the contracted deliverables that in turn were based on the Bowles report plus particular matters raised by ANTA. The extensive program of scoping and new unit development previously highlighted in earlier 'new work' submissions did not form part of this project. However, as part of reviewing the package considerable new units were developed and extensive guidance materials produced beyond those contracted.

Units

The predecessor Training Package ICA99 Version 3.0 contained 219 units of competency plus 109 imported units. From a base of 219, 18 units were deleted outright leaving 201; then 28 units were added to equal the final 229 ICT units. The 201 ICT units have been substantially revised. The ICA05 Training Package now includes 240 'ICT' units and the published titles, descriptor and elements of 90 imported units. Details regarding ICA05 and imported units can be found further in Competency Standards.

The 28 new units are predominantly ICT specialist units in either software development, programming languages, mathematical techniques and process automation, with a small number of security and wireless units. Some additional units at mid level were also developed for fault finding, equipment care, testing and user/technical documentation. An additional unit for the package's suite of ICT 'foundation' skills introduces a spam and virus detection and protection unit for the first time. caused by use of ICT units in core of qualifications across multiple qualification 'levels'.

Enhancements to the Training Package in Version 3.0

A scoping project completed in July 2006 established a number of changes required for E-Security and Radio Frequency Identification (RFID). This project developed specialised units in E-security and RFID.

In June 2007, IBSA commenced a project to develop specialised units and qualifications for inclusion in the ICA05 Information and Communications Technology Training Package.

Additionally, the 2007 enhancement project also addressed other issues that were seen as timely, ie:

- the clarification of prerequisite units and removal of co-requisite units in ICA05 , and
- update of ICA05 units to meet emerging needs surrounding New Generation Networks and/or Wireless Broadband.

As a result of the development of 4 new RFID units and 7 new E-security units, revisions were undertaken to the qualifications in ICA05 as follows:

- adding of a security unit, ICAS2248A Protect and secure information assets to the electives list of *ICA20105 Certificate II in Information Technology*
- adding security and RFID units to the Networking electives of *ICA40105 Certificate IV in Information Technology (General)*
- adding security and RFID units to the electives of *ICA40405 Certificate IV in Information Technology (Networking)*
- adding security and RFID units to the Networking electives of *ICA50105 Diploma of Information Technology (General)*
- adding security and RFID units to the electives of *ICA50405 Diploma of Information Technology (Networking)*

- adding security units to streams in ICA60108 Advanced Diploma of Information Technology
- adding security and RFID units to the electives in *ICA60208: Advanced Diploma of Information Technology (Network Security)*.
- Also, new qualification *ICA60308: Advanced Diploma of Information Technology (E-Security)* was added.

Diversity, Equity and Accessibility

In 2001, ANTA introduced an equity evaluation service, the purpose of which has been to assess how well training packages meet the needs of equity groups, particularly people with a disability and Indigenous Australians and to make recommendations to improve the accessibility of packages. This service was commissioned as a result of a taskforce recommendation to the ANTA Ministerial Council to establish an equity advisory service that would assist training package developers and reviewers to enhance opportunities for equity groups.

In conjunction with equity reviews undertaken on behalf of ANTA by J&S Learningwork Pty Ltd at two points during the Training Package Review process, diversity, equity and accessibility principles have been considered in the revision of ICA99 and where appropriate, incorporated into the content of ICA05. Comprehensive guidance on equity and related matters has been included in Assessment Guidelines and there have been changes incorporated into a number of qualifications and also within individual units where appropriate.

Additionally, the ICA05 package contains specific ICT units which deal with the practicalities of ICT ‘user’ accessibility, for example, *ICAT4183B Confirm accessibility of website for people with special needs* which forms part of the suite of core/elective units within a number of ICA05 design and development-oriented qualifications.

Australian and International Standards

The ICT sector increasingly operates under the auspices of a variety of international ‘standards’. Units within the ICA05 Training Package contain regular reference to a number of these standards and the bodies that develop, revise and administer them. The following provides an overview of these bodies and their charters.

Standards Australia (AS)

Standards Australia is a leading standards development organization and is recognised internationally as a leader in the facilitation of standardization solutions and as one of Australia’s leading technical and business innovators. It has strong involvement with international standardization in both the technical and policy areas of the International Organization for Standardization (ISO) and the International Electrotechnical Commission (IEC). It is Australia’s representative on both these organizations.

Standards Australia has standards for Communications, ICT & Ecommerce that aim to deliver services that maximise business benefits across a broad range of projects including:

- e-business interoperability;

- SME toolkit and supply chain messaging;
- communications cabling;
- broadcasting and relating services;
- financial transaction security;
- tele-health/tele-working;
- electromagnetic compatibility; and
- national ticketing and tolling infrastructure.

Some of the ICT standards and guidelines published by Standards Australia and of relevance to units in this package include:

- AS/NZS 17799:2001 Code of practice for information security management
- HB 240:2000 Guidelines for managing risk in outsourcing using the AS/NZS 4360 process
- AS/NZS ISO/IEC Standard 12207:1997 ‘ Information technology - Software life cycle processes’
- Draft Australian Standard, titled DR 04198 Corporate governance of information and communication technology
- HB171:2003 Guidelines for the management of ICT evidence. These are new national guidelines designed to help organisations combat electronic crime following widespread concerns among business, government, law enforcement and the legal profession about the forensic status of computer-generated evidence. The guidelines will establish a benchmark for the preservation and collection of evidence in digital form, to support the development of evidentiary legal Standards.
- Other standards that document good practice in the areas of risk management (AS 4360), knowledge management (HB275) and now corporate governance (AS 8000, AS 8001, AS8002, AS8003, AS8004) are also available.
- A new guideline is currently under development to address governance and management of information technology systems and projects. Associated standards will assist senior office holders at the board level, to meet their obligations in controlling how ICT systems support the organisation.

For further information on Standards Australia and its policies and processes visit:
<http://www.standards.org.au>

International Organization for Standardization (ISO)

The International Organization for Standardization (ISO) is a worldwide federation of national standards bodies from some 130 countries. There is one standards body from each country and it was established in 1947.

The mission of ISO is to promote the development of standardization and related activities in the world with a view to facilitating the international exchange of goods and services, and to developing cooperation in the spheres of intellectual, scientific, technological and economic activity.

The ISO’s work results in international agreements which are published as International Standards. A number of ISO standards are referenced in ICA05 units.

International Electrotechnical Commission (IEC)

Founded in 1906, the International Electrotechnical Commission (IEC) is the world organization that prepares and publishes international standards for all electrical, electronic and related technologies. The IEC was founded as a result of a resolution passed at the International Electrical Congress held in St Louis (USA) in 1904. The membership consists of more than 50 participating countries, including all the world's major trading nations and a growing number of industrializing countries.

The IEC's mission is to promote, through its members, international cooperation on all questions of electrotechnical standardisation and related matters, such as the assessment of conformity to standards, in the fields of electricity, electronics and related technologies.

Vendor Certification and Industry Standards

The ICT industry has a long history of training people to work in and with those technologies, products and services that have been designed, developed and marketed by specialised ICT vendors and suppliers. The latter are leaders in setting the standards and protocols that others use as platforms to build their own value adding products and services. The global market for certification training is currently over \$2 billion, which indicates the significance placed on this aspect of the ICT industry.

Vendor training is recognised internationally as an industry benchmark for product specific training. The independent certification offered as an adjunct to the vendor training process provides the ICT industry with confidence in people who successfully complete the training. The world wide global quality assurance mechanisms are these certification examinations that include generic and vendor specific product content based on the standards set by vendors. The training component is produced at the same time that ICT products are developed and the resultant courses offer short product specific just-in-time training.

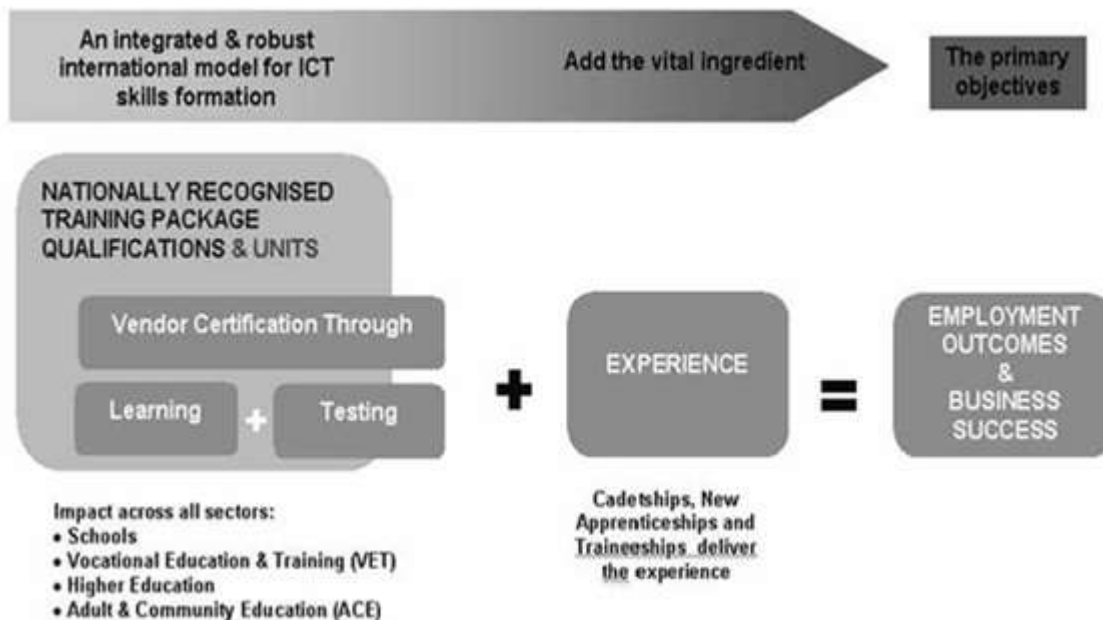
Vendor training can be incorporated into a number of ICT Training Package qualifications and the Registered Training Organisation (RTO) has a great deal of flexibility in the mix of qualifications and training that can be linked together. The bulk of the ICT specialist workforce for whom vendor certification is important tend to be around the Certificates III, IV and Diploma levels.

A learner that complements a vendor training with a qualification should be able to demonstrate both technical and interpersonal skills. These are the very attributes that will make them an effective and useful employee. Vendor and industry certifications are highly valued by ICT employers and generally improve employment and advancement opportunities for individuals in specialist roles.

More recently, a number of global ICT associations have emerged who, with the assistance of vendors, have developed product or 'vendor-neutral' neutral certifications that may be recommended or required as prerequisites for some product-specific certifications. These ICT industry associations and some vendors also cater for the general application 'users' of ICT that fall predominantly into the Certificates I, II and III levels.

Linkages between Vendor and Nationally Recognised Training

The desire to establish robust and defensible linkages is driven by employment outcomes and business success (through appropriately skilled employees). An overview of the conceptual employment model that incorporates both vendor training and recognised VET training pathways as well as ‘experience’ is shown below.



Linking global certifications to the Australian VET system has been a constant challenge for all stakeholders. The rapid and regular change in ICT product lines and the specialised labour resource required to develop ‘mapping’ reports between the two training systems creates real difficulty in establishing and maintaining the relationship.

The concept adopted by the IT&Titab (predecessor organisation to the IT Skills Hub) and developed as support material for earlier ICT Training Packages, called ‘Double Standards’ recognised the value of achieving better employment outcomes for learners and the impact of vendor training on qualifications in the package. The primary philosophy underpinning this concept of ‘Double Standards’ was that it was feasible to ‘map’, analyse and relate the respective outcomes of training from the two systems. In doing so, RTOs can make judgments about relative outcomes, gaps in individual skills and the potential for integrating and therefore awarding ‘dual’ awards, a nationally recognised qualification and vendor certification.

There are two main ways that the RTOs use the information provided by vendor mapping reports:

1. Recognition of Prior Learning (RPL) where the RTO may be enrolling learners who have successfully completed vendor training and now wish to achieve a specific qualification. For example, a learner who has an MSCE certification and wants a Diploma in Network Management; and

2. Issue of dual qualifications where the RTO may decide to run a training program that on completion provides the learner with both vendor training/certification and a Training Package qualification.

Units and qualifications within the Training Package reflect workplace outcomes that are meaningful to the industry generally, yet offer flexibility to meet the needs of enterprises and individuals. To obtain ICA05 qualifications, learners need to demonstrate competence in a range of fields and generally across multiple systems and platforms.

- Technical skills
- Interpersonal skills
- Business communications skills
- Business skills
- Project management

Some technical skills may be acquired through specific vendor training. However, the scope and range of variables may require familiarity with more than one platform or environment. This introduces a degree of flexibility, which means that similar training programs offered by different vendors can be incorporated into the same qualification. The only difference will be that one qualification will focus on one vendor product and another may focus on an alternative vendor product.

It should be noted that none of the prevailing vendor programs mapped against previous ICT Training Packages completely covered all competencies within specific national qualification. Vendor-specific training programs that do not fully satisfy all of the technical competencies required to achieve a ICA05 qualification will need to be supplemented with additional training.

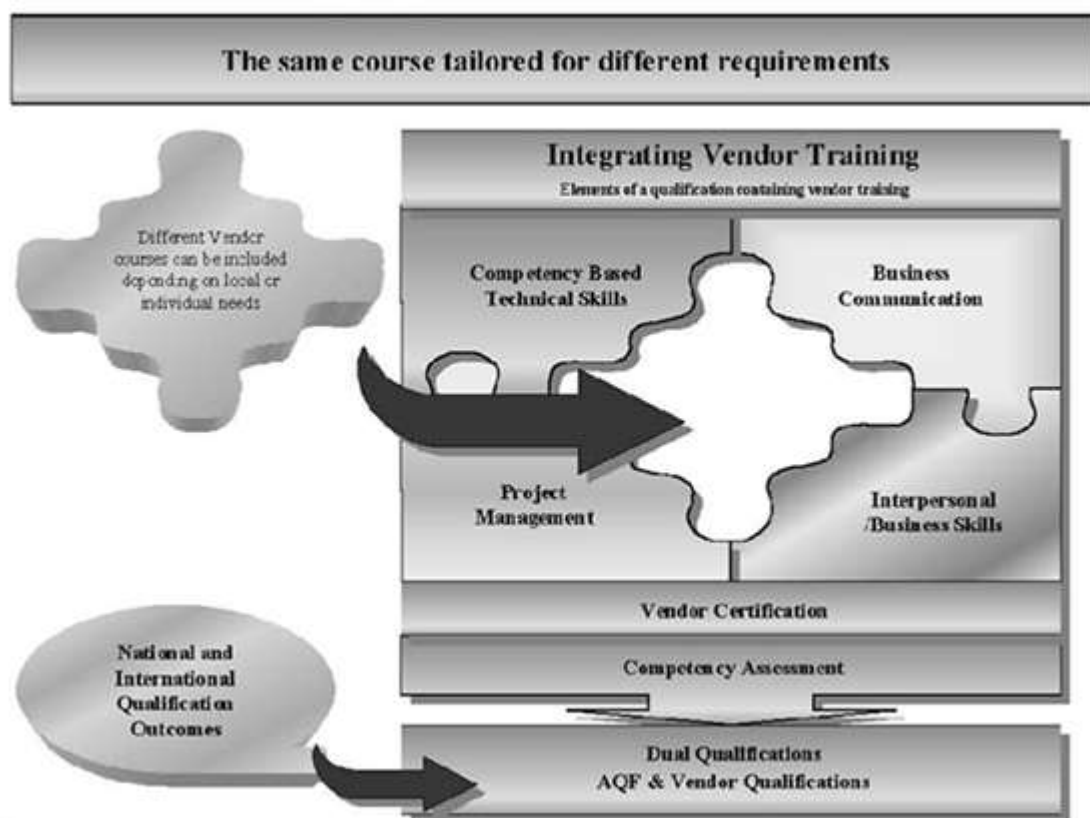
Integration Scenarios for RTOs

A range of scenarios exist now vendor or industry certifications can be considered within VET. These might include:

- an RTO seeks to integrate vendor or industry certification within their existing accredited training courses;
- an RTO seeks to supplement their existing vendor training so that it leads to a Training Package qualification;
- an RTO seeks to introduce a program that leads to both vendor certification and a national qualification; and
- a candidate seeks recognition of prior learning for vendor or industry certifications.
- All the above scenarios are dependent on the links between qualifications and certification, which has been termed mapping.

RTOs are strongly encouraged to integrate, link or at least be aware of industry and vendor certifications that relate to the Training Package qualifications they offer. A major benefit for RTOs is that industry and vendor courses have up to date, contemporary training materials available that can be effectively used as support materials for the qualifications they offer. Using these materials will help to ensure the currency and relevance of ICT training for application users and the wider ICT industry specialists.

The following diagram shows the considerable flexibility to accommodate different vendor training within an integrated Training Package model.



Guidance in Mapping between Different Training Systems

While different approaches to mapping and program development can be applied within this four step process, it serves as a useful outline of the basic activities required. It is worth noting however, that it is unlikely that any contemporary vendor programs will cover all competencies within any specific national qualification.

In some cases the vendor training would allow exemption from only a small number of units or elements of competency. There will, therefore, be a need for the RTO (and the learner) to consider carefully which competencies it believes are satisfied by the training and to appreciate that, there will still be a need to teach the balance of skills required by the qualification.

Step 1 - Evaluate the Content of the Vendor Training

The developer should be familiar with the content of the vendor training material. Information may be found at the vendor's website or in documentation, brochures or training program outlines. It may be necessary to discuss content and philosophy with a vendor representative, especially if the RTO is planning to offer the certification training program as an adjunct to the qualification. Note that, vendors will often require presenters of their training program to have, themselves, undergone a certification process.

Step 2 - Consider the Qualification that Best Fits the Certification

If the RTO has decided to offer qualifications to learners who will already have a vendor certification then it is likely that the most appropriate qualification to offer is the one that has the closest fit.

Alternatively, the RTO may wish to incorporate the training into any of the qualifications that are being taught. This approach runs the risk of doubling up on content unless detailed program planning can eliminate duplication. A number of RTOs have taken the approach of grouping vendor content into topics or streams, and then mapping the competencies in groups with those topics. This approach also presumes an integrated teaching approach rather than more traditional unit/module relationships. However, in this case, if there is little or no overlap between the qualification and the vendor program, the RTO in effect will be offering two separate courses.

The RTO will also need to consider the electives it wishes to offer to learners. It may be that the RTO only offers a subset of the electives that most closely match the training program. This will minimise the development effort for the RTO but restrict the learner's options.

Step 3 - Identify the Topics to be Taught

One approach that a curriculum/program developer could apply is:

- For all core competencies in the qualification, identify the elements, performance criteria and underpinning skills required.
- Review the Context and Critical aspects of evidence to identify any assessment requirements that could cause difficulties. For example, the need to be aware of more than one network operating system.
- Compare the competency elements and/or performance criteria with the skills and objectives that are covered in the vendor certification process. Identify competency elements or skills that the training does not adequately cover.
- List the elements and skills that will need to be taught and consider whether these may be grouped in order to facilitate learning.

In this case the RTO will need to decide how flexible they will be in the topics offered to learners. For example, when developing the training program will the RTO assume that all learners will have (or will be taking) the same training with the same electives within the training? Will there be a need for two or more training programs, one for learners who do not have a vendor training and one for those that do? Obviously it will save time if the same material can be used in both training programs.

Step 4 - Develop the Training Program

Armed with the information from step 3 developers are now in a position to start work developing the training program material. It is likely that the missing elements of competency will relate to interpersonal communication and other non-technical skills, and while these can be taught as separate topics, the use of scenarios/case studies and problem based learning approaches enable technical and non-technical competencies to be effectively integrated.

Many vendor programs involve the use of labs. These practical activities can provide a good base that can be extended and enhanced to cover aspects of the competencies required by the training package qualification.

The developer should also make use of the support materials that have previously been developed for each qualification and competency including:

- Qualification document
- Facilitator guide
- Learning component
- Learning guide
- Assessment guide.

Recognition of Prior Learning (RPL)

There is no vendor training program that covers all competencies in a nationally recognised qualification. This means that the learner who has already achieved the vendor training (or is gaining the training at the same time) will be expected to demonstrate skills in the competencies that have not been covered by the training. In this scenario, the RTO will need to establish how the particular vendor certification relates to ICT Training Package qualifications. The RTO should be able to identify the relevant vendor course from the various maps that have been produced. These maps will allow the RTO to identify the supplementary evidence that the candidate will be required to produce in order to achieve a Training Package qualification. Depending on the supplementary evidence available, the candidate may be required to complete gap training in order to be assessed as competent against relevant units of competency.

Ethics and the ICT Workforce

The issue of ethical behaviour in the workplace has taken on new meanings in recent times with corporate governance under close scrutiny and a significant increase in ‘consultancy’ businesses and outsourced supplier arrangements.

In ICT industries, individuals and small businesses have traditionally plied their services and offered business solutions in this manner at all levels and across all industry sectors. Factors such as the increasing globalisation of both the sector and its workforce make the issues of ethical behaviour and professional practice become very relevant.

The ICA05 ICT Training Package will deliver graduates into the ICT workforce at many levels. It has, unashamedly, focused clearly on vocational outcomes and in this context the discussion of ethics and related matters is both relevant and contemporary.

The Training Package itself contains ethics-related material in a number of units, some of which will be of relevance to learners, trainers and the ICT workforce more generally.

ICA05 Units

The ICA05 field *Team Work* unit *ICAW4214B Maintain ethical conduct* is a core unit in all ICA05 Certificate IV qualifications and additionally. It also has the potential to be chosen as an elective (using the ‘free choice’ process in each the packaging rules) at either ICA05 Certificate III or Diploma levels.

ICAW4214B Maintain ethical conduct

Unit descriptor: This unit defines the competency required to maintain professional and ethical conduct when dealing with colleagues, clients and employers.

Elements:

- Protect the interests of clients
- Produce quality products and services
- Ensure correct representation
- Produce code of ethics
- Maintain good work practices.

Additionally, the a number of ICA05 units have references in the Knowledge and Skills sections to either the Australian Computer Society's 'Code of Ethics' or more general knowledge of ethical practices, for example:

ICA05 Unit Title	Unit text
ICAA5138B Determine acceptable developers for projects ICAA5150B Evaluate vendor products and equipment ICAS5202B Ensure privacy for users ICAT4183B Confirm accessibility of website for people with special needs ICAT4185B Create a website testing procedure	<i>Knowledge includes - Australian Computer Society Code of Ethics</i>
ICAA6053B Design system security and controls	<i>Knowledge includes - Broad general knowledge of ethics in ICT (e.g. when reviewing audit needs)</i>
ICAS2009B Interact with clients	<i>Knowledge includes - Principles of ethical work practice</i>

Other Training Packages

There are few other Training Packages in the national VET system with units appropriate for importation. Those available are closely aligned to their industry sectors, however the following references are provided for information.

Non-ICA05 Unit Title	Information

SRSMAS002A Operate in accord with accepted massage therapy workplace practices and ethics	This unit has been developed for the Sport Industry Training Package. This unit covers the knowledge and skills to enable the learner to undertake massage therapy activities in accord with all aspects of industry accepted practices and ethics. Note: Only some PC are relevant - PC 1, 3, 4, 5 & 6
SROODR008A Review outdoor recreation ethics and philosophies	This unit has been developed for the SRO03 Outdoor Recreation Industry Training Package and covers the knowledge and skills required to analyse current issues and trends within the outdoor recreation industry to determine the fundamental principles that underpin participation in outdoor activities and the potential benefit of those activities to clients. From this understanding, learners will be able to review ethics and philosophies with respect to outdoor environments and their use in order to develop their own personal ethics, values and philosophies. Note: Only some PC are relevant - PC 4

Code of Ethics (ACS)

The Australian Computer Society (ACS) was founded in 1966 and is the recognised association for Information & Communication Technology (ICT) professionals, attracting a large and active membership of over 16,000 from all levels of the ICT industry. A member of the Australian Council of Professions, the ACS provides a public voice for the ICT profession and has assumed guardianship of professional ethics and standards in the ICT industry, with a commitment to the wider community to ensure the beneficial use of ICT.

ACS Objectives

- Further the study, science and application of Information Technology;
- Promote, develop and monitor competence in the practice of ICT by people and organisations;
- Maintain and promote a Code of Ethics for members of the Society;
- Define and promote standards of knowledge of ICT for members;
- Promote the formulation of effective policies on ICT and related matters;
- Extend the knowledge and understanding of ICT in the community;
- Promote the benefits of membership of the Society; and
- Promote the benefits of employing members of the Society

ACS members work in all areas of business and industry, government and academia, and are qualified and experienced ICT professionals committed to the Society's Code of Ethics and Code of Professional Conduct and Professional Practice. ACS membership denotes a commitment to professionalism. The Society requires its members to subscribe to a set of values and ideals that uphold and advance the honour, dignity and effectiveness of the profession of information technology.

The Society's Code of Ethics can be found online at the following URL,
<http://www.acs.org.au/index.cfm?action=show&conID=coe>.

Code of Professional Conduct and Professional Practice

A related field of interest to potential graduates with ICT package qualifications relates to professional conduct and practice. Many ICT trained people establish their own businesses and face an array of choices and challenges in doing so.

The CHC02 Community Services Training Package includes a unit that may be of interest to users of ICA05. Details follow:

Non-ICA05 Unit Title	Information
CHCORG28A Reflect and improve upon professional practice	This unit has been developed for the CHC02 Community Services Training Package and describes the knowledge and skills required evaluate own work, continuing self-development and effective supervision within an ethical code of practice. It is equivalent to SRC CRO 007A - Operate in accordance with accepted instructional practices, styles and legal and ethical responsibilities

Code of Professional Conduct and Professional Practice (ACS)

A complementary ACS document covers Professional Conduct and Professional Practice and can be found at **<http://www.acs.org.au/documents/codes/CodeofProfConductPractice.pdf>**.

Qualifications Framework

Qualifications Framework

What is the Australian Qualifications Framework?

A brief overview of the Australian Qualifications Framework (AQF) follows. For a full explanation of the AQF, see the *AQF Implementation Handbook*, 3rd Edition, 2002. You can download it from the Australian Qualifications Framework Advisory Board (AQFAB) website (www.aqf.edu.au) or obtain a hard copy by contacting AQFAB on phone 03 9639 1606 or by emailing AQFAB on aqfab@curriculum.edu.au.

The AQF provides a comprehensive, nationally consistent framework for all qualifications in post-compulsory education and training in Australia. In the vocational education and training (VET) sector it assists national consistency for all trainees, learners, employers and providers by enabling national recognition of qualifications and Statements of Attainment.

Training Package qualifications in the VET sector must comply with the titles and guidelines of the AQF. Endorsed Training Packages provide a unique title for each AQF qualification which must always be reproduced accurately.

Qualifications

Training Packages can incorporate the following eight AQF qualifications:

- Certificate I in ...
- Certificate II in ...
- Certificate III in ...
- Certificate IV in ...
- Diploma of ...
- Advanced Diploma of ...
- Vocational Graduate Certificate in...
- Vocational Graduate Diploma of...

On completion of the requirements defined in the Training Package, a registered training organisation (RTO) may issue a nationally recognised AQF qualification. Issuance of AQF qualifications must comply with the advice provided in the *AQF Implementation Handbook* and the *Australian Quality Training Framework Standards for Registered Training Organisations*, particularly Standard 10.

Statement of Attainment

Where an AQF qualification is partially achieved through the achievement of one or more endorsed units of competency, an RTO may issue a Statement of Attainment. Issuance of Statements of Attainment must comply with the advice provided in the *AQF Implementation Handbook* and the *Australian Quality Training Framework Standards for Registered Training Organisations*, particularly Standard 10.

Under the *Standards for Registered Training Organisations*, RTOs must recognise the achievement of competencies as recorded on a qualification or Statement of Attainment issued by other RTOs. Given this, recognised competencies can progressively build towards a full AQF qualification.

AQF guidelines and learning outcomes

The AQF Implementation Handbook provides a comprehensive guideline for each AQF qualification. A summary of the learning outcome characteristics and their distinguishing features for each VET-related AQF qualification is provided below.

Certificate I

Characteristics of learning outcomes

- Breadth, depth and complexity of knowledge and skills would prepare a person to perform a defined range of activities most of which may be routine and predictable.
- Applications may include a variety of employment-related skills, including preparatory access and participation skills, broad-based induction skills and specific workplace skills. They may also include participation in a team or work group.

Distinguishing features of learning outcomes

Do the competencies enable an individual with this qualification to:

- demonstrate knowledge by recall in a narrow range of areas
- demonstrate basic practical skills, such as the use of relevant tools
- perform a sequence of routine tasks given clear direction
- receive and pass on messages and information?

Certificate II

Characteristics of learning outcomes

- Breadth, depth and complexity of knowledge and skills would prepare a person to perform in a range of varied activities or knowledge application where there is a clearly defined range of contexts in which the choice of actions required is usually clear and there is limited complexity in the range of operations to be applied.
- Performance of a prescribed range of functions involving known routines and procedures and some accountability for the quality of outcomes.
- Applications may include some complex or non-routine activities involving individual responsibility or autonomy and collaboration with others as part of a group or team.

Distinguishing features of learning outcomes

Do the competencies enable an individual with this qualification to:

- demonstrate basic operational knowledge in a moderate range of areas
- apply a defined range of skills
- apply known solutions to a limited range of predictable problems
- perform a range of tasks where choice between a limited range of options is required
- assess and record information from varied sources
- take limited responsibility for own outputs in work and learning?

Certificate III**Characteristics of learning outcomes**

- Breadth, depth and complexity of knowledge and competencies would cover selecting, adapting and transferring skills and knowledge to new environments and providing technical advice and some leadership in resolution of specified problems. This would be applied across a range of roles in a variety of contexts with some complexity in the extent and choice of options available.
- Performance of a defined range of skilled operations, usually within a range of broader related activities involving known routines, methods and procedures, where some discretion and judgement is required in the selection of equipment, services or contingency measures and within known time constraints.
- Applications may involve some responsibility for others. Participation in teams, including group or team coordination may be involved.

Distinguishing features of learning outcomes

Do the competencies enable an individual with this qualification to:

- demonstrate some relevant theoretical knowledge
- apply a range of well-developed skills
- apply known solutions to a variety of predictable problems
- perform processes that require a range of well-developed skills where some discretion and judgement is required
- interpret available information, using discretion and judgement
- take responsibility for own outputs in work and learning
- take limited responsibility for the output of others?

Certificate IV**Characteristics of learning outcomes**

- Breadth, depth and complexity of knowledge and competencies would cover a broad range of varied activities or application in a wider variety of contexts most of which are complex and non-routine. Leadership and guidance are involved when organising activities of self and others as well as contributing to technical solutions of a non-routine or contingency nature.
- Performance of a broad range of skilled applications, including the requirement to evaluate and analyse current practices, develop new criteria and procedures for performing current practices, and provide some leadership and guidance to others in the application and planning of the skills. Applications involve responsibility for and limited organisation of others.

Distinguishing features of learning outcomes

Do the competencies enable an individual with this qualification to:

- demonstrate understanding of a broad knowledge base incorporating some theoretical concepts
- apply solutions to a defined range of unpredictable problems
- identify and apply skill and knowledge areas to a wide variety of contexts, with depth in some areas
- identify, analyse and evaluate information from a variety of sources
- take responsibility for own outputs in relation to specified quality standards
- take limited responsibility for the quantity and quality of the output of others?

Diploma**Characteristics of learning outcomes**

- Breadth, depth and complexity covering planning and initiation of alternative approaches to skills or knowledge applications across a broad range of technical and management requirements, evaluation and coordination.
- The self-directed application of knowledge and skills, with substantial depth in some areas where judgement is required in planning and selecting appropriate equipment, services and techniques for self and others.
- Applications involve participation in the development of strategic initiatives as well as personal responsibility and autonomy in performing complex technical operations or organising others. They may include participation in teams, including teams concerned with planning and evaluation functions. Group or team coordination may be involved.
- The degree of emphasis on breadth as against depth of knowledge and skills may vary between qualifications granted at this level.

Distinguishing features of learning outcomes

Do the competencies or learning outcomes enable an individual with this qualification to:

- demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas
- analyse and plan approaches to technical problems or management requirements
- transfer and apply theoretical concepts and technical or creative skills to a range of situations
- evaluate information, using it to forecast for planning or research purposes
- take responsibility for own outputs in relation to broad quantity and quality parameters
- take some responsibility for the achievement of group outcomes?

-

Vocational Graduate Certificate**Characteristics of competencies or learning outcomes**

- The self-directed development and achievement of broad and specialised areas of knowledge and skills, building on prior knowledge and skills.
- Substantial breadth and complexity involving the initiation, analysis, design, planning, execution and evaluation of technical and management functions in highly varied and highly specialised contexts.
- Applications involve making significant, high-level, independent judgements in major broad or planning, design, operational, technical and management functions in highly varied and specialised contexts. They may include responsibility and broad-ranging accountability for the structure, management and output of the work or functions of others.
- The degree of emphasis on breadth, as opposed to depth, of knowledge and skills may vary between qualifications granted at this level.

Distinguishing features of learning outcomes

- Demonstrate the self-directed development and achievement of broad and specialised areas of knowledge and skills, building on prior knowledge and skills.
- Initiate, analyse, design, plan, execute and evaluate major broad or technical and management functions in highly varied and highly specialised contexts.
- Generate and evaluate ideas through the analysis of information and concepts at an abstract level.
- Demonstrate a command of wide-ranging, highly specialised technical, creative or conceptual skills in complex contexts.

Demonstrate responsibility and broad-ranging accountability for the structure, management and output of the work or functions of others.

•

Vocational Graduate Diploma**Characteristics of competencies or learning outcomes**

- The self-directed development and achievement of broad and specialised areas of knowledge and skills, building on prior knowledge and skills.
- Substantial breadth, depth and complexity involving the initiation, analysis, design, planning, execution and evaluation of major functions, both broad and highly specialised, in highly varied and highly specialised contexts.
- Further specialisation within a systematic and coherent body of knowledge.
- Applications involve making high-level, fully independent, complex judgements in broad planning, design, operational, technical and management functions in highly varied and highly specialised contexts. They may include full responsibility and accountability for all aspects of work and functions of others, including planning, budgeting and strategy development.
- The degree of emphasis on breadth, as opposed to depth, of knowledge and skills may vary between qualifications granted at this level.

Distinguishing features of learning outcomes

- Demonstrate the self-directed development and achievement of broad and highly specialised areas of knowledge and skills, building on prior knowledge and skills.
- Initiate, analyse, design, plan, execute and evaluate major functions, both broad and within highly varied and highly specialised contexts.
- Generate and evaluate complex ideas through the analysis of information and concepts at an abstract level.
- Demonstrate an expert command of wide-ranging, highly specialised, technical, creative or conceptual skills in complex and highly specialised or varied contexts.
- Demonstrate full responsibility and accountability for personal outputs.
- Demonstrate full responsibility and accountability for all aspects of the work or functions of others, including planning, budgeting and strategy.

Licensing/Registration Requirements

The developers of this Training Package, and DEEWR, consider that no licensing or registration requirements apply to RTOs, assessors or candidates with respect to this Training Package. Contact the relevant State or Territory Department(s) to check if there are any licensing or registration requirements with which you must comply.

For further information on this topic contact.

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Skill Sets

Definition

Skill sets are defined as single units of competency, or combinations of units of competency from an endorsed Training Package, which link to a licence or regulatory requirement, or defined industry need.

Wording on Statements of Attainment

Skill sets are a way of publicly identifying logical groupings of units of competency which meet an identified need or industry outcome. Skill sets are not qualifications.

Where skill sets are identified in a Training Package, the Statement of Attainment can set out the competencies a person has achieved in a way that is consistent and clear for employers and others. This is done by including the wording ‘these competencies meet [the relevant skill set title or industry need is included]’ on the Statement of Attainment. This wording applies only to skill sets that are formally identified as such in the endorsed Training Package.

All Statements of Attainment must include the wording ‘A Statement of Attainment is issued by a Registered Training Organisation when an individual has completed one or more units of competency from a nationally recognised qualification’. The following may also be used ‘these competencies form part of the [the relevant qualification(s) code and title are inserted]’.

Overview of ICA05 Features

The bulk of ICA99 qualifications were introduced into various versions (1.1, 1.2 and 3.0) over several years as ‘bolt-ons’. The pre-existing qualifications were never rationalised and accordingly there was, through the 2004 review, an opportunity to restructure all qualifications to overcome a number of difficulties and internal inconsistencies within the package. Problems included high levels of duplication between qualifications, qualifications lacking in rigor and robustness, qualifications lacking in take-up and credibility, different ‘sized’ qualifications at the same level, potentially high proportions of ‘lower’ level units in upper level qualifications, lack of clarity in packaging of units and confused pathways between qualifications and levels in the package.

The redesign and configuration of qualifications in ICA05 has been based on stakeholder input and feedback as well as a need to address a number of credibility and structural issues identified during earlier phases of the ICA99 version 3.0 review. The relationships between qualifications in ICA99 version 3.0 and this package are more fully described later in this section.

In restructuring and developing the ICA05 qualifications, a number of principles found favour with stakeholders and were implemented in various ways.

- Clarity and robustness at the unit level provided for clarity and robustness at the qualification level and which now offers a degree of confidence to employers that graduates at particular levels achieve the same ‘level’ of outcomes (i.e. some ‘soft’ qualifications have been restructured)

- A number of qualification ‘styles’ were constructed to suit particular stakeholder feedback and needs. Some very broad ‘general’ qualifications were framed to suit some agendas, more ‘discipline-specific’ qualifications were also drafted as well as a number of ‘streamed’ configurations which provide for more flexibility in client choice
- All segments of the ICT industry and all education and training sectors are now variously catered for in ICA05

At a broad level, the following outlines the particular features of qualifications in this Training Package:

- All qualifications have been recoded in accordance with AQTF principles
- All qualifications have been retitled was based on stakeholder input and marketplace recognition
- There has been an overall reduction in number of qualifications from 34 to 23 by combination of like qualifications and introduction of specialist streams e.g. Certificate IV in Information Technology (Websites) has 2 specialist streams and is the product of 2 previous qualifications
- All qualification content and unit configurations have been rationalised and restructured based on rigorous assessment of appropriateness of units to suit vocational outcomes
- There is enhanced clarity between qualifications with clear progression pathways
- The issue of prerequisite has been analysed and well defined for each unit in all qualifications
- Descriptors and job role information has been enhanced and expanded for all qualifications with potential vocational outcomes highlighted
- Improved flexibility in packaging has been introduced with a generally higher proportion and number of non-ICA05 units as possible electives
- Qualifications at the same level now have a more significant proportion of ‘common’ industry or employability units incorporated in the core of each qualification beyond basic technical cores, e.g. OH&S, documentation and client interaction from Certificates II/III upwards; responsibility for personal learning and development, ethical conduct and project implementation at Certificate IV; project management, privacy and contingency planning at Diploma level
- All qualifications have taken the opportunity to import units from other packages in recognition of the commonality with complementary industries such as business, multimedia and project management
- The packaging rules for each qualification provides enhanced guidance in respect of the ‘preferred’ sources of electives while still retaining flexibility in choice
- The use of ‘streams’ within some qualifications and ‘natural clusters’ of units has highlighted the potential for vocational specialisations in areas such as support, multimedia, networking, web development
- Where appropriate, some qualifications have referenced complementary Training Packages with qualifications in ‘adjoining’ fields e.g. CREATE and multimedia
- As part of the guidance offered in electives choice, the ICA05 package has built in the concept of ‘one-up, one-down’, i.e. choice of electives (within some limits) from one qualification level above or below

- Several qualifications have made reference to complementary vendor training programs or certifications although this is not designed for the purposes of ‘mapping’ between the qualification/certification

Summary Table

The following table summarises ICA05 qualifications. The detail of each can be found in the Qualifications Framework section.

ICA05 Qualifications

1. ICA10105 Certificate I in Information Technology
2. ICA20105 Certificate II in Information Technology
3. ICA30105 Certificate III in Information Technology
4. ICA40105 Certificate IV in Information Technology (General)
5. ICA40205 Certificate IV in Information Technology (Support)
6. ICA40305 Certificate IV in Information Technology (Websites)
7. ICA40405 Certificate IV in Information Technology (Networking)
8. ICA40505 Certificate IV in Information Technology (Programming)
9. ICA40605 Certificate IV in Information Technology (Testing)
10. ICA40705 Certificate IV in Information Technology (Systems Analysis and Design)
11. ICA40805 Certificate IV in Information Technology (Multimedia)
12. ICA50105 Diploma of Information Technology (General)
13. ICA50205 Diploma of Information Technology (Project Management)
14. ICA50305 Diploma of Information Technology (Systems Administration)
15. ICA50405 Diploma of Information Technology (Networking)
16. ICA50505 Diploma of Information Technology (Database Design and Development)
17. ICA50605 Diploma of Information Technology (Website Development)
18. ICA50705 Diploma of Information Technology (Software Development)
19. ICA50805 Diploma of Information Technology (Systems Analysis and Design)
20. ICA50905 Diploma of Information Technology (Multimedia)

- 21. ICA60105 Advanced Diploma of Information Technology
- 22. ICA60208 Advanced Diploma of Information Technology (Network Security)
- 23. ICA60308 Advanced Diploma of Information Technology (E-security)

Recognition

Australian Computer Society (ACS) members have been involved in the development, revision and support of this Training Package. Students and graduates of ICA05 Diplomas and Advanced Diplomas may apply to the ACS for membership at the Grade of Student, Provisional Associate and Associate levels subject to particular provisions. More information can be found under Membership at www.acs.org.au.

New Apprenticeships and Delivery through VET in Schools

New Apprenticeships

Commonwealth and State government policy generally determines the implementation and funding of Traineeships and New Apprenticeships. All of the following qualifications could be registered as Traineeships with the State Training Authorities. Market forces will determine the implementation of Traineeships and New Apprenticeships, thus providing a direct correlation between learning pathways and employment outcomes.

- ICA20105 Certificate II in Information Technology
- ICA30105 Certificate III in Information Technology
- ICA40105 Certificate IV in Information Technology (General)
- ICA40205 Certificate IV in Information Technology (Support)
- ICA40305 Certificate IV in Information Technology (Websites)
- ICA40405 Certificate IV in Information Technology (Networking)
- ICA40505 Certificate IV in Information Technology (Programming)
- ICA40605 Certificate IV in Information Technology (Testing)
- ICA40705 Certificate IV in Information Technology (Systems Analysis and Design)
- ICA40805 Certificate IV in Information Technology (Multimedia)

Some ICA05 Diploma qualifications could also be delivered as New Apprenticeships or Traineeships. Industry feedback suggests that the ICT industry generally relates more readily to the term ‘cadetships’ for Diploma level trainees and there have been moves to implement small numbers in some states and territories. Additionally, the non-user ICT sector has not traditionally seen particular value in these types of structured training/employment concepts below Diploma level.

Priority has been placed on the ICA05 Training Package being the vehicle for particularly progressing the planning and implementation of ‘new apprenticeships’ (possibly rebadged under another name) in the following areas for implementation.

- ICA30105 Certificate III in Information Technology - Support Stream
- ICA30105 Certificate III in Information Technology - Network Administration Stream
- ICA40205 Certificate IV in Information Technology (Support) - Help Desk Stream
- ICA40405 Certificate IV in Information Technology (Networking)

- ICA40305 Certificate IV in Information Technology (Websites) - Design Stream

VET in Schools

This Training Package supports the delivery of a selection of units through VET in Schools as listed below:

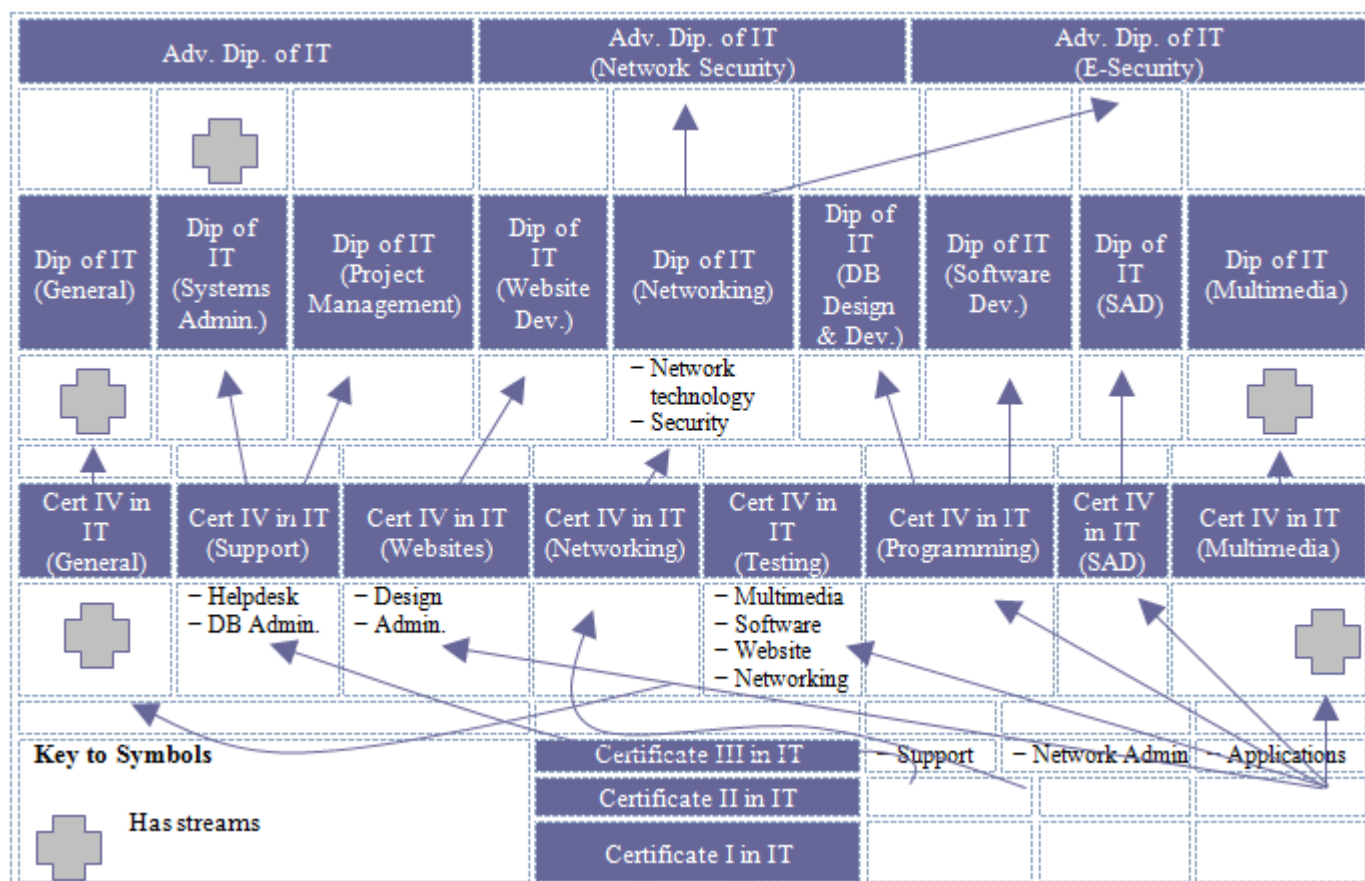
- Units from Certificate I
- Units from Certificate II
- BSBCMN106A Follow workplace safety procedures
- The following units from Certificate III
 - ICAD3218B Create user documentation
 - ICAI2015B Install software applications
 - ICAI3021B Connect internal hardware components
 - ICAS3034B Determine and action network problems
 - ICAS3115B Maintain equipment and software in working order
 - ICAS3121B Administer network peripherals
 - ICAS3234B Care for computer hardware
 - ICAT3025B Run standard diagnostic tests
 - ICAU2007B Maintain equipment and consumables
 - ICAU3004B Apply occupational health and safety procedures
 - ICAU3019B Migrate to new technology

This is subject to the provisions of appropriate learning and assessment processes in accordance with the intent and provisions of the AQTF.

Considerable guidance has been offered within the package on the issues around school and/or institutional delivery and assessment in Assessment Guidelines.

Note: The Advanced Diploma added in 2008 specialising in E-security complements the existing Advanced Diplomas and utilises the new E-security units and has an appropriate pathway from the Diploma of Information Technology (Networking).

ICA05 version 3.0 Qualifications Pathways



ICA05 Qualifications

Introduction

The ICA05 Information and Communications Technology Training Package comprises 23 qualifications ranging from Certificate I to Advanced Diploma. Their configurations include simple core and elective structures as well as complex 'streaming' and diverse elective options. All qualifications offer some opportunity to import units at appropriate levels from other Training Packages.

The detailed streaming in some qualifications and clustering of electives into related groups provides guidance for individuals who wish to select electives to supplement a 'core' skills set as well as information for providers and individuals who wish to undertake structured learning in particular fields of ICT without necessarily completing a full qualification.

As a general rule units that comprise the core of each qualification have been established as being appropriate to the qualification's AQF level. Where possible, elective choices are provided at the same 'level' of unit plus a proportion from the next level up in order to introduce challenge and stretch where desired.

Pathways into and between qualifications in this package can be flexible and will suit a wide array of entrants. Prerequisite requirements are clear, particularly in terms of ICT ‘technical’ competency. Natural progression pathways are detailed in the text of each qualification as well as in related parts of the Qualifications Framework.

All qualifications in ICA05 can be obtained through a variety of on- and off-the-job combinations.

Entry Requirements and Prerequisites

The nature of some ICT ‘technical’ units and qualifications in ICA05 are such that it would be unrealistic to expect an individual to even commence learning, let alone be successful in the unit, without some pre-existing knowledge and skills. It is important that stakeholders of this package therefore understand the nature and uses of entry requirements and prerequisites as this may influence qualification and unit choice as well as operational aspects of training delivery. Many of the qualifications show entry requirements to qualifications as well as prerequisites:

- Entry requirements from Certificate III upwards, are the units, which are the core from Certificate II in IT, that are required or evidence of demonstrated equivalence provided.
- Prerequisites are those that are ‘unit-specific’.

Comprehensive information about prerequisite can be found in:

- The Preliminary Information where there is a list of units and their related prerequisite units; and
- Unit Descriptors for each individual unit of competency in ICA05 and where applicable; and
- Qualification-specific listings under each ICA05 qualifications that detail first level prerequisite units.

Employability Skills

Employability Skills

Employability Skills replacing Key Competency information from 2006

In May 2005, the approach to incorporate Employability Skills within Training Package qualifications and units of competency was endorsed. As a result, from 2006 Employability Skills will progressively replace Key Competency information in Training Packages.

Background to Employability Skills

Employability Skills are also sometimes referred to as generic skills, capabilities or Key Competencies. The Employability Skills discussed here build on the Mayer Committee’s Key Competencies, which were developed in 1992 and attempted to describe generic competencies for effective participation in work.

The Business Council of Australia (BCA) and the Australian Chamber of Commerce and Industry (ACCI), produced the *Employability Skills for the Future* report in 2002 in consultation with other peak employer bodies and with funding provided by the Department of Education, Science and Training (DEST) and the Australian National Training Authority (ANTA). Officially released by Dr Nelson (Minister for Education, Science and Training) on 23 May 2002, copies of the report are available from the DEEWR website at: http://www.dest.gov.au/archive/ty/publications/employability_skills/index.htm.

The report indicated that business and industry now require a broader range of skills than the Mayer Key Competencies Framework and featured an Employability Skills Framework identifying eight Employability Skills:¹

- communication
- teamwork
- problem solving
- initiative and enterprise
- planning and organising
- self-management
- learning
- technology.

The report demonstrated how Employability Skills can be further described for particular occupational and industry contexts by sets of facets. The facets listed in the report are the aspects of the Employability Skills that the sample of employers surveyed identified as being important work skills. These facets were seen by employers as being dependent both in their nature and priority on an enterprise's business activity.

¹ Personal attributes that contribute to employability were also identified in the report but are not part of the Employability Skills Framework.

Employability Skills Framework

The following table contains the Employability Skills facets identified in the report *Employability Skills for the Future*.

Skill	Facets
	Aspects of the skill that employers identify as important. The nature and application of these facets will vary depending on industry and job type.
Communication that contributes to productive and harmonious relations across employees and customers	• listening and understanding • speaking clearly and directly • writing to the needs of the audience • negotiating responsively • reading independently • empathising • using numeracy effectively

Skill	Facets Aspects of the skill that employers identify as important. The nature and application of these facets will vary depending on industry and job type.
	• understanding the needs of internal and external customers • persuading effectively • establishing and using networks • being assertive • sharing information • speaking and writing in languages other than English
Teamwork that contributes to productive working relationships and outcomes	• working across different ages irrespective of gender, race, religion or political persuasion • working as an individual and as a member of a team • knowing how to define a role as part of the team • applying teamwork to a range of situations e.g. futures planning and crisis problem solving • identifying the strengths of team members • coaching and mentoring skills, including giving feedback
Problem solving that contributes to productive outcomes	• developing creative, innovative and practical solutions • showing independence and initiative in identifying and solving problems • solving problems in teams • applying a range of strategies to problem solving • using mathematics, including budgeting and financial management to solve problems • applying problem-solving strategies across a range of areas • testing assumptions, taking into account the context of data and circumstances • resolving customer concerns in relation to complex project issues
Initiative and enterprise that contribute to innovative outcomes	• adapting to new situations • developing a strategic, creative and long-term vision • being creative • identifying opportunities not obvious to others • translating ideas into action • generating a range of options • initiating innovative solutions
Planning and organising that contribute to long and short-term strategic	• managing time and priorities – setting time lines, coordinating tasks for self and with others • being resourceful • taking initiative and making decisions • adapting resource allocations to cope with contingencies

Skill	Facets Aspects of the skill that employers identify as important. The nature and application of these facets will vary depending on industry and job type.
planning	• establishing clear project goals and deliverables • allocating people and other resources to tasks • planning the use of resources, including time management • participating in continuous improvement and planning processes • developing a vision and a proactive plan to accompany it • predicting – weighing up risk, evaluating alternatives and applying evaluation criteria • collecting, analysing and organising information • understanding basic business systems and their relationships
Self-management that contributes to employee satisfaction and growth	• having a personal vision and goals • evaluating and monitoring own performance • having knowledge and confidence in own ideas and visions • articulating own ideas and visions • taking responsibility
Learning that contributes to ongoing improvement and expansion in employee and company operations and outcomes	• managing own learning • contributing to the learning community at the workplace • using a range of mediums to learn – mentoring, peer support and networking, IT and courses • applying learning to technical issues (e.g. learning about products) and people issues (e.g. interpersonal and cultural aspects of work) • having enthusiasm for ongoing learning • being willing to learn in any setting – on and off the job • being open to new ideas and techniques • being prepared to invest time and effort in learning new skills • acknowledging the need to learn in order to accommodate change
Technology that contributes to the effective carrying out of tasks	• having a range of basic IT skills • applying IT as a management tool • using IT to organise data • being willing to learn new IT skills • having the OHS knowledge to apply technology • having the appropriate physical capacity

Employability Skills Summary

An employability skills summary exists for each qualification. Summaries provide a lens through which to view employability skills at the qualification level and capture the key aspects or facets of the employability skills that are important to the job roles covered by the qualification. Summaries are designed to assist trainers and assessors to identify and include important industry application of employability skills in learning and assessment strategies.

The following is important information for trainers and assessors about employability skills summaries.

- Employability skills summaries provide examples of how each skill is applicable to the job roles covered by the qualification.
- Employability skills summaries contain general information about the industry context which is further explained as measurable outcomes of performance in the units of competency in each qualification.
- The detail in each employability skills summary will vary depending on the range of job roles covered by the qualification in question.
- Employability skills summaries are not exhaustive lists of qualification requirements or checklists of performance (which are separate assessment tools that should be designed by trainers and assessors after analysis at the unit level).
- Employability skills summaries contain information that may also assist in building learners' understanding of industry and workplace expectations.
-

Industry requirements for Employability Skills

IBSA has used the Generic Employability Skills Framework for IBSA Training Packages to further identify facets of Employability Skills that describe industry occupations for each IBSA Training Package qualification.

These facets were used to create an Employability Skills Summary for each qualification as an example of how facets would apply to one specific job role covered by the qualification. The text making up the Employability Skills Summary for each qualification was developed directly from the units of competency to ensure that the language and essence of the job role were appropriately reflected.

From the Employability Skills Summary, trainers and assessors can then work out how facets of Employability Skills would apply to other job roles relevant to the particular qualification they are using.

In this Training Package the Employability Skills Summary can be found at the end of each qualification.

Assessment Guidelines

Assessment Guidelines

Introduction

These Assessment Guidelines provide the endorsed framework for assessment of units of competency in this Training Package. They are designed to ensure that assessment is consistent with the AQTF 2007. Assessments against the units of competency in this Training Package must be carried out in accordance with these Assessment Guidelines.

Assessment System Overview

This section provides an overview of the requirements for assessment when using this Training Package, including a summary of the AQTF requirements; licensing and registration requirements; and assessment pathways.

Benchmarks for Assessment

Assessment within the National Skills Framework is the process of collecting evidence and making judgements about whether competency has been achieved to confirm whether an individual can perform to the standards expected in the workplace, as expressed in the relevant endorsed unit of competency.

In the areas of work covered by this Training Package, the endorsed units of competency are the benchmarks for assessment. As such, they provide the basis for nationally recognised Australian Qualifications Framework (AQF) qualifications and Statements of Attainment issued by Registered Training Organisations (RTOs).

Australian Quality Training Framework Assessment Requirements

Assessment leading to nationally recognised AQF qualifications and Statements of Attainment in the vocational education and training sector must meet the requirements of the AQTF as expressed in the AQTF 2007 *Essential Standards for Registration*.

The AQTF 2007 *Essential Standards for Registration* can be downloaded from <www.training.com.au>. The following points summarise the assessment requirements.

Registration of Training Organisations

Assessment must be conducted by, or on behalf of, an RTO formally registered by a State or Territory Registering/Course Accrediting Body in accordance with the AQTF 2007. The RTO must have the specific units of competency and/or AQF qualifications on its scope of registration.

Quality Training and Assessment

Each RTO must provide quality training and assessment across all its operations. See the AQTF 2007 *Essential Standards for Registration*, Standard 1.

Assessor Competency Requirements

Each person involved in training and assessment must be competent for the functions they perform. See the AQTF 2007 *Essential Standards for Registration*, Standard 1 for assessor (and trainer) competency requirements.

Assessment Requirements

The RTO's assessments, including RPL, must meet the requirements of the relevant endorsed Training Package. See the AQTF 2007 *Essential Standards for Registration*, Standard 1.

Assessment Strategies

Each RTO must have strategies for training and assessment that meet the requirements of the relevant Training Package or accredited course and are developed in consultation with industry stakeholders. See the AQTF 2007 *Essential Standards for Registration*, Standard 1.

National Recognition

Each RTO must recognise the AQF qualifications and Statements of Attainment issued by any other RTO. See the AQTF 2007 *Essential Standards for Registration*, Condition of Registration 7: Recognition of qualifications issued by other RTOs.

Access and Equity and Client Outcomes

Each RTO must adhere to the principles of access and equity and maximise outcomes for its clients. See the AQTF 2007 *Essential Standards for Registration*, Standard 2.

Monitoring Assessments

Training and/or assessment provided on behalf of the RTO must be monitored to ensure that it is in accordance with all aspects of the *Essential Standards for Registration*. See the AQTF 2007 *Essential Standards for Registration*, Standard 3.

Recording Assessment Outcomes

Each RTO must manage records to ensure their accuracy and integrity. See the AQTF 2007 *Essential Standards for Registration*, Standard 3.

Issuing AQF qualifications and Statement of Attainment

Each RTO must issue AQF qualifications and Statements of Attainment that meet the requirements of the current AQF Implementation Handbook and the endorsed Training Packages within the scope of its registration. An AQF qualification is issued once the full requirements for a qualification, as specified in the nationally endorsed Training Package are met. A Statement of Attainment is issued when an individual has completed one or more units of competency from nationally recognised qualification(s)/courses(s). See the AQTF 2007 and the 2007 edition of the AQF Implementation Handbook—available on the AQFAB website <www.aqf.edu.au>.

Licensing/Registration Requirements

This section provides information on licensing/registration requirements for this Training Package, with the following important disclaimer.

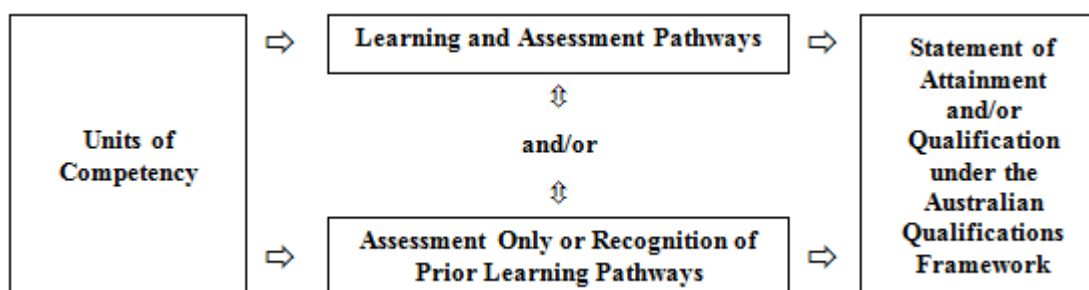
The developers of this Training Package, and DEEWR, consider that no licensing or registration requirements apply to RTOs, assessors or candidates with respect to this Training Package. Contact the relevant State or Territory Department(s) to check if there are any licensing or registration requirements with which you must comply. For further information on this topic contact

Pathways

The competencies in this Training Package may be attained in a number of ways including through:

- formal or informal education and training
- experiences in the workplace
- general life experience, and/or
- any combination of the above.

Assessment under this Training Package leading to an AQF qualification or Statement of Attainment may follow a learning and assessment pathway, an assessment-only or recognition pathway, or a combination of the two as illustrated in the following diagram.



Each of these assessment pathways leads to full recognition of competencies held – the critical issue is that the candidate is competent, not how the competency was acquired.

Assessment, by any pathway, must comply with the assessment requirements set out in the Assessment Guidelines of the Training Package and the AQTF 2007.

Learning and Assessment Pathways

Usually, learning and assessment are integrated, with assessment evidence being collected and feedback provided to the candidate at anytime throughout the learning and assessment process.

Learning and assessment pathways may include structured programs in a variety of contexts using a range of strategies to meet different learner needs. Structured learning and assessment programs could be: group-based, work-based, project-based, self-paced, action learning-based; conducted by distance or e-learning; and/or involve practice and experience in the workplace.

Learning and assessment pathways to suit Australian Apprenticeships have a mix of formal structured training and structured workplace experience with formative assessment activities through which candidates can acquire and demonstrate skills and knowledge from the relevant units of competency.

Assessment-Only or Recognition of Prior Learning Pathway

Competencies already held by individuals can be formally assessed against the units of competency in this Training Package, and should be recognised regardless of how, when or where they were achieved.

In an assessment-only or Recognition of Prior Learning (RPL) pathway, the candidate provides current, quality evidence of their competency against the relevant unit of competency. This process may be directed by the candidate and verified by the assessor, such as in the compilation of portfolios; or directed by the assessor, such as through observation of workplace performance and skills application, and oral and/or written assessment. Where the outcomes of this process indicate that the candidate is competent, structured training is not required. The RPL requirements of the AQTF 2007 must be met.

As with all assessment, the assessor must be confident that the evidence indicates that the candidate is currently competent against the endorsed unit of competency. This evidence may take a variety of forms and might include certification, references from past employers, testimonials from clients, and work samples. The onus is on candidates to provide sufficient evidence to satisfy assessors that they currently hold the relevant competencies. In judging evidence, the assessor must ensure that the evidence of prior learning is:

- authentic (the candidate's own work);
- valid (directly related to the current version of the relevant endorsed unit of competency);
- reliable (shows that the candidate consistently meets the endorsed unit of competency);
- current (reflects the candidate's current capacity to perform the aspect of the work covered by the endorsed unit of competency); and
- sufficient (covers the full range of elements in the relevant unit of competency and addresses the four dimensions of competency, namely task skills, task management skills, contingency management skills, and job/role environment skills).

The assessment only or recognition of prior learning pathway is likely to be most appropriate in the following scenarios:

- candidates enrolling in qualifications who want recognition for prior learning or current competencies;
- existing workers;
- individuals with overseas qualifications;
- recent migrants with established work histories;
- people returning to the workplace; and
- people with disabilities or injuries requiring a change in career.

Combination of Pathways

Where candidates for assessment have gained competencies through work and life experience and gaps in their competence are identified, or where they require training in new areas, a combination of pathways may be appropriate.

In such situations, the candidate may undertake an initial assessment to determine their current competency. Once current competency is identified, a structured learning and assessment program ensures that the candidate acquires the required additional competencies identified as gaps.

Assessor Requirements

This section identifies the mandatory competencies for assessors, and clarifies how others may contribute to the assessment process where one person alone does not hold all the required competencies.

Assessor Competencies

The AQTF 2007 specifies mandatory competency requirements for assessors. For information, Element 1.4 from the AQTF 2007 *Essential Standards for Registration* follows:

- 1.4 Training and assessment are conducted by trainers and assessors who:
- a) have the necessary training and assessment competencies as determined by the National Quality Council or its successors
 - b) have the relevant vocational competencies at least to the level being delivered or assessed
 - c) continue developing their vocational and training and assessment competencies to support continuous improvements in delivery of the RTO's services.

Designing Assessment Tools

This section provides an overview on the use and development of assessment tools.

Use of Assessment Tools

Assessment tools provide a means of collecting the evidence that assessors use in making judgements about whether candidates have achieved competency.

There is no set format or process for the design, production or development of assessment tools. Assessors may use prepared assessment tools, such as those specifically developed to support this Training Package, or they may develop their own.

Using Prepared Assessment Tools

If using prepared assessment tools, assessors should ensure these are benchmarked, or mapped, against the current version of the relevant unit of competency. This can be done by checking that the materials are listed on the National Training Information Service <www.ntis.gov.au>. Materials on the list have been noted by the National Quality Council as meeting their quality criteria for Training Package support materials.

Developing Assessment Tools

When developing their own assessment tools, assessors must ensure that the tools:

- are benchmarked against the relevant unit or units of competency;
- are reviewed as part of the validation of assessment strategies required under the AQTF 2007; and
- meet the assessment requirements expressed in the AQTF 2007 *Essential Standards for Registration*.

A key reference for assessors developing assessment tools is TAA04 Training and Assessment Training Package and the unit of competency TAAASS403A *Develop assessment tools*.

Conducting Assessment

This section details the mandatory assessment requirements and provides information on equity in assessment including reasonable adjustment.

Mandatory Assessment Requirements

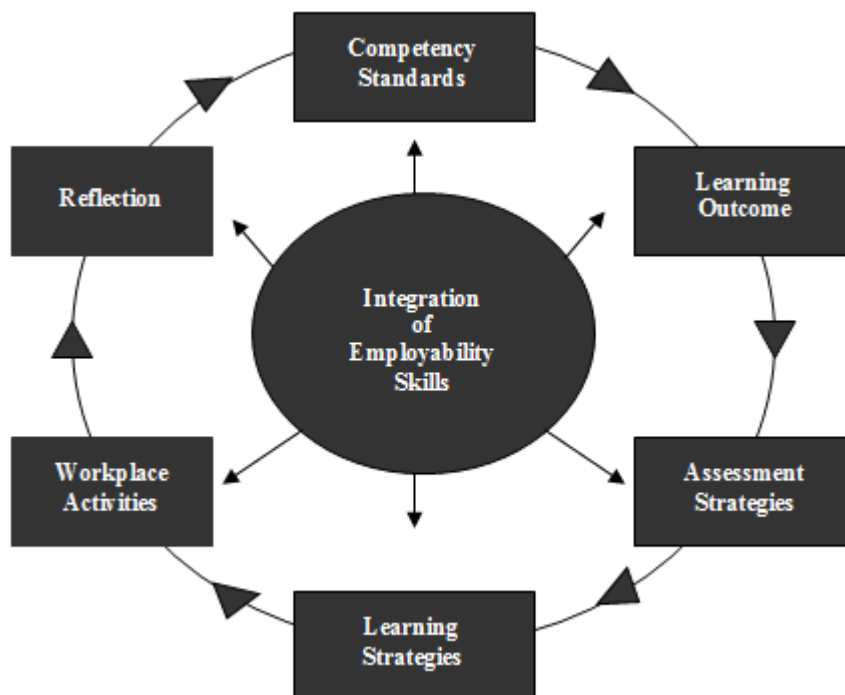
Assessments must meet the criteria set out in the AQTF 2007 *Essential Standards for Registration*.

For information, the mandatory assessment requirements from Standard 1 from the AQTF 2007 *Essential Standards for Registration* are as follows:

- 1.5 Assessment, including Recognition of Prior Learning (RPL):
- a) meets the requirements of the relevant Training Package or accredited course
 - b) is conducted in accordance with the principles of assessment and the rules of evidence
 - c) meets workplace and, where relevant, regulatory requirements.

Assessment of Employability Skills

Employability Skills are integral to workplace competency. As such, they must be considered in the design, customisation, delivery and assessment of vocational education and training programs in an integrated and holistic way, as represented diagrammatically below.



Employability Skills are embedded and explicit within each unit of competency. Training providers must use Employability Skills information in order to design valid and reliable training and assessment strategies. This analysis could include:

- reviewing units of competency to locate relevant Employability Skills and determine how they are applied within the unit
- analysing the Employability Skills Summary for the qualification in which the unit or units are packaged to help clarify relevant industry and workplace contexts and the application of Employability Skills at that qualification outcome
- designing training and assessment to address Employability Skills requirements.

For more information on Employability Skills in IBSA Training Packages go to the IBSA website at www.ibsa.org.au.

Access and Equity

An individual's access to the assessment process should not be adversely affected by restrictions placed on the location or context of assessment beyond the requirements specified in this Training Package: training and assessment must be bias-free.

Under the rules for their development, Training Packages must reflect and cater for the increasing diversity of Australia's VET clients and Australia's current and future workforce. The flexibilities offered by Training Packages should enhance opportunities and potential outcomes for all people so that we can all benefit from a wider national skills base and a shared contribution to Australia's economic development and social and cultural life.

Reasonable Adjustments

It is important that education providers take meaningful, transparent and reasonable steps to consult, consider and implement reasonable adjustments for students with disability.

Under the Disability Standards for Education 2005, education providers must make reasonable adjustments for people with disability to the maximum extent that those adjustments do not cause that provider unjustifiable hardship. While 'reasonable adjustment' and 'unjustifiable hardship' are different concepts and involve different considerations, they both seek to strike a balance between the interests of education providers and the interests of students with and without disability.

An adjustment is any measure or action that a student requires because of their disability, and which has the effect of assisting the student to access and participate in education and training on the same basis as students without a disability. An adjustment is reasonable if it achieves this purpose while taking into account factors such as the nature of the student's disability, the views of the student, the potential effect of the adjustment on the student and others who might be affected, and the costs and benefits of making the adjustment.

An education provider is also entitled to maintain the academic integrity of a course or program and to consider the requirements or components that are inherent or essential to its nature when assessing whether an adjustment is reasonable. There may be more than one adjustment that is reasonable in a given set of circumstances; education providers are required to make adjustments that are reasonable and that do not cause them unjustifiable hardship. See Part 4, Chapter 2 of the *Training Package Development Handbook* (DEST, September 2007) for more information on reasonable adjustment, including examples of adjustments.

Further Sources of Information

The section provides a listing of useful contacts and resources to assist assessors in planning, designing, conducting and reviewing of assessments against this Training Package.

Contacts

Industry Skills Council:
Innovation & Business Skills Australia
Level 2, Building B, 192 Burwood Road
HAWTHORN VIC 3122
Telephone: (03) 9815 7000
Facsimile: (03) 9815 7001
Email: virtual@ibsa.org.au
Web: www.ibsa.org.au

Technical and Vocational Education and
Training (TVET) Australia Limited
Level 21, 390 St Kilda Road, Melbourne
VIC 3150
PO Box 12211, A'Beckett Street Post
Office,
Melbourne, Victoria, 8006
Ph: +61 3 9832 8100
Fax: +61 3 9832 8198
Email: sales@tvetaustralia.com.au
Web: www.tvetaustralia.com.au

General Resources

Refer to <http://antapubs.dest.gov.au/publications/search.asp> to locate the following publications.

AQF Implementation Handbook, third Edition. Australian Qualifications Framework Advisory Board, 2002 <www.aqf.edu.au>

Australian Quality Training Framework (AQTF) - for general information go to <www.dest.gov.au/sectors>

Australian Quality Training Framework (AQTF) - for resources and information go to: <www.dest.gov.au>

Australian Quality Training Framework Standards for Registered Training Organisations, Australian National Training Authority, Melbourne, 2005, and from 1 July 2007, the AQTF 2007. Available in hard copy from State and Territory Training Authorities or can be downloaded from <www.dest.gov.au>

TAA04 Training and Assessment Training Package. This is available from the Innovation and Innovation & Business Skills Australia (IBSA) Industry Skills Council and can be viewed, and components downloaded, from the National Training Information Service (NTIS).

National Training Information Service, an electronic database providing comprehensive information about RTOs, Training Packages and accredited courses – <www.ntis.gov.au>

Style Guide for Training Package Support Materials, Australian National Training Authority, Melbourne, 2003. Can be downloaded from <www.dest.gov.au>

Training Package Development Handbook (DEST, September 2007). Can be downloaded from <www.dest.gov.au>

Assessment Resources

Training Package Assessment Guides – a range of resources to assist RTOs in developing Training Package assessment materials (originally developed by ANTA with funding from the Department of Education, Training and Youth Affairs) and made up of 10 separate titles, as described at the publications page of www.dest.gov.au. Go to www.resourcegenerator.gov.au/loadpage.asp?TPAG.htm

Printed and CD ROM versions of the Guides can be purchased from Technical and Vocational Education and Training Australia Limited (TVET). The resource includes the following guides:

- Training Package Assessment Materials Kit
- Assessing Competencies in Higher Qualifications
- Recognition Resource
- Kit to Support Assessor Training
- Candidate's Kit: Guide to Assessment in Australian Apprenticeships
- Assessment Approaches for Small Workplaces
- Assessment Using Partnership Arrangements
- Strategies for ensuring Consistency in Assessment
- Networking for Assessors

- Quality Assurance Guide for Assessment

An additional guide ‘Delivery and Assessment Strategies’ has been developed to complement these resources.

Assessment Tool Design and Conducting Assessment

VETASSESS & Western Australian Department of Training and Employment 2000, *Designing Tests – Guidelines for designing knowledge based tests for Training Packages*.

Vocational Education and Assessment Centre 1997, *Designing Workplace Assessment Tools, A self-directed learning program*, NSW TAFE.

Manufacturing Learning Australia 2000, *Assessment Solutions*, Australian Training Products, Melbourne.

Rumsey, David 1994, *Assessment practical guide*, Australian Government Publishing Service, Canberra.

Assessor Training

Australian Committee on Training Curriculum (ACTRAC) 1994, *Assessor training program – learning materials*, Australian Training Products, Melbourne.

Australian National Training Authority, *A Guide for Professional Development*, ANTA, Brisbane.

Australian Training Products Ltd Assessment and Workplace Training, *Training Package – Toolbox*, ATPL Melbourne (available from TVET).

Green, M, et al. 1997, *Key competencies professional development package*, Department for Education and Children’s Services, South Australia.

Victorian TAFE Association 2000, *The professional development CD: A learning tool*, VTA, Melbourne.

Assessment System Design and Management

Office of Training and Further Education 1998, *Demonstrating best practice in VET project – assessment systems and processes*, OTFE Victoria.

Toop, L., Gibb, J. & Worsnop, P. *Assessment system designs*, Australian Government Publishing Service, Canberra.

Western Australia Department of Training and VETASSESS 1998, *Kit for Skills Recognition Organisations*, WADOT, Perth.

Industry Assessment Contextualisation 2

Formative and Summative Assessment

Some competencies within the ICT Training Package contain references to formative and summative assessment. The following text provides an explanation of these terms.

Assessment can be done at various times throughout a learning/assessment process and a comprehensive assessment plan should include both formative and summative assessment. The point at which the assessment occurs in a program distinguishes these two categories of assessment.

Formative Assessment

Formative assessment refers to assessment tasks that occur regularly throughout the learning program and one of its primary objectives is to provide constructive feedback to the learner and guide their learning.

Formative assessment is often done at the beginning or during a learning program, thus providing the opportunity for immediate evidence for student learning in a particular element, unit or course or at a particular stage in an overall program.

It gives students the opportunity to demonstrate a selection of Performance Criteria for the purpose of self-assessment, or to receive feedback on their progress and identify gaps in their knowledge or skills. It is also a method for the collection of evidence (of either individual Performance Criteria or a complete Unit of Competency), and a determination of a candidate's readiness for final assessment. Formative assessment is more a process than an event, allowing students the opportunity to gain confidence through practice and application, ideally in an environment that is conducive to the achievement of competence without fear of failure.

The case study approach allows students to develop competencies by completing simulated work-based projects and receiving guidance and feedback. This work, along with the feedback received, could serve the purpose of a type of formative assessment as it assists in development of the required competencies and in the formation of the final performance.

Classroom assessment is a common formative assessment technique in institutional delivery. The purpose of this technique is to aid and improve quality of student learning and should not be evaluative or involve grading students. This can also lead to curricular modifications when specific courses have not met the student learning outcomes. Classroom assessment can also provide important program information when multiple sections of a qualification are taught because it enables programs to examine if the learning goals and objectives are met across the qualification. It also can improve instructional quality by engaging the trainer or assessor in the design and practice of the goals and objectives.

Summative Assessment

Summative assessment requires learners to demonstrate the knowledge, skills and competencies they have learned throughout the learning program.

Summative assessment is the final assessment of competence, and is only applied when the student feels confident of his or her ability to perform the task successfully. A student who is ready for summative assessment possesses skills and knowledge that are sufficiently developed to a point where they can be demonstrated as an assessment 'event' or 'situation', either in the workplace or in a simulated environment. Summative assessment requires the assessor to make a final judgement as to whether the student is 'competent' or 'not competent'.

Summative assessment is comprehensive in nature, provides accountability and is used to check the level of learning at the end of the program. For example, if upon completion of a program learners will have the knowledge to pass an accreditation test, taking the test would be summative in nature since it is based on the cumulative learning experience. Program goals and objectives often reflect the cumulative nature of the learning that takes place in a program. Thus the program would conduct summative assessment at the end of the program to ensure students have met the program goals and objectives. Attention should be given to using various methods and measures in order to have a comprehensive plan. Ultimately, the foundation for an assessment plan is to collect summative assessment data and this type of data can stand-alone. Formative assessment data, however, can contribute to a comprehensive assessment plan by enabling trainers and assessors to identify particular points in a program to assess learning (i.e. entry into a program, impact of specific units etc.) and monitor the progress being made towards achieving learning outcomes.

An Industry Assessment Model

The following notional industry assessment model offers a valuable checklist plus generic methodology for conducting assessments against units of competency in this Training Package. This process can potentially apply to all assessments conducted for the purposes of national recognition in both institutional and workplace contexts.

- Step 1** The assessor:
- Establish the assessment context**
- establishes the context and purpose of the assessment;
 - identifies the relevant units of competency, assessment guidelines and qualification framework in this Training Package;
 - identifies any NQC noted support materials that have been developed to facilitate the assessment process;
 - analyses the competency standards and identifies the evidence requirements; and
 - identifies potential evidence collection methods.
- Step 2** The assessor meets with the candidate to:
- Prepare the candidate**
- explain the context and purpose of the assessment and the assessment process;
 - explain the competency standards to be assessed and the evidence to be collected;
 - advise on self-assessment, including processes and criteria;
 - outline the assessment procedure, the preparation the candidate should undertake, and answer any questions;
 - assess the needs of the candidate and, where applicable, negotiate reasonable adjustment for assessing people with disabilities without compromising the integrity of the units of competency;
 - seek feedback regarding the candidate's understanding of the units of competency, evidence requirements and assessment process;
 - determine if the candidate is ready for assessment and, in consultation with the candidate, decide on the time and place of the assessment; and
 - develop an assessment plan.
- Step 3** The assessor must:
- Plan and prepare the evidence gathering process**
- establish a plan for gathering sufficient quality evidence about the candidate's performance in order to make the assessment decision (and involve industry representatives in the development of plans for the validation of assessment);
 - source or develop assessment materials to assist in the evidence gathering process;
 - organise equipment or resources required to support the evidence gathering process;
 - coordinate and brief other personnel involved in the evidence gathering process.
- Step 4** The assessor must:
- Collect the evidence and**
- establish and oversee the evidence gathering process to ensure its validity, reliability, fairness and flexibility;

**make the
assessment
decision**

- collect appropriate evidence and assess this against the elements, Performance Criteria, Range Statement and Evidence Guide in the relevant units of competency;
- evaluate evidence in terms of the four dimensions of competency - task skills, task management skills, contingency management skills, and job/role environment skills;
- incorporate allowable adjustments to the assessment procedure without compromising the integrity of the competencies;
- evaluate the evidence in terms of validity, consistency, currency, equity, authenticity and sufficiency;
- consult and work with other staff, assessment panel members or technical experts involved in the assessment process;
- record details of evidence collected; and
- make a judgement about the candidate's competency based on the evidence and the relevant unit(s) of competency.

- Step 5**
Provide feedback on the assessment
- The assessor must provide advice to the candidate about the outcomes of the assessment process. This includes providing the candidate with:
- clear and constructive feedback on the assessment decision;
 - information on ways of overcoming any identified gaps in competency revealed by the assessment;
 - the opportunity to discuss the assessment process and outcome; and
 - information on reassessment and the appeals process.
- Step 6**
Record and report the result
- The assessor must:
- record the assessment outcome according to the policies and procedures of the RTO;
 - maintain records of the assessment procedure, evidence collected and the outcome according to the policies and procedures of the RTO;
 - maintain the confidentiality of the assessment outcome;
 - organise the issuing of qualifications and/or Statements of Attainment according to the policies and procedures of the RTO.
- Step 7**
Review the assessment process
- On completion of the assessment process, the assessor must:
- review the assessment process;
 - report on the positive and negative features of the assessment to those responsible for the assessment procedures;
 - if necessary, suggest to appropriate personnel in the RTO ways of improving the assessment procedures.
- Step 8**
Participate in the reassessment and appeals process
- The assessor must:
- provide feedback and counsel the candidate, if required, regarding the assessment outcome or process, including guidance on further options;
 - provide the candidate with information on the reassessment and appeals process;
 - report any disputed assessment decision to the appropriate personnel in the RTO; and
 - participate in the reassessment or appeal according to the policies and procedures of the RTO.

Holistic or Integrated Assessment

Learning for the development of competencies in the Information and Communications Technology Training Package is directly related to the working environment, and, as such, should be demonstrated either on the job, or in a simulated working environment. In the workplace, individual competencies are seldom demonstrated in isolation; therefore, any given task may contain a variety of units. Where present, these related competencies are identified in the Assessment Guide of each ICA05 unit.

When related competencies are assessed simultaneously or through a task that requires the student to integrate them, this is called a 'holistic' or 'integrated' assessment. This form of assessment relates to the whole unit or grouping of units, and requires observation of performance, questioning, and in some cases, review of documentation or other forms of evidence.

Competency includes the ability to manage and organise a normal workload and work environment and to manage contingencies which arise, as well as the ability to complete each individual task making up a job. As far as possible, the underpinning knowledge, the skills and the attributes required of a competent performer should be incorporated into one holistic assessment event.

Although integration of appropriate competencies is important, it is still essential that evidence is gathered to meet Performance Criteria for each competency involved, and that achievement is identified and recorded for each individual competency.

To support these principles, the preferred approach to assessment in ICA05 is project-based assessment. That is, students are assessed over the duration of a project that is work-based or closely simulates the need to manage and organise themselves and to handle contingencies in applying their knowledge and skills, as they would in an actual ICT work environment. Case studies and scenarios provided in some supporting resources are a good starting point for simulating actual workplace projects.

The project method of assessing competence usually requires students to compile a portfolio of work and other documents as evidence of what they can do, but they might also be assessed in other ways for some competencies, or to concentrate on underpinning knowledge or skills. Other methods may include observation checklist, interview or written test, oral presentation or third-party report.

Holistic or integrated assessment may apply in a variety of ways depending on where assessment occurs and at what qualification level. The following table offers some guidance as to the conditions and possible criteria for different contexts. Further information can be found in that part of Section 1.6 dealing with prerequisites.

Delivery & Assessment context

Conditions & criteria	Users	VET in Schools	Advanced Users	ICT Specialists
Predominant qualification levels	Certificates I-II	Certificates I-II & selected Certificate III units	Certificates III-IV	Certificate IV - Advanced Diploma

Focus of Assessment	Skills of individual	Skills of individual Work placement (real workplace experience)	Individual Group/team Workplace outcomes	Individual Group/team Workplace outcomes
Integrated delivery & skill clusters for assessment	ICT Literacy Practical applications	ICT Fluency Practical applications Some technical skills	Basic technical skills Relevant industry context (if units imported)	Technical skills Soft skills Business skills
Importation of ICT units into other Training Packages	Individual units may be imported at 'user' level, any industry	May be relevant in other industry programs at a 'literacy' level	Units may be imported as 'natural clusters'	Not recommended and less feasible at these levels (prerequisites etc)
Integration with ICT industry & vendor certifications	Basic certification s possible (e.g. the ACS ICDL and Microsoft MOUS)	Some certifications possible as part of Certificates II and III	Range of options depending on qualification and mapped certifications.	Range of options depending on qualification and mapped certifications
Application of ICT Skills	Applicable across jobs in all industries Useful for ICT literacy and life skills	Entry into further education and training Jobs in user industries Useful for ICT literacy and life skills	ICT technical skills in other industries e.g. webmaster and at small to medium enterprise (SME) levels Transition to ICT specialist	ICT technical, soft and business skills in ICT specialist industry and other medium to large businesses 'enabled' by ICT

Key Players in Assessment

For the assessment system to work efficiently, the process must be coordinated with each participant being aware of his or her role.

The Candidate

The candidate is at the centre of the process. The candidate will initially determine his or her own readiness for assessment. This involves undertaking an initial self-assessment to determine if they are ready for an assessment. An individual may wish to be assessed for a range of reasons such as, advanced standing in a course, for recognition of current competencies (RCC) to gain a qualification or a statement of attainment or for career purposes.

Self-Assessment

Self-assessment provides the candidate with an opportunity to assess his or her own performance. It also allows them to understand more clearly what is considered effective performance in their current and other similar work environments. The candidate is given the competency standards on which they will be assessed. They will decide which normal day to day work processes provide the best opportunity to demonstrate the performance criteria. This increases the candidate's likelihood of being able to transfer the effective use of the competencies to other work places and new contexts. Self-assessment promotes the candidate's ability to undertake continual improvement of their own work, by introducing them to a process of self-review

The candidate may wish to document the process and outcome of their self-assessment. If they consider that they are ready for a formal assessment, the candidate will discuss their self-assessment with the assessor. This discussion should consider why a particular process was chosen, and whether this affected competent performance. This process helps the candidate decide whether they are ready for an assessment. It also reduces the number of potential appeals and provides the assessor with some information on the candidate's underpinning knowledge and skills for the units being assessed. Additional tools to aid this process are contained in the non-endorsed part of this Training Package.

The self-assessment process may:

- clarify the purpose and goal of the assessment;
- identify processes which lead to effective demonstration of the performance criteria;
- produce an outcome (product or role process) which successfully demonstrates competency;
- enable the candidate to evaluate the process and outcome; and
- enable the candidate to critically reflect on the process and outcome.

This means the candidate will become more practised in evaluating their own processes and standard of work.

The Employer

The assessment system provides employers with a valid and reliable process for appraising the skill levels of their current and future work force. An employer may request an individual to be assessed for a range of reasons such as, training and development purposes, internal recruitment and promotion, and external recruitment. The employer requesting an assessment must ensure that the candidate has access to all information relating to the assessment process. This should include as a minimum what is going to be assessed and what the appeals process involves. An employer may also be an assessor, but must be working under the auspices of a Registered Training Organisation (RTO) if a credential is to be issued.

The Assessor

The integrity of the assessment system relies on the assessor providing a fair, valid and reliable assessment. The assessor will ensure that the candidate understands what the assessment process involves and what will be assessed. The assessor also informs the candidate and employer of the appeal process. The appeal process is the responsibility of the Registered Training Organisation and information on the appeal system will be provided to assessors working for or in affiliation with the RTO. The assessor should assess in the workplace wherever practical, and attends to assessment administration tasks. An important aspect of the assessor's role is to provide the candidate with feedback on competency gaps.

Feedback is an important role of the assessor, and should provide information on where and how performance can be improved. An assessor may also be able to provide information on resources, such as training programs, that can be undertaken to become competent. It is important that feedback is provided in a positive and informative manner rather than a negative or punitive way.

Assessment against ICA05 units should be as holistic and integrated as possible. One option is for assessment to cover a range of interconnected or linked units of competency. Natural linkages between units in ICA05 are reflected in the text of each unit where relevant. The nature of interdependencies between units in ICA05 is discussed in Section 1.6 under the subheading about prerequisites.

Assessments which occur outside a training program or which do not use integrated assessment should ensure that:

- assessment procedures are the most effective for the context and purpose of the assessment;
- assessment materials developed for the assessment, conform to the guidelines in the non-endorsed section of this training package;
- evidence is gathered in an integrated manner;
- assessment is conducted as a holistic practice;
- the time frame for assessment is kept to a minimum;
- feedback is provided in a positive and timely manner; and
- the assessment is not seen as punitive.

Code of Practice

Some US assessment specialists have developed an international code of ethics and practice. The *Assessors Code of Practice* detailed below is based on international standards and included for guidance.

Assessors Code of Practice

- The differing needs and requirements of the person being assessed, the local enterprise and/or industry are identified and handled with sensitivity.
- Potential forms of conflict of interest in the assessment process and/or outcomes are identified and appropriate referrals are made, if necessary.
- All forms of harassment are avoided throughout the planning, conduct, reviewing and reporting of the assessment outcomes.

- The rights of the candidate are protected during and after the assessment.
- Personal or interpersonal factors that are not relevant to the assessment of competency must not influence the assessment outcomes.
- The candidate is made aware of right and process of appeal.
- Evidence that is gathered during the assessment is verified for validity, reliability, authenticity, sufficiency and currency.
- Assessment decisions are based on available evidence that can be produced and verified by another assessor.
- Assessments are conducted within the boundaries of the assessment system policies and procedures.
- Formal agreement is obtained from both the candidate and the assessor that the assessment was carried out in accordance with agreed procedures.
- Assessment tools, systems, and procedures are consistent with equal opportunity legislation.
- The candidate is informed of all assessment reporting processes prior to the assessment.
- The candidate is informed of all known potential consequences of decisions arising from an assessment, prior to the assessment.
- Confidentiality is maintained regarding assessment outcomes.
- Outcomes of the assessment are only released with the written permission of the candidate.
- The assessment outcomes are used consistently with the purposes explained to the candidate.
- Self-assessments are periodically conducted to ensure current competencies against the Training and Assessment Training Package.
- Professional development opportunities are identified and sought.
- Opportunities for networking among assessors are created and maintained.
- Opportunities are created for technical assistance in planning, conducting and reviewing assessment procedures and outcomes.

Note: A number of other professional bodies also specify their expectations about professional practice and conduct in assessment e.g. Australian Institute of Project Management (AIPM) at http://www.aipm.com.au/html/assessor_code_practice.cfm.

Diversity, Equity and Accessibility

The following information should be read in conjunction with other relevant parts of Section1.

Diversity and Equity

The IT Skills Hub, as redeveloper of the ICA05 Information and Communications Technology Training Package acknowledges the contribution of CREATE Australia and Tourism Training Australia for their assistance in providing text and information from their Training Packages for part of this section.

The information and communications technology (ICT) industry is characterised by a global workforce, diverse clientele and international relationships. The issue of diversity is a reality in most if not all workplaces and managed effectively can provide opportunity for market growth and access to the widest possible range of available skills and expertise.

A useful definition of diversity is 'the quality of being different and unique at an individual or group level'. Diversity is often discussed in relation to ethnicity, culture, gender, race, age, functional diversity, personality and learning styles. Recognising and valuing diversity means creating and sustaining an environment in which everyone can achieve their full potential. This may include removing systemic barriers and creating new ways of doing business.

In appropriately acknowledging the needs of all individuals engaged in learning or assessment processes, several principles of best practice in working with members of equity groups should be kept in mind:

- The learning and assessment environment should not disadvantage the candidate
- Practices should take into account any relevant language or cultural issues related to Aboriginality, gender or language backgrounds other than English and where appropriate and possible communication in languages other than English needs to be allowed for
- Language and literacy demands of the assessment task should not be higher than those of the work role
- The demands of assessment and the methods used need to take into account Employability Skills
- Adjustments to assessment practices are considered 'reasonable' if they do not impose an unjustifiable hardship on a training provider or employer and do not change the competency outcomes

Unit Importation

While the ICA05 Information and Communications Technology Training Package has not specifically included units about 'diversity' within its qualifications, it does recognise the particular importance of access and equity principles in its increasingly 'global' workforce.

Each ICA05 qualification has some 'free choice' electives and accordingly, it is recommended that users of ICA05 consider incorporating appropriate units relating to the implementation of access and equity principles in qualifications within this package as a means of recognising the contribution and promoting the benefits of diversity and tolerance in all workplaces.

The following suite of units has been assembled with options in mind and all have a focus on cultural diversity. Users of this package could consider choosing as electives those units that are relevant to the specifics of the subject ICA05 qualification and workplace. The suite ranges from basic skills and knowledge for working in a culturally diverse environment to higher order competencies that provide the knowledge and skills for strategy formulation and policy effectiveness monitoring. In two cases there are several alternatives shown as a means of offering effective choice between similar but different units. The full detail of these units can be found through *Search* of the NTIS, at www.ntis.gov.au.

CHCCS405A Work effectively with culturally diverse clients and co-workers

This unit deals with the cultural awareness required for effective communication and cooperation with persons of diverse cultures.

Elements are:

- Apply an awareness of culture as a factor in all human behaviour
- Contribute to the development of relationships based on cultural diversity
- Communicate effectively with culturally diverse persons
- Resolve cross-cultural misunderstandings

or

CUSGEN02B Work in a culturally diverse environment

This unit describes the skills and knowledge to work successfully in an environment with people from diverse social and cultural backgrounds.

Elements are:

- Communicate with individuals from diverse backgrounds
- Deal with cross cultural misunderstandings

and

CUETEM09A Manage diversity

This unit describes the skills and knowledge required to provide leadership in a diverse workplace where customers and staff may be from a wide range of backgrounds. It builds on the unit *CUSGEN02B Work in a culturally diverse environment*, and reflects the importance of diversity in all of the cultural industries.

Elements are:

- Encourage respect for diversity in the workplace
- Use diversity as an asset
- Deal with problems arising from diversity issues

and

BSBMGT614A Develop and implement diversity policy

This unit specifies the outcomes required to research diversity, draft policy, plan for implementation, and implement diversity policy. This unit covers the cycle of policy development with a specific focus on diversity and its importance to organisational activity. The policy takes a whole-of-organisation approach and sees diversity as an asset to the organisation.

Elements are:

- Research diversity
- Draft policy and plan for implementation
- Implement diversity policy
- Review diversity policy

or

TDTL3201A Implement equal employment equity strategies

This unit involves the skills and knowledge required to implement equal employment equity strategies in accordance with regulatory and workplace requirements, including identifying and communicating agreed employment equity direction, responding to enquiries regarding employment equity, implementing employment equity strategies, contributing to policy development, and evaluating and reporting on the implementation of equal employment opportunity strategies in the workplace.

Elements are:

- Identify and communicate agreed employment equity direction
- Respond to enquiries regarding employment equity
- Implement employment equity strategies
- Contribute to policy development
- Evaluate and report

Additionally, by initiating a *Search* process in the NTIS (www.ntis.gov.au) using *Equity* or *Diversity* as key words, a number of other equity and access units can be found.

Use of Assistive Technologies for Learning and Assessment Accessibility

ICT industries lead the world in the development and use of technologies to expand and sometimes compensate for human limitations. ICT designers and developers use accessibility concepts and tools to make computing technology and online services available to people who would otherwise be unable to engage. A later section outlines in some detail the considerations and opportunities which can be employed by ICT specialists in their roles as designers and developers.

However, ICT trainers and assessors should also be open to the use of innovative and assistive technologies where appropriate to enhance the abilities of people with special needs to participate in training provided for by this ICT Training Package. The later section provides additional information for consideration and guidance in this regard.

Information on Training and Assessment for People with Special Needs

Some of the following information is adapted from the following publication: *Skills that Deliver - An Introductory Guide to Reasonable Adjustment for Employers in the Tourism and Hospitality Industry*.

The IT Skills Hub, as redeveloper of the ICA05 Information and Communications Technology Training Package acknowledges the contribution of CREATE Australia and Tourism Training Australia for their assistance in providing extracts of text and information from their Training Packages for this purpose.

Good vocational training and assessment, like customer service, is often about making adjustments to what we do to meet individual needs. When learning to work, every person has slightly different needs. Rarely do stereotypes, clichés or generalisations hold true. This section is intended to assist ICT employers, trainers and assessors to meet the reasonable adjustment needs of learners with disabilities.

An open mind, common sense and tailoring to individual circumstances will, as often as not, ensure employees and learners achieve the standards that customers, employers and training providers expect. Reasonable adjustments need only be that - reasonable. There is no need to go to great lengths to meet the needs of employees with disabilities. It is about identifying what adjustments might reasonably be made and how they may be put into place. The goal is not to discount the quality or standards of work expected of an employee or learner.

More than one in seven Australians of working age are people with some form of disability, yet less than one in twenty people with special needs are engaged in the Vocational Education and Training (VET) system. (ABS 1998) This compares with the general rate of VET participation of nearly one in 10 for all Australians. People with special needs are twice as likely as others to be unemployed. This exclusion costs - customers and employees with potential are lost to the industry.

By including people with special needs in training, the industry enhances the Australian characteristic of fairness, and this, for many customers, enhances loyalty. Finally, it is worth remembering that we are all at risk of acquiring a physical or sensory impairment through accident or a mental illness triggered by the stresses of life.

What is a Disability?

A disability presents some impairment to everyday activity. In practice, some people with a disability do not have any impairments resulting from their disability. For example, a person who has a hearing impairment that is compensated for by a hearing aid may function without any adjustments.

Disabilities may affect or relate to a range of human functions including mobility, stamina, lifting ability, memory, vision, hearing, speech, comprehension and mood swings. This may be due to accidents, illness or birth. According to a survey conducted by the ABS in 1998, there were 3,610,300 Australians with a disability. Of all these people with special needs, people with a physical disability comprised 33.3 per cent, people with a medical condition 46.6 per cent, people with a psychiatric disability 5.6 per cent, people with an intellectual disability 4.4 per cent and people with a brain injury 1.1 per cent.

Detailed information on how to adjust training and assessment for each of these areas cannot be provided within this section, however, there are additional resources available, many of which are listed towards the end of this section.

Adjustments in Training and Assessment

An individual's access to the assessment process should not be adversely affected by restrictions placed on the location or context of assessment beyond the requirements specified in this Training Package.

Reasonable adjustments can be made to ensure equity in assessment for people with disabilities. Adjustments include any changes to the assessment process or context that meet the individual needs of the person with a disability, but do not change competency outcomes. Such adjustments are considered 'reasonable' if they do not impose an unjustifiable hardship on a training provider or employer. When assessing people with disabilities, assessors are encouraged to apply good practice assessment methods with sensitivity and flexibility.

The *Disability Discrimination Amendment (Education Standards)* define disability as:

- total or partial loss of the person's bodily or mental function; or

- total or partial loss of a part of the body; or
- the presence in the body of organisms causing disease or illness; or
- the presence in the body of organisms capable of causing disease or illness;
- the malfunction, malformation or disfigurement of a part of the person's body; or
- a disorder or malfunction that results in the person learning differently from a person without the disorder or malfunction; or
- a disorder, illness or disease that affects a person's thought processes, perception of reality, emotions or judgement or that results in disturbed behaviour.

Training Package developers and Registered Training Organisations are required under the Standards to take reasonable steps to ensure that Packages are designed in such a way that the learner is, or any learner with a disability is, able to participate in the learning experiences (including assessment and certification requirements) of the program, and any relevant supplementary program, on the same basis as a learner without a disability, and without experiencing discrimination.

There are a number of practical things that can be done as part of providing reasonable adjustment to employees and learners with special needs to enable them to undertake their training and assessment. Some suggestions are included below.

Type of Disability	Reasonable Adjustments
Mobility impairment	Provision of wheelchair accessibility, access to aids such as for holding documents, adjustable tables, note taking support, oral rather than written presentations or exams, use of a personal computer, lifting limits
Vision impairment or people who are blind	Use of audio tapes, enlarged text and images, enlarged computer screen images, use of voice synthesisers on computers, good lighting or reading lamps, Braille translations, provision for guide dogs, avoid moving furniture without informing the person, provision of additional writing time for assignments/tests
Hearing impairment or people who are deaf	Use of telephone typewriters, audio loops for people using hearing aids, use of Plain English documents, sign language interpreters for training and assessment, fire and alarm systems fitted with flashing lights.
Intellectual disability	Practical learning sessions, repetition of learning exercises, use of Plain English, use of mentors, assessment that is appropriate to the skill, i.e. avoiding written test for practical tasks, providing additional time
Psychiatric disability	Use of reflective listening skills, identification and avoidance of stresses, use of ongoing rather than formal assessments, providing 'time-out' breaks in assessment
People with acquired brain injury	Providing time and patience during training and assessment, using reflective listening skills, providing memory aids, e.g. posters, notes, minimisation of stress

Speech impairment	Provision of time and patience, paraphrasing, getting them to put things in writing, minimising stress

Clearly, each case will be different and will need to be discussed with the learner, and in many cases expert help may be needed, at least in the initial stages. There are many sources of help to assist in employment, training and assessment of a person with a disability.

Additionally, the CHC02 Community Services Training Package contains units of competency that may be of value where ICT trainers are working with learners with special needs. Several of these units are listed below:

- CHCDIS18A Support students with special needs
- CHCDIS8B Support people with disabilities as workers
- CHCDIS9B Maximise participation in work by people with disabilities

A copy of the Disability Discrimination Act Education Standards 2004 can be accessed at:

<http://www.ag.gov.au/DSFE>

Further advice about the Disability Discrimination Act can be accessed at:

<http://scaleplus.law.gov.au/html/pasteact/0/311/top.htm>

Sources of support for employment, training and assessment

There are many sources of support in the employment, training and assessment of a person who has a disability; some of these are listed below.

Association of Competitive Employment (ACE) National Network

ACE represents agencies who deliver open employment services for people who have a disability.

PO Box 5198
Alphington VIC 3078
Ph: (03) 9411 4033
Fax: (03) 9411 4053
Email: info@acenational.org.au
Website: www.acenational.org.au

Australian Disability Clearinghouse on Education and Training (ADCET)

ADECT provides information about inclusive post secondary education and training teaching, learning and assessment strategies and support services for people who have a disability.

ADCET
Locked Bag 1335
Launceston TAS 7250
Ph: (03) 6324 3787
Fax: (03) 6324 3788
Website: www.adcet.edu.au

Australian Association of the Deaf

PO Box 1083
Stafford QLD 4053
Ph: (07) 3357 8266
Fax: (07) 3357 8377
TTY: (07) 3357 8277
Email: aad@aad.org.au
Website: www.aad.org.au

Australian Federation of Deaf Societies

PO Box 1060
Parramatta NSW 2124
Ph: (02) 8833 3615
Fax: (02) 9893 8333
TTY: (02) 9893 8858

Australian Federation of Disability Organisations

Australian Federation of Disability Organisations
247 Flinders lane
Melbourne VIC 3000
Ph: (03) 9662 3324
Fax: (03) 9662 3325
Email: office@afdo.org.au
Website: www.afdo.org.au

Blind Citizens Australia

PO Box 24
Sunshine VIC 3020
Ph: (03) 9372 6400
Fax: (03) 9372 6466
TTY: (03) 9372 9275
Freecall: 1800 033 660
Email: bca@bca.org.au
Website: www.bca.org.au

Brain Injury Australia

PO Box 82
Mawson ACT 2607
Ph: (02) 6290 2253
Fax: (02) 6290 2252
Email: bianational@apex.net.au

Carers Australia

PO Box 73
Deakin West ACT 2600
Ph: (02) 6122 9900
Fax: (02) 6122 9999
Email: caa@carersaustralia.com.au
Website: www.carersaustralia.com.au

Commonwealth Disability Services Program Contacts

<http://www.facs.gov.au> or by telephone:

ACT	(02) 6274 5206
New South Wales	(02) 263 3818
Northern Territory	(08) 8946 3555
Queensland	(07) 3360 2800
South Australia	(08) 8236 6111
Tasmania	(03) 6221 1411
Victoria	(03) 9285 8523
Western Australia	(08) 9346 5311

Deafness Forum of Australia

The forum coordinates the annual National Hearing Awareness Week, held in the last complete week of August.

218 Northbourne Avenue

Braddon ACT 2612

Ph: (02) 6262 7808

Fax: (02) 6262 7810

TTY: (02) 6262 7809

Email: info@deafnessforum.org.au

Website: www.deafnessforum.org.au

Website: www.hearingawareness.org.au

Mental Health Foundation Australia

270 Church St

Richmond VIC 3121

Ph: (03) 9427 0407

Fax: (03) 9427 1294

Email: admin@mhfa.org.au

Website: www.mhfa.org.au

National Council on Intellectual Disability

PO Box 771

Mawson ACT 2607

Ph: (02) 6296 4400

Fax: (02) 6296 4488

Email: ncid@dice.org.au

Website: www.dice.org.au

National Ethnic Disability Alliance

PO Box 381

Harris Park NSW 2150

Ph: (02) 9687 8933

Fax: (02) 9635 5355

TTY: (02) 9687 6325

Website: www.neda.org.au

Physical Disability Council of Australia Ltd

PO Box 77
Northgate QLD 4013
Ph: (07) 3267 1057
Fax: (07) 3267 1733
Email: pdca@pdca.org.au
Website: www.pdca.org.au

SANE Australia

PO Box 226
South Melbourne VIC 3205
Ph: (03) 9682 5933
Fax: (03) 9682 5944
Freecall: 1800 18 SANE
Email: info@sane.org
Email: helpline@sane.org
Website: www.sane.org

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Fax: 1300 65 49 49
Email: sales@sai-global.com
Website: www.saiglobal.com

Standards Australia

Standards Australia develops standards and codes for building access.
Standards Australia Limited
286 Sussex Street
Sydney NSW 2000
GPO Box 476
Sydney NSW 2001
Ph: (02) 8206 6000
Email: mail@standards.org.au
Website: www.standards.org.au

Women with Disabilities Australia (WWDA)

PO Box 605
Rosny Park TAS 7018
Ph: (03) 6244 8288
Fax: (03) 6244 8255
Email: wwda@ozemail.com.au
Website: www.wwda.org.au

Information on Training and Assessment for People from Aboriginal or Torres Strait Islander Backgrounds

The IT Skills Hub, as redeveloper of the ICA05 Information and Communications Technology Training Package acknowledges the contribution of CREATE Australia and Tourism Training Australia for their assistance in providing extracts of text and information from their Training Packages for this section.

The ICA05 Information and Communications Technology Training Package has very broad application across all community and workforce areas in Australia. Indigenous communities are finding increasing value in accessing and using information technology resources and online services as part of their work and non-work lives. The 'tyranny of distance' is being overcome through the innovative use of technology and the internet. In the context of this Training Package, it is expected that an individual's access to the assessment process should not be adversely affected by restrictions placed on the location or context of assessment beyond the specific outcomes required by this package.

Where ICA05 or elements of it are being used in Aboriginal or Torres Strait Islander communities, local stakeholders should be involved in the development and implementation of its training and assessment arrangements. When considering the rollout of information technology training in indigenous communities, some of the issues to be considered include the need for effective training and assessment planning, appropriateness of delivery approaches, suitability of venues, availability of resources and the development of appropriate learning exemplars and activities. Suggestions for consideration against a number of these issues are provided in the following sections.

A recent publication, *Gettin' into it! - Working with Indigenous learners*, (available from DEEWR) provides practical advice on designing teaching and learning strategies relevant to Indigenous people.

It contains creative teaching and learning strategies that can be used in classroom, workplace and community settings, as well as a range of professional development activities to familiarise teachers and trainers with applying the teaching and learning strategies.

Gettin' into it! - Working with Indigenous learners was developed in response to research in 2003 that showed teachers and trainers wanted practical resources to help them tailor delivery and assessment to best suit their students. It also supports *Shaping our Future*, Australia's national strategy for vocational education and training for 2004-2010, which places a high priority on providing Indigenous people with skills for viable jobs.

The ICT Training Package includes units of competency that will be imported into other Training Packages or qualifications and which suit particular Aboriginal or Torres Strait Islander circumstances. One case in point is the Western Australian *Certificate II in Information Technology (Remote Communities)* which 'blends' the competencies from several Training Packages including Telecommunications, Printing and Information Technology to address a real infrastructure and community need. Care should be taken to ensure that 'receiving' packages or qualifications beyond ICA05 are mindful of the guidance provided in this section.

General Cultural Issues that May Impact Training

There are hundreds of Aboriginal or Torres Strait Islander cultures and languages and therefore training and assessment should be encouraged to have a local focus to maximise effectiveness. Individual Aboriginal or Torres Strait Islander communities need to be involved in the development and implementation of training and assessment and in some circumstances communication in languages other than English may need to be allowed for. This could be particularly relevant for those people completing qualifications in remote communities.

Some of the issues to be considered include:

- Ownership and/or custodial rights and responsibilities within Aboriginal or Torres Strait Islander cultures and nations, including the rights of people to 'identify with' people and Country and exercise affiliations, even where these have not been previously known, recognised or exercised
- Cross-cultural issues, not only in terms of Aboriginal or Torres Strait Islander/non-Aboriginal or Torres Strait Islander interactions but also between and within Aboriginal or Torres Strait Islander cultures, nations and sub-groupings where inter-relationships can be extremely complex and sensitive
- 'Rights' of people to speak on behalf of and represent groupings, these being generally invested in Elders or other Aboriginal or Torres Strait Islander people who are recognised by their community as custodians of cultural knowledge
- Attitudes towards cultural heritage aspects that can be shared without compromise and the ways in which this can be achieved. For example, this may impact on who teaches knowledge, who studies units and the cultural protocols that govern the ways in which this is done
- Recognition that Aboriginal or Torres Strait Islander arts and cultures are dynamic and are continually growing and developing and not fixed in a particular view of the past
- Respect for the rights of Aboriginal or Torres Strait Islander peoples to refuse to pass on information, including details about family history, kinship systems, Country, significant sites and other cultural knowledge
- Awareness of the sensitivities that may be felt by some Aboriginal or Torres Strait Islander people when researching their own culture, Country and family systems, particularly when such research impacts on personal identity

Planning for Training and Assessment

There are a number of issues that should be considered when planning for the delivery of training or the assessment of individuals, these include:

- Consulting Elders or other Aboriginal or Torres Strait Islander people who are recognised by their community as custodians of cultural knowledge about appropriate methods for accessing and using local knowledge
- Inviting the involvement of the local Aboriginal or Torres Strait Islander community, particularly Elders, at all stages of the planning, development, training and assessment process. Elders are the custodians of knowledge, as well as the authorities from whom permissions must be sought for in relation to issues such as which knowledge can be shared, the ways in which this sharing must occur and how its application can be best assessed

- Setting up local Aboriginal or Torres Strait Islander reference groups to advise on training development (may include organisations such as Local Aboriginal Land Council, local community arts centre, Aboriginal Education Consultative Group)
- Allowing time to develop rapport and trust, to develop and explore viewpoints, ongoing consultation, communication and problem-solving
- Ensuring participation of local Elders - sitting in on sessions/activities, as presenters, mentors, advisors and 'supporters', providing context and 'grounding'. This 'authority' aspect is very important and in many instances, the mere presence of key Elders, even if they are not taking an active role, lends both authority and permission
- Locating training and development activities in the local community and promoting and ensuring a sense of community ownership, involvement, partnership and control

Approaches to Training and Assessment

In order to ensure that Aboriginal or Torres Strait Islander people are not disadvantaged in ICT VET processes, a number of ideas could be considered where appropriate, including:

- Orally-based training and assessment with explanation and demonstration
- Working in pairs for training and assessment
- Small or large group work for training and assessment: assessment dimensions for Aboriginal or Torres Strait Islander peoples may include a 'group' component as well as an 'individual' component
- Culturally appropriate presentations for training and assessment, e.g. presentations or art pieces in a medium appropriate to local culture
- Using artwork or illustrated oral presentations/talks, for presentation and assessment.
- Consulting learners about preferences and how they feel they can best demonstrate their competence
- Taking a flexible approach to time and achievement of outcomes
- Flexible delivery and assessment processes
- Identifying culturally appropriate and sensitive trainers and assessors with a demonstrated ability to work effectively with local Aboriginal or Torres Strait Islander communities
- Training external trainers in appropriate and localised approaches and providing essential community and cultural background information/support
- Developing all training as part of an overall empowerment and confidence-building program
- Accommodating priorities and obligations within local communities to avoid conflict with training and assessment activities
- Exploring perceptions and understandings 'in community'
- Allowing multiple, holistic and personalised assessment opportunities
- Identifying appropriate materials/methods through community and potential learner consultations
- Tailoring training and assessment for specific communities rather than applying 'blanket' solutions/methods, recognising that there are many localised Aboriginal or Torres Strait Islander 'cultures' and not a single one
- Personalising training materials with appropriate, local illustrations and applications
- Training and assessment integrated with work activities as much as possible
- Structuring training and assessment as ongoing work experience.

Training and Assessment Venues

A number of basic operational issues should also be considered, including:

- What are locally familiar, appropriate, preferred and available venues?
- Are 'classrooms' or other interior settings available or appropriate?
- Is an outdoors location preferred/more appropriate/ feasible?
- What innovative technologies (e.g. mobile and wireless) could be used in the field?
- Are assistive technologies needed and available?
- Is on-the-job training and assessment most appropriate and how is this best organised?
- Are occupational health and safety issues addressed?
- Do local climatic conditions affect training and assessment locations and approaches?

Training and Assessment Resources

The appropriateness of resources can be pivotal to the success or failure of training and assessment activities, particularly where cultural differences may be present. The presentation of training and assessment of individuals against ICT competencies may present considerable challenges in this regard, particularly in remote communities. The following ideas should be considered when selecting or developing resources:

- Selection of appropriate trainers and assessors
- Availability, accessibility and appropriateness of written, audio-visual, photographic, electronic or other resource materials such as necessary equipment
- Development or adaptation of appropriate resource materials
- Availability of electricity or availability at required times in remote training and assessment locations
- Availability of internet access for online research, training and assessment, where appropriate.

The actual materials, exemplars and activities utilised in ICT VET training and assessment should be carefully reviewed with the following issues taken into consideration:

- Do existing training resources meet the needs of Aboriginal or Torres Strait Islander candidates or is there a need for additional material?
- Are learners going to meet visitors from outside local cultural groupings?
- Can activities be developed that bridge traditional cultural needs and obligations and those of varied outside visitors who also have great cultural diversity?
- Are activities contained completely within a limited cultural world sufficient to achieve the outcomes required by the standards?
- Do set activities enable learners to demonstrate their competence and satisfy the requirements of the competency standard/qualification level? The challenge is in balancing local situations and needs with national competency standards and qualifications. Qualifications are national and therefore 'portable' and these aspects must be considered.
- Are existing activities within resources relevant, able to be adapted according to local needs or do they need replacing with your own or others

Clearly, each case or set of circumstances will be different and will need to be discussed with the learner(s). In some case expert help may be needed, at least in the initial stages. There are sources of help to assist in training and assessment of Aboriginal or Torres Strait Islander candidates, some are listed below.

Sources of Help for Training and Assessment

Australian Indigenous Training Advisory Council (AITAC)

Telephone: (07) 3244 5628

Website: www.itis.edu.au

National Aboriginal and Torres Strait Education website

Website: www.natsiew.nexus.edu.au

Additionally, most State and Territory Education Departments have an Indigenous Unit who may be able to provide advice and information.

The following three publications available from DEEWR have been produced to assist Registered Training Organisations and auditors to provide quality training and assessment experiences for equity groups:

Working with Diversity: Quality Training for People with a Disability.

Working with Diversity: Quality Training for Indigenous Australians.

Working with Diversity: A Guide to Equity and the AQTF.

Making the Connections: 48 ways to progress equity in the national vocational education and training (VET) system, ANTA (1/4/04)

This publication focuses on equity issues and practical insights. The report provides insight into how 1,300 VET practitioners participated in a initiative in 2003 to effectively develop such skills and knowledge. People with a disability and Indigenous people want successful outcomes from their involvement in vocational education and training (VET). A key strategy to ensuring these outcomes is to develop the professional skills and knowledge of VET practitioners.

Gettin' into it! - Working with Indigenous learners, DEST 2004 is available for free from <http://www.resourcegenerator.gov.au>.

Language, Literacy and Numeracy

In everyday workplace tasks it is common for a person to use and respond to spoken and written language and use numeracy skills at the same time. These skills are applied within a cultural context that needs to be interpreted and responded to appropriately.

When designing workplace learning and assessment tasks, the trainer and assessor should be aware of this interlinking of language, literacy and numeracy. However there will also be situations in which only one of these skills is the focus of the training, for example calculation skills for analysing the characteristics of website traffic.

Although you will find the terms 'language, literacy and numeracy' generally used together they are not interchangeable or always linked. The terms are defined below.

Language

In its broadest sense, language involves the words, verbal structures and gestures we use to convey meaning. In using language we generally use a combination of communication forms such as speaking, listening, reading, writing and visual communication. Visual communication skills underpin the agreed language of the Australian deaf community, Australian Sign Language (AUSLAN).

Language can also refer to individual languages such as English, Mandarin, Warlpiri. Our workplaces often involve a mix of language groups and sometimes workers can hold technical competency without English language competency.

Language changes over time and context. Industries have their own vocabulary, including jargon, technical terms and acronyms that workers must understand. This can be very challenging for some people, particularly those for whom English is not their first language. Take the word 'cookie' for example. A baker may bake it, a photographer may attach it to a light stand and an ICT specialist may stop it being transmitted over the internet.

Effective cross-cultural communication requires a range of skills including the ability to appreciate that there may be variations in the value placed on the communication forms of language. For example, while written language is highly regarded in the English language, Indigenous languages place higher value on verbal and visual communication forms.

Literacy

Literacy is the ability to read and use written information as well as to write appropriately, in a range of contexts. Literacy involves the integration of speaking, listening, and critical thinking with reading and writing. Literacy skills enable us to interact with one another to achieve particular purposes: to explain, debate, retrieve and provide information, explore issues, entertain and create.

Literacy is about our social application of language, for example in our homes, communities, schools and workplaces. Like language, literacy practices change over time and context. We have seen this over the last decade with emerging multimedia and information technologies and our multi cultural society.

The literacy demands placed on individuals also change throughout their lifetimes. As we experience new situations we need to continually adapt and extend our literacy skills.

Numeracy

Numeracy involves the practical application of mathematical skills to absorb, use and critically evaluate information in numerical or graphical form.

Depending on the context this can include basic number skills, spatial and graphical concepts, the use of measurement and problem solving. Numeracy may also involve literacy, for example when extracting mathematical information from written text.

In the workplace the methods used to achieve certain numeracy tasks will differ according to the workplace requirements, technology and culture.

Once again it is important to reiterate several important principles:

- The learning and assessment environment should not disadvantage the candidate

- Practices should take into account any relevant language or cultural issues related to Aboriginality, gender or language backgrounds other than English and where appropriate and possible communication in languages other than English needs to be allowed for
- Language and literacy demands of the assessment task should not be higher than those of the work role
- The demands of assessment and the methods used need to take into account the Employability Skills
- Adjustments to assessment practices are considered 'reasonable' if they do not impose an unjustifiable hardship on a training provider or employer and do not change the competency outcomes

LLN in ICA05

Individual units within the ICA05 Training Package have considered the issue of language, literacy and numeracy skills in the context within which the competencies are expected to apply in the workplace. Where these aspects are central to the competency, appropriate text has been provided in Elements, Performance Criteria, Knowledge and Skills.

As a rule, the LLN skills listed are more broad than definitive statements and rely on the trainer and assessor to use the content and context of the whole unit as a guide. Aspects such as the level of the unit, its context within a qualification, whether there are prerequisite units that apply, and other knowledge and skills listed are all relevant in this regard.

This package does however, contain a significant proportion of content of a highly technical nature, a characteristic most evident in qualifications from Certificate IV upwards. In view of this, the package now specifically includes a number of lower level 'prerequisite' type units in the application of mathematical techniques, for example *ICAB4225B Automate processes* and *ICAB4224B Apply mathematical techniques for software development*. The incorporation of these new units clearly underpins streams of higher order units that require underpinning arithmetic and related skills. Care should be taken in the learning and assessment processes for such units to ensure that methods are used which do not disadvantage particular equity groups while still maintaining the rigour and robustness of the competency.

The ICT package also specifies knowledge and skills as requirements for entry into all qualifications at Certificate III and above. These are reflected in the 8 core units from ICA20105 Certificate II in Information Technology and essentially equate to ICT 'employability' skills.

In these regards, the package is much clearer about requirements than previously.

ICT Trainers and Assessors

ICT trainers, supervisors and assessors should be mindful and vigilant to appraise the individual and to clarify the intent of the particular unit when learning and assessment occurs under the auspice of this Training Package.

Variables may include but are not limited to:

- Individual's level of competent in LLN skills and any other factors that may impact their performance in learning and assessment processes
- The particulars of the unit including its qualification positioning, Performance Criteria, the relevant Employability Skills, prerequisite, learning and assessment process design and implementation

- Overall technical content, intent and core performance expectations in the unit
- Level of LLN understanding and instructional competence in the trainer and assessor

Consideration should be given to sourcing appropriate training and skills formation activities to enable trainers and assessors to be comfortable in handling the LLN aspects of their roles.

When appraising individuals, trainers and assessors should be cognisant of the national standards known as the National Reporting System (NRS). These NRS national standards provide benchmarks that could be used to determine an individual's LLN skills for the purposes of learning and assessment.

In an ideal situation, assessors would possess particular knowledge and skills to determine the LLN skills of the trainee against the NRS national standards. At minimum, assessors and RTOs will need to ensure that their assessment methods and tools have taken into account the levels and ranges of reading, writing, numeracy and oral communication skills required for the particular unit of competency in order to be able to fairly and validly assess the candidate.

Language, literacy and numeracy (LLN) skills and knowledge have been integrated into the structure and units of the proposed TAA04 Training and Assessment Training Package in a number of ways including references to LLN in individual TAA units and the incorporation of a specific elective unit in Certificate IV in Training and Assessment. (TAALLN401B *Apply strategies to assist learners develop English language, literacy and numeracy skills* refers)

This means that future training of all trainers and assessors in the VET sector will include awareness of language, literacy and numeracy issues in relation to training and assessing.

Sources of Help for Training and Assessment

A number of resources that might assist in the areas of LLN and assessment are available from the DEEWR website and include:

- Frequently asked questions about language, literacy and numeracy in the AQTF ANTA (Published 5/2/03)
- This resource provides information to help RTOs understand how language, literacy and numeracy fit into the delivery of quality training and assessment. In addition to answers to 33 FAQs it also contains links to over 40 additional language, literacy and numeracy resources via hotlinks. It is a complementary resource to the Standards for Registered Training Organisations and Evidence Guide for Registered Training Organisations and Auditors.
- A New Assessment Tool - Incorporating language, literacy and numeracy skills into Training Packages - A professional development kit for trainers and assessors ANTA and DEETYA
- Built in not bolted *on* (revised edition 2000) DEETYA

Additionally, the resources of Australian governments both Federal and State/Territory should be explored where eligible ICT VET candidates require additional support on LLN.

For example:

- The *Language, Literacy and Numeracy Program* operated by Department of Education, Employment and Workplace Relations (DEEWR) provides basic language, literacy and numeracy training for eligible job seekers whose skills are below the level considered necessary to secure sustainable employment or pursue further education and training. It is designed to help remove a major barrier to employment and improve participants daily lives. Details can be found at <https://llnp.dest.gov.au/>

Other resources are also available for existing workers and ICT VET candidates generally who require more intensive LLN support to undertake ICT VET training. For example:

- Local TAFE institutes
- Programs operated by organisations such as the Council of Adult Education (http://www.cae.edu.au/furthereducation/workplace_programs.php)

Accessibility

As mentioned earlier in this section, accessibility and the innovative use of assistive technologies needs to be a consideration of all training and assessment personnel. This section is however designed to provide guidance for ICT designers, developers and other people who might upload or construct materials destined to be placed online and accessed electronically.

Influence of ICT design and development on Accessibility

In the context of ICT design and development 'accessibility' generally refers to the objective of ensuring that content, generally web content, can be navigated and read by everyone, regardless of location, experience, special needs or the type of computer technology used.

Accessibility is commonly discussed in relation to people with disabilities, because this group are most likely to be disadvantaged if the principles of accessible web design are not implemented. Accessibility is sometimes defined as the degree to which software can be used comfortably by a wide variety of people, including those who require supporting tools or assistive technologies such as a screen/text readers or magnifiers, adapted keyboard, voice recognition or the use of contrasting colours for readability and provision of alternative tags for graphics. Accessible web pages take into account the special needs of visitors with auditory, visual, mobility and cognitive impairments, and give those users an equivalent browsing experience to that of non-disabled visitors. However, it should be recognised that people from disadvantaged circumstances, the aged and users generally, will also benefit from the application of accessibility principles to web design and development.

Failure to follow a number of fundamental contemporary principles can make it difficult or impossible for people with disabilities to access web based content. Creating accessible content should therefore be an integral part of the web design philosophy with accessibility features being incorporated into all aspects of the design process. Testing for accessibility should also be incorporated into any and all user testing regimes, and should never be seen as an isolated event that occurs after other user testing has taken place. Designing for accessibility is thus as much a strategic issue as a purely technical one.

ICA05 has particular 'testing' and design units that address these considerations. These units are specifically included in a number of core and electives lists for particular design, development and testing qualifications. However they also form part of the 'free choice' option for electives in other qualifications. These may be particularly valuable when used in conjunction with competencies which develop technical or user documentation skills in a number of other ICA05 qualifications.

ICAT4183B Confirm accessibility of website for people with special needs

ICAT4184B Ensure site usability for full range of users

Additionally, as more Training Packages utilise generic ICA05 units within their own packages (for example, around writing web content *ICAD4209B Write content for web pages*, creating user documentation *ICAD3218B Create user documentation* and uploading information to websites *ICAD4198B Develop guidelines for uploading information to a website*), the following principles become even more relevant to a wider 'non-ICT' workforce.

Web Page User Circumstances

It is important to recognise that users of web pages may be operating in very different circumstances from those contexts familiar to website developers, designers and ICT administration employees generally.

For those unfamiliar with accessibility issues pertaining to web page design, it may be pertinent to consider that many users may be faced with some or all of the following circumstances:

- They may not be able to see, hear, move, or may not be able to process some types of information easily or at all
- They may have difficulty reading or comprehending text
- They may not have or be able to use a keyboard or mouse
- They may have a text-only screen, a small screen, or a slow internet connection
- They may not speak or understand fluently the language in which the document is written
- They may be in a situation where their eyes, ears, or hands are busy or interfered with (e.g., driving to work, working in a loud environment, etc.)
- They may have an early version of a browser, a different browser entirely, a voice browser, or a different operating system

Content developers must consider these different situations during page design. While there are several situations to consider, each accessible design choice generally benefits several disability groups at once and indeed, the web community as a whole.

The above accessibility units (ICAT4183B Confirm accessibility of website for people with special needs and ICAT4184B Ensure site usability for full range of users) reference and consider a range of web content and other accessibility guidelines. These guidelines explain how to make web content accessible to people with disabilities and other users. The guidelines are intended for all web content developers (page authors and site designers) and for developers of authoring tools. The primary goal of these guidelines is to promote accessibility. However, following them is good practice for web-based communication generally as they will also make web content more available to *all* users, whatever user agent they are using (e.g., desktop browser, voice browser, mobile phone, automobile-based personal computer, etc.) or constraints they may be operating under (e.g., noisy surroundings, under- or over-illuminated rooms, in a hands-free environment, etc.). Following these guidelines will enable people to find information on the web more quickly. These guidelines do not discourage content developers from using images, video, etc., but rather explain how to make multimedia content more accessible to a wide audience. As such these guidelines provide valuable reference documents for accessibility principles and design ideas.

Additionally, a number of ICT vendors also include standards and protocols within their own authoring products that adhere to broader accessibility standards. Overviews of these more specific 'proprietary' guidelines are generally available from the vendor's website and should be reviewed particularly where they are applicable to the ICT application or software product being used for web content design, development or loading.

Web Page Content and Technical Design Principles

Prevailing vendor-neutral web content accessibility guidelines (WCAG) generally include the following principles to guide ICT designers and developers. However, they are equally applicable to other activities associated with the design and upload of web based products and the instruction and assessment of people with special needs.

1. Provide content that, when presented to the user, conveys essentially the same function or purpose as auditory or visual content
2. Ensure that text and graphics are understandable when viewed without colour
3. Mark up documents with the proper structural elements. Control presentation with style sheets rather than with presentation elements and attributes
4. Use mark-up that facilitates pronunciation or interpretation of abbreviated or foreign text
5. Ensure that tables have necessary mark-up to be transformed by accessible browsers and other user agents
6. Ensure that pages are accessible even when newer technologies are not supported or are turned off
7. Ensure that moving, blinking, scrolling, or auto-updating objects or pages may be paused or stopped
8. Ensure that the user interface follows principles of accessible design: device-independent access to functionality, keyboard operability, self-voicing, etc
9. Use features that enable activation of page elements via a variety of input devices
10. Use interim accessibility solutions so that assistive technologies and older browsers will operate correctly

11. Use web content accessibility guidelines 1.0 (WCAG) technologies (according to specification) and follow accessibility guidelines. Where it is not possible to use a WCAG technology, or doing so results in material that does not transform gracefully, provide an alternative version of the content that is accessible
12. Provide context and orientation information to help users understand complex pages or elements
13. Provide clear and consistent navigation mechanisms -- orientation information, navigation bars, a site map, etc. - to increase the likelihood that a person will find what they are looking for at a site
14. Ensure that documents are clear and simple so they may be more easily understood
15. Validate accessibility with automatic tools and human review. Automated methods are generally rapid and convenient but cannot identify all accessibility issues. Human review can help ensure clarity of language and ease of navigation

Postscript: The following article was recently published by the Australian Computer Society.

Designing software for users with disabilities

New ISO guidelines will assist people with a wide range of disabilities by removing barriers that prevent them from using or getting the best out of software and, in so doing, contributing to their overall effectiveness, efficiency, and satisfaction.

ISO/TS 16071 will provide a roadmap to software design that takes into account the varying physical and sensory capabilities of users to ensure that it can be used not only by people with visual, hearing, motor or cognitive disabilities, but also the elderly, the temporarily disabled - and by those with no disability at all.

Schools and Institutional Contexts

A number of issues facing learning and competency assessment organisations that operate predominantly within an institutional environment are discussed here. In some cases, such an environment provides limited opportunity to learn or more particularly, to undertake assessment consistent with a 'real' workplace context.

Following are some practical suggestions around ICT work placements and the use of simulated environments for learning and assessment. This is not intended to be overly prescriptive and recognises the inherently different characteristics of prevailing national VET policies when operationalised at a State and Territory level. However, the issue of valid and reliable assessment and this Training Package's credibility with the ICT industry requires the articulation of guiding principles.

ICA05 in a School Environment

Schools in particular face challenges around ICT competency based learning and assessment processes.

Vocational education and training 'VET) in schools' is nationally recognised training made available to senior students as part of their normal school curriculum. Students can select options and programs that range from a couple of hours a week to part-time school-based apprenticeships, where students actually become trainees and employees. They have the opportunity to complete their secondary education with all of these:

- a senior secondary certificate qualification,
- university entrance score or equivalent, and
- practical work skills and a VET qualification

Within school sectors nationally, many ICA05 units are taught and assessed either separately or in conjunction with senior secondary school curriculum. A number of these ICT units are only offered individually and may result in Statements of Attainment. However, there are a significant and growing number of complete qualifications being issued, particularly at the lower package levels of Certificates I and II.

The issuing of full qualifications at Certificates I and II is consistent with the prevailing national VET in Schools policy and generally supports State/Territory government initiatives in ICT literacy, fluency, connectivity and 'job readiness' agendas.

Furthermore, skills at these levels are generally well accepted in the workplace either as basic ICT 'user' skills or as the foundation for more advanced ICT user or the more junior technical specialist tasks. In fact the ICT Training Package has specified the 8 core units from *ICA20105 Certificate II in Information Technology* as containing the essential underpinning knowledge and skills for all Certificate III and above qualifications in the package.

A number of excellent operational resources are available from those agencies that support VET in Schools programs at State and Territory level. It is recommended that these be accessed and utilised in support of ICA05 delivery in schools.

While much of the following discussion specifically addresses and references VET in Schools and the school as a particular type of 'institutional' delivery, the broad guidance offered apply equally to other delivery sectors most notably vocational education and training (both public and private providers) as well as the adult and community education sector (ACE). In these contexts the same or similar issues are present where there is an institutional delivery model operating within a 'workplace competency' philosophy.

ICA05 Certificates I and II

The expected application of the *Use of technology* skill at Certificate I level was described by the ANTA VET in Schools report as follows:

'use of technology is focused on receiving and passing on messages and carrying out routine tasks applicable to the learner's work'

Where a learning institution seeks to deliver and award a full qualification at Certificates I or II, the expected outcomes may be consistent with a predominantly institution-based delivery model using some interpretations of ANTA's descriptors.

Certificate I

'... Applications may include a variety of employment related skills including preparatory access and participation skills, broad-based induction skills and/or specific workplace skills. They may also include participation in a team or work group ...'

Certificate II

'... Performance of a prescribed range of functions involving known routines and procedures and some accountability for the quality of outcomes would be characteristic.

Applications may include some complex or non-routine activities involving individual responsibility or autonomy and/or collaboration with others as part of a group or team... '

The Information and Communications Technology Training Package ICA05, contains a single qualification at Certificate I and one at Certificate II each with a number of a number of core and elective units (the detail of which can be found elsewhere in the package):

- ICA10105 Certificate I in Information Technology
- ICA20105 Certificate II in Information Technology
- Individuals exiting such qualifications will have sufficient skills to be useful in a variety of workplace contexts where basic ICT and foundation 'user' skills are required. As previously mentioned, the core units in Certificate II provide the underpinning knowledge and skills for all other ICA05 qualifications from Certificate III upwards.

The units which comprise the core of these qualifications fall into several categories which have relevance when delivering training and undertaking assessment.

'Technical' ICT units at Certificates I and II

Clearly many ICA05 units relate to ICT 'technical' tasks and functions, for example, *ICAU1129B Operate a word processing application*. The Performance Criteria when read in conjunction with the Critical Aspects of Evidence (see below) quite clearly establishes the outcomes required which arguably at this level rely very little on a real workplace environment for demonstrating competency.

'Assessment must ensure the ability to create, open and retrieve documents, customise basic settings, format documents, create tables, add objects and images, and save and print documents.'

However, the same could generally not be said for Certificate IV to Advanced Diploma levels of ICT technical tasks and functions.

Work-oriented or work-environment units at Certificates I and II

Other ICA05 units have a more 'work-oriented' or work-environment flavour and are predominantly designed around the ability of an individual to fit in and be effective in an environment characterised by normal work place challenges and modes of operation. Two core units from ICA20105 Certificate II in Information Technology are examples of this type of unit:

- BSBCMN106A Follow workplace safety procedures
- ICAW2002B Communicate in the workplace

In the case of ICAW2002B, the critical aspects of evidence states:

'Assessment must confirm the ability to adhere to organisational policies in regard to external and internal client contact and the processing of internal and external requests, including from colleagues.'

This type of requirement is operationally more problematic (than handling low level 'technical' units) for institutional delivery and assessment even when using a 'simulated environment'. However, given the level of the subject qualifications (Certificate I or II) institutional delivery and assessment can generally accommodate all the necessary provisions for valid and reliable assessments.

Certificate III in IT

In the ICA05 ICT Training Package there is one Certificate III in Information Technology. This qualification has a 6 common core of units and 3 specialist streams (Applications, Network Administration, Support) each with their own core units. It also requires the existence of prerequisite knowledge and skills.

The Certificate III qualification can potentially deliver an 'advanced' user or a 'junior' operative in a field such as networking.

At Certificate III, the expected application of the employability skill *Use of technology* is as follows:

'Use of technology is focused on tasks applicable to the learner's work and in the application of employability skills such as communication, problem solving, planning and organising'

The AQF descriptor for Certificate III qualifications includes performance expectations such as skills transference to new environments and the prospect of potential responsibility for others. While some of the 'technical' skills may be effectively learnt and assessed in an appropriately structured, simulated environment, some of the more work environment-related competencies may be more problematic in an institutional model of delivery.

Certificate III

'... Breadth, depth and complexity of knowledge and competencies would cover selecting, adapting and transferring skills and knowledge to new environments and providing technical advice and some leadership in resolution of specified problems. This would be applied across a range of roles in a variety of contexts with some complexity in the extent and choice of options available ... Applications may involve some responsibility for others. Participation in teams including group or teams coordination may be involved ...'

This qualification once again, also includes both ICT 'technical' and workplace-oriented core units.

'Technical' ICT units at Certificate III

The critical aspects of evidence for ICA05 'technical' unit ICAS3034B *Determine and action network problems* (core in Network stream) states:

Assessment must substantiate the ability to document network-related problems, determine the required resources, solve the client problems or escalate the problem in accordance with organisational guidelines. The network is to be maintained with minimal disruption to clients.

This type of unit is often taught quite successfully in an appropriately structured simulated environment although the pressures and challenges of a 'real time' network environment are arguably unlikely to be fully replicated.

To a degree, the more workplace-specific unit *ICTCC330A Manage customer relationship* (core in Support stream and imported from the ICT02 Telecommunications Training Package) is more problematic in that it requires *'to the contribution that individual operators can make to the management of established relationships with the customer'*.

The learning and assessment of customer facing units may not be so easily replicated outside of a real workplace environment, particularly where there is a component of pre-existing relationship. While case studies and simulations of customer contact may impart understanding of relationship management principles, the application of those principles may be limited in an institutional setting.

Additionally, this level of qualification within the overall package qualifications framework requires training organisations to seriously consider the magnitude and composition of prerequisite knowledge and skills necessary for entry into the learning of (particularly core) Certificate III units. This raises questions of learning volume, training programming and timing for training providers and particularly school-based learners.

Work-oriented or work-environment units at Certificate III

This ICA05 qualification contains several core 'work-oriented' or work-environment related units for dealing with clients and applying OH&S procedures. Both build on the concept that this level of qualification is designed to provide a vocational outcome in its own right beyond the status of 'preparation for work'. In fact, Certificate III is sometimes more widely referred to as appropriate for 'Trade and intermediate service workers' in other packages.

Consistent with the earlier comments at Certificate II, learning and assessment of individuals based predominantly in an institutional environment such as a school or vocational education and training institute must take account of the need to adequately demonstrate these types of competencies, not just acquire the underpinning knowledge and skills. The issue of a complete qualification at this level in ICA05 must be cognisant of the nature and capabilities of the graduate expected to exit this qualification, as described in the qualification descriptor:

This qualification provides the skills and knowledge for an individual to be competent in introductory ICT 'technical' functions and is designed to support information activities in the workplace and to achieve a degree of self-sufficiency as an advanced ICT 'user'. The will give employers a degree of confidence in an individual's usefulness in the workplace as it has a strong suite of 6 common core ICT units building on the prerequisite knowledge and skills from the 8 Certificate II in IT core units.

In reviewing the possibilities for employment, it could be argued that institutional graduates at this level would be work-ready in an ICT 'technical' sense and have sufficient technical skills to do a limited array of advanced user work. They would be unlikely to have deep, ICT specialist knowledge and skills and less likely to have the real workplace experience required in the ICT sector. They may be helpful in a small to medium enterprise (SME) organisation at an advanced user level. They may have limited ICT specialist knowledge if sufficient specialisation has occurred in the qualification e.g. basic network administration. An ideal scenario would be to work as member of an ICT team or to work cooperatively with more experienced, skilled and knowledgeable colleagues.

Certificate IV and above

The ICA05 Training Package includes 8 Certificate IV in Information Technology qualifications that share a significant proportion of the following 'core' units of competency at this level. The main exception is the Certificate IV in IT (Multimedia) which has a smaller common core; but which would build to the following list if the IT cluster of that qualification was selected.

- BSBCMN304A Contribute to personal skill development and learning
- ICAA4041C Determine and confirm client business expectations and needs
- ICAB4225B Automate processes
- ICAD4043B Develop and present a feasibility report
- ICAD4217B Create technical documentation
- ICAT4221B Locate equipment, system and software faults
- ICAW4214B Maintain ethical conduct
- PSPPM402B Manage simple projects

The expected application of the *Use of technology* skill at Certificate IV is as follows:

'Use of technology applies to both tasks applicable to the learner's work and in the application of other employability skills such as communication, problem solving, planning and organising and so on and will include preparing resources for effective communication and planning'

Once again the core comprises a mixture of technical and work environment-oriented units. All units are expected to deliver outcomes consistent with the AQF descriptor for this level (see below).

Certificate IV

Characteristics of Learning Outcomes

Breadth, depth and complexity of knowledge and competencies would cover a broad range of varied activities or application in a wider variety of contexts most of which are complex and non-routine. Leadership and guidance are involved when organising activities of self and others as well as contributing to technical solutions of a non-routine or contingency nature.

Performance of a broad range of skilled applications including the requirement to evaluate and analyse current practices, develop new criteria and procedures for performing current practices and provision of some leadership and guidance to others in the application and planning of the skills.

Applications involve responsibility for, and limited organisation of, others.

Distinguishing Features of Learning Outcomes

Do the competencies enable an individual with this qualification to:

- demonstrate understanding of a broad knowledge base incorporating some theoretical concepts
- apply solutions to a defined range of unpredictable problems
- identify and apply skill and knowledge areas to a wide variety of contexts, with depth in some areas

- identify, analyse and evaluate information from a variety of sources
- take responsibility for own outputs in relation to specified quality standards
- take limited responsibility for the quantity and quality of the output of others.

Graduates from this level of qualification in the ICT Training Package would be expected to be able to contribute fully as a 'junior' technical specialist and solutions provider and make an immediate contribution to a business. Alternatively, a graduate may operate as an advanced 'user' providing support and solutions to other employees. In either of the above and similar cases, graduates of a full qualification at this level need to have demonstrated both technical and work environment competency at a 'real' work level that is characterised by a degree of unpredictability, varying contexts, critical appraisal and management of diverse and perhaps questionable information and the assumption of responsibility for one's own and perhaps others' quality and quantity of work. Some Training Packages consider their Certificate IV graduates to be 'associate professionals and supervisors'.

While the demonstration of some ICT technical competencies may be relatively straightforward and could result in the issue of Statements of Attainment, it is unlikely that the full suite of units required for the award of a whole Certificate IV in IT could be effectively achieved in a solely institutional environment, in particular, schools. The effective delivery and attainment of technical competence is of course also dependent on access to the necessary physical resources and human expertise which may be difficult in some school environments.

Furthermore, while some students may be able to demonstrate the technical skills and understanding related to some competencies in a Certificate IV qualification, there are considerable challenges for school-based learners in being able to demonstrate the consistent integration of knowledge, skills and understanding in workplace settings that a complete ICA05 qualification requires at this level. This matter is being monitored on an ongoing basis by the ICT industry, in order to match the desired career pathways of students with the available training programs in the future. The industry emphasis is necessarily on quality technical and client service which requires that students be able to communicate with a range of people in a businesslike and adult manner. At the time of writing, the implementation of complete Certificate IV qualifications in IT through a school-based process does not appear to have wide industry support. Consistent with this position, there needs to be careful consideration given to the requirements for rigorous and robust learning and assessment in a school-based system aiming to deliver at this qualification level.

As mentioned earlier, a number of core units in Certificate IV in IT qualifications have prerequisite knowledge and skills and consideration must be given to the accommodation of these prerequisite requirements as part of the planning process for delivering at this qualification level.

Where difficulties persist, consideration could be given to investigating competencies acquired outside of the school or institutional setting in which the ICT learning takes place. This may provide positive solutions for the less technical units given the widespread nature of contemporary part-time and vacation work undertaken by students. Additionally, work placements also provide a valid means of both learning and demonstrating competence (subject to 'quality aspects') and are actively encouraged by this Training Package as part of any institutional model of training delivery. Appropriately structured simulated environments may also provide a valid means of learning and assessment where a 'real' workplace environment is not available. A later part of this section addresses a number of aspects relating to both work placement and simulated environments in more detail.

Work Placements

One means of overcoming some of the competency assessment difficulties inherent in institutional training delivery and assessment models is through appropriately structured work placement programs. Some of the following information has been extracted from the project *ICT Work Placement Models and Tools for VET in Schools*. While this project particularly focused on *VET in Schools*, the general principles have much wider applicability and could be employed in any competency-based institutional delivery and assessment model.

The significance of this information is in the range and variety of work placement options which may be useful in introducing 'live' workplace activities into what might otherwise be a relatively static learning and assessment environment.

Introduction

Structured work placements, in the senior secondary school context require students to spend time in a workplace setting in a manner that is recognised and accredited as a part of their formal studies. Work placement usually involves students spending an extended period of time in a workplace, gaining experience, skills and undergoing an assessment process related to the attainment of a qualification in a specific occupational field. Workplace learning is different to classroom learning in a number of fundamental respects in that the former is usually focused on behaviour and the latter is usually focused on cognitive processes.

An Australian study by Smith (2000) identified the following major ways students learnt in the workplace:

- being trained in formal situations;
- asking questions;
- having a go -not being 'pushed aside';
- learning from mistakes;
- being shown how to do tasks while an explanation was given;
- carrying out simple tasks;
- watching and copying other workers, and
- copying a role model.

An essential feature of school-industry programs is that they involve students spending some time learning in a workplace, however, not all VET in Schools programs involve such work placements and where they do there is variance in their characteristics. For example, in one State the 'work experience' program incorporates work placement, work sampling, work shadowing and research work experience. While government funded research using 1999 figures suggested that approximately 57 per cent of programs involve work placement, anecdotal evidence suggests that this rate will have increased with the impact of training packages on school-industry programs.

Partnerships of different forms are important to the operation of work placement programs. In terms of institutional partnerships, there appears to be a growing complexity in the ways that schools organise themselves to provide school-industry partnerships.

VET in Schools

The House Education Committee recently released its report on vocational education in schools. *Learning to Work* makes 41 recommendations including addressing funding, teacher preparation and development, national consistency, industry involvement, and greater coordination between education sectors. The growth of VET in Schools has been remarkable and student numbers have tripled since 1996. In 2002, 95 per cent of all schools offered VET in senior secondary programs and 44 per cent of students were enrolled in VET in Schools programs. This has required significant changes to schools and school systems however there remain significant areas requiring improvement. These include resourcing, infrastructure and processes, industry-educational sector partnerships, accommodation of students with special needs and teacher education and professional development.

One criticism of VET in Schools programs in the past has been the extent to which students in school-based programs can go beyond the development of the underpinning knowledge and skills to the ability to demonstrate competencies consistently in a real workplace environment, according to the organisational guidelines of an employer and to the standards expected of adult workers in the industry.

In recent years, an increasing number of effective programs of structured workplace learning have made significant progress towards greater 'workplace integrity' for those industry training programs that are delivered predominantly off the job. The implementation of Training Packages means that structured workplace learning must now also be a consideration for Registered Training Organisations, as well as schools, in their delivery of training programs.

It is important to distinguish between structured workplace learning, contracted training and work experience. In a structured work placement, the time and activities spent in the workplace have been structured, through consultation between teachers, students and the host employer, to enable the student to develop and demonstrate some of the competencies that make up the training program otherwise being delivered off the job. Assessment of these competencies can be recorded to count towards completion of a qualification.

Contracted training, such as in a New Apprenticeship, involves a formal agreement between the student (apprentice or trainee) and employer, setting out the conditions for paid employment and training to be conducted on and off the job.

Traditionally, work experience has concentrated on observation of workplace activities, with perhaps a 'taste' of the tasks and responsibilities involved in a particular job. Work experience continues to be an important part of a young person's vocational education, perhaps as a prelude to a VET in Schools program, but without contributing to national qualifications.

Principles for Quality Workplace Learning

The Ministerial Council on Employment, Education, Training and Youth Affairs (MCEETYA) endorsed the Principles for Quality Workplace Learning for school students engaged in Vocational Education and Training programs throughout Australia. All States and Territories apply the principles to their work placement programs although the nature and extent of work placement programs vary across States and Territories.

The broad MCEETYA principles are documented below:

Quality workplace learning is integrated into a program

- It operates within a framework which provides the opportunity for all students to access it, though not all students may choose to do so; and
- It operates within the context of vocational courses, which are recognised by industry, are responsive to industry needs and forms part of a student's exit credential.

Quality workplace learning is structured

- It has a clearly articulated and documented purpose;
- There are clearly identified and documented learning outcomes for students within accredited programs, which are linked to post-school qualifications;
- They are of sufficient duration and depth to enable students to acquire a reasonable understanding of the enterprise/industry to demonstrate competence according to industry standards of at least level 1 of the AQF;
- There is a matching between the students' skills and interests and the work placements; and
- Students, teachers and employers are thoroughly prepared beforehand so that the expectations and outcomes of the work placement are clearly understood by all parties.

Quality workplace learning is monitored

- The learning is coordinated by personnel with appropriate expertise and adequate resources; and
- Support should be made available to students and employers throughout the course of the work placement.

Quality workplace learning is regulated

There are clearly stated procedures designed to ensure that:

- Students are protected from moral and physical danger;
- Students work in a non-discriminatory and harassment free environment;
- Students receive appropriate training and instruction in occupational health and safety; and
- Students are not exploited by being continuously engaged in a production or service capacity or used to substitute for the employment of employees and payment of appropriate wages.

- The students are required to understand the roles and responsibilities of employees in the workplace and are expected to follow the directions of the workplace supervisors and the other employees.

Quality workplace learning is assessed

- The assessment, according to industry standards, is of students' competencies achieved in the workplace which contributes to the overall assessment of the program; and
- There are mechanisms for the recording and reporting of students' competencies.

There is a strong correlation between these MCEETYA quality principles and the OECD characteristics of high quality learning programs detailed below.

The major 14-country study entitled *From Initial Education to Working Life: Making Transitions Work* by the OECD identified 10 characteristics of high quality workplace learning programs. These are:

1. Work placements that are long enough for real learning to take place;
2. Systematic analysis of the training capacity of the workplace, to see what it can realistically supply;
3. A formal training plan, setting out what has to be taught and learned, and clarifying the work- based and school-based parts of a student's program;
4. Employer involvement in student selection for work placements;
5. The presence of a trained program coordinator, able to liaise between the school and the firm and troubleshoot when problems occur;
6. The use of qualified, highly competent workers as workplace trainers or mentors;
7. Regular face-to-face contact between the coordinators and employers and in-firm supervisors;
8. Monitoring of the students on the job by the program coordinator;
9. The evaluation of student performance against the training plan at the end of the placement, with the evaluation carried out by the job supervisor and coordinator jointly;
10. Deliberate efforts by schools to relate what has been learned at work to students' school-based learning.

Issues in ICT Work Placements

During the development of the IT&Titab ICT Work Placement project a number of practical issues were raised by work placement coordinators and teachers, these are outlined below and should be considered and resolved in any work placement program.

Privacy issues surround student access to employer client records

Privacy is a serious legal issue for all organisations. Students can be asked to sign a privacy statement, which requires them to maintain the privacy of a company and the integrity of data. If privacy is still an issue for a business then the student could work on a computer that is not part of a network and does not contain the relevant records.

Many firms use custom built software that is not suitable for students

Most customised software shares similarities with off the shelf applications. Students should be familiar with a range of software applications, as this will help them to readily transfer their skills to new products. Students should request an induction on customised applications. Identifying differences between applications will enhance their understanding of software applications generally.

Many enterprises, particularly small businesses often do not have spare computer resources to allocate to students

The student may have access to a laptop or the model of work placement may be changed to a model where the student can work off site.

Students that express a preference for networking and software applications are the most difficult to place

Many employers are nervous about letting students near their networks, as a crashed network can cost businesses a lot of time and money. It is important to work with the employer to identify what they will let the student do. The employer must have final say on what the student will be expected to do.

The skill level represented by the Certificate II is too low to attract employers to participate in a work placement program

ICT companies will find the Certificate II in Information Technology not relevant to their workplace but businesses that work in other industry sectors will find the skills gained through the Certificate II in Information Technology useful.

ICT employers identify systems security as an impediment to work placement

Security, like privacy, is a major concern for most businesses. Students should be made aware of the serious legal issues surrounding privacy and security before they commence any work placement. It is important to work with the employer to identify what they will let the student do. The employer must have final say on what the student will be expected to do.

Fluctuations in the fortunes of the ICT industry affect employer willingness to participate in work placement programs

Many industry sectors use ICT to do their work. Fluctuations in the 'specialist' ICT industry will not necessarily affect other industry sectors.

ICA05 position

As previously mentioned, all States and Territories apply the MCEETYA quality principles to their work placement programs although the nature and extent of work placement programs vary across States and Territories.

The ICA05 Training Package strongly recommends that all students undertaking learning against an ICA05 qualification in an institutionalised setting, particularly schools, be provided with the opportunity to participate in work placement which is characterised by:

- Clearly articulated and documented purpose

- Relevance to the VET qualification being undertaken
- Development of competence in designated industry skills
- Regular and frequent use of ICT hardware and software
- Development of appropriate attitudes towards work
- Learning in a range of behaviours appropriate to the ICT industry
- Facility for on-the-job practice of skills acquired in a classroom
- Development of additional skills and knowledge including Employability Skills
- Recognition of student readiness
- Activities that complement off-the-job learning programs
- Opportunities for work-based assessment
- Flexibility
- Has the support of industry partners

Beyond the above, a number of other provisions are necessary for a successful workplace program involving ICT competencies. The credibility of work placements and any resultant recognition of competency requires a degree of 'seriousness' if the outcomes are to be valued by individuals and industry clients of the VET system.

It is suggested that stakeholders involved in the planning and management of work placements involving ICA05 qualifications or units carefully consider and implement the following general principles:

1. That the RTO assume responsibility for finding placements and validating the arrangements
2. That the work place has the appropriate resources, tools and staff to conduct the placement with compliance to any legislative requirements
3. That there be regular validation by the RTO that the student and assessor, where relevant, are operating according to RTO AQTF standards
4. That a student on work placement must be covered by injury insurance
5. That there is a formal contract setting out each party's responsibilities and obligations
6. That the work place must have on site a qualified workplace trainer and assessor in 'direct line' control of the student (to avoid training and assessment by 'proxy')
7. That if the placement is for assessment only then there must be clearly documented assessment tasks specifically related to the performance criteria being assessed and evidence retained to support achievement of competence (for both best practice recording purposes and audit/appeal)
8. That if the placement also includes training then any 'academic pass' cannot be bestowed prior to the placement as clearly all of the learning components have not been undertaken nor can they be assessed in advance if they have not been learned
9. That the training be directly related to achievement of ICT competence while recognising the likely acquisition of other skills and knowledge
10. That where assessment occurs it be clearly related to a unit of competency (or possibly single performance criteria [PC]) relevant to the work placement

11. That where more than one performance criteria (possibly over more than one unit) is being assessed there must be a clearly linked and documented relationship between the assessment and the PC

12. That the qualifications level be appropriate in context i.e. if it is advanced programming OO there must be an advanced OO programming task observed and assessed

13. That the actual variables of the PC be documented for audit purposes and for verification of appropriateness of the range in the work placement

It is noted that in some State/Territory school systems, students' part-time work in an appropriate workplace may be used to fulfill work placement requirements, while virtual/simulated ICT work placements are also seen as a legitimate source of work placement in some instances.

Twelve Models of ICT Work Placement for VET in Schools

In the course of completing the project *ICT Work Placement Models and Tools for VET in Schools*, the IT&Titab developed a suite of 12 models of ICT work placement. Some of these models correspond to traditional notions of work placement, while others do not. However, each model is a worthwhile and meaningful solution to the current challenge of work placement in the Australian ICT industry. Additionally, they potentially have value and application beyond their initial target audience of VET in School students.

The models vary from structured work placements to school based simulation and have been grouped into three 'clusters' based on several differentiating characteristics. These include:

- Location of the work placement experience (i.e. in an employer's premises or elsewhere)
- Degree to which project work forms an integral part of the placement
- Whether placement tasks involve businesses/individuals as direct clients in a limited way

However, inherent flexibility exists within individual models, which may result in specific work placements spanning more than one cluster. For example, the State Coordination model (detailed below) may ultimately secure a 'direct placement', while still differentiating the 'model' on the basis of its administrative coordination function.

The 12 models have been grouped into the following clusters:

1. Direct Placement
2. Non-Direct Placement (Project based)
3. Non-Direct Placement (Special)

Outlined below is a description of the clusters and the models that fall within each:

CLUSTER 1: DIRECT PLACEMENT

The Direct Placement cluster is characterised by work placement arrangements which require students to undertake their placements in employer premises alongside the existing workforce. The following models have been grouped into this cluster:

- Regional Coordination
- Industry Coordination
- Community Development
- Business Incubator

Regional Coordination Model

This model involves work placements for a number of schools being coordinated across a region by a broker/coordinator using case loaders to manage placements by industry sector.

This model usually involves the case loader working with businesses within a defined region to secure placements. The coordinator acts as a single point of contact for schools and employers, and liaising with employers, schools and students to administer the placement. The employer supervises the direct placement of the student. Students attend direct work placement during business hours and dress in business attire as required.

Industry Coordination Model

This model involves work placements for a number of schools being coordinated across a region by a broker/coordinator who is located with industry and focused solely on managing placements in that industry.

This model usually involves the case loader working with businesses within a defined region to secure placements. The coordinator works from a supporting business, and is seen to be part of industry. They report to an industry based management committee and act as a single point of contact for schools and employers. The coordinator specializes on one sector and is able to more effectively manage networks and relationships within that industry. The employer supervises the direct placement of the student. Students attend direct work placement during business hours and dress in business attire as required.

Community Development Model

The community development model sees education, public sector and business partners give priority to work placement as part of a broader regional development strategy involving technology based initiatives.

The community development model involves students working on real tasks as junior consultants with partner businesses. Schools work through a cluster or program coordinator to place students with businesses who are partners in a local ICT centre/regional technology hub.

The employer acts as partner business with the local ICT centre/regional technology hub and integrates students with consultant teams undertaking work in the community. Students attend jobs during business hours and dress in business attire as required.

Business Incubator Model

This model involves work placements for a number of schools being coordinated in conjunction with a business incubator/R&D precinct and their client networks.

This model usually involves the cluster coordinator working with businesses in a specified precinct to facilitate project based placements. The students work in teams at the business incubator/R&D precinct and complete specific tasks and projects for the participating businesses.

The employer briefs students on project details, accepts presentation of finished project and provides feedback to students. Students attend work placement during business hours and dress in business attire as required

CLUSTER 2: NON-DIRECT PLACEMENT (PROJECT BASED)

This Non-Direct Placement cluster (Project Based) is characterised by students undertaking work placement tasks which have a relatively defined project base and which are generally undertaken in locations other than an employer's premises. The following models have been grouped into this cluster:

- Community Enterprise
- Regional RTO Partnership
- Commercial Provider partnership
- Virtual Work Placement

Community Enterprise Model

The community enterprise model involves schools working with a local community organisation and its networks to run an enterprise as means of providing a realistic work placement experience for IT students.

This work placement model involves students working on real world tasks for a range of organisations under supervision within a community organisation that operates as a workplace. Students work in teams to deliver project outcomes.

The community organisation liaises with networks to identify relevant events, projects and tasks and then creates the workplace environment. The employer briefs students on project details, accepts presentation of finished project and provides feedback to students. Students attend work placement during business hours, dress in business attire as required and manage project work in teams.

Regional RTO Partnership Model

The model involves schools across a region working through their cluster/broker to collectively provide work placement experiences for IT students at TAFE campuses by doing project work relevant to a wide range of community organisations.

This work placement model involves students working on real world tasks for a range of community organisations. Students are placed in teams at a number of different TAFE campuses under supervision from TAFE staff. Community representatives act as employers and provide project briefs, contact and feedback to students during the placement. Students attend work placement during business hours, dress in business attire as required and manage project work in teams.

Commercial Provider Partnership Model

The commercial provider partnership model involves schools working with a commercial training or recruitment provider and its business partners to provide a realistic work placement experience for IT students.

This work placement model involves students working on real or simulated tasks under supervision in a commercial environment. Students work with provider staff to deliver task outcomes during the placement period. Supervisors from outside the school are ideally involved so that students undertake the work in an environment that functions as closely as possible to a real workplace

Virtual Work Placement Model

The virtual work placement model involves students and employers interacting through a web portal to provide a realistic work placement experience for IT students.

This work placement model involves students working on real world tasks for a range of organisations. Students identify project tasks from the website and make contact with employers via email, bulletin boards, chat rooms and file sharing etc. Students work in teams to deliver project outcomes, and present their outcomes to employers where feasible.

A program manager/supervisor has key roles including promoting and marketing to involve business, facilitating the posting of tasks and projects and supervising students as required. Employers provide project briefs, feedback on work in progress and accept presentation of finished project. Students analyse the projects, scope out a proposal to solve the problem and manage project work in teams.

CLUSTER 3: NON-DIRECT PLACEMENT - SPECIAL

This Non-Direct Placement cluster (Special) covers models which are not generally project based or located in an employer's premises. A number of these models have a 'client' and advisory/service orientation to the placement activities. The following models have been grouped into this cluster:

- Computer Reuse
- State Coordination
- Practice Firm
- Help Desk

Computer Reuse Model

The model involves schools working with an organisation or program to provide a work placement program based on supporting the redeployment of redundant computer hardware.

This model of work placement involves students rebuilding computer hardware and reformatting them with software relevant to the needs of a third party. Students work in teams to task criteria supplied by third-party clients. They scope hardware requirements, research relevant software and present their recommendations to the client. If their proposal is accepted, the students prepare and install the PCs and provide basic instruction on computer use.

State Coordination Model

This model involves placements, simulations and other related initiatives being coordinated across a region by a government agency that manages activity for a specific industry sector(s).

This model involves agency staff working with businesses and other stakeholders to satisfy work placement demand for a specific industry sector(s). The agency acts as a catalyst, brokering and driving initiatives involving schools and other community stakeholders including other government agencies and industry.

The agency role includes working with stakeholders to identify placements and develop placement activities, developing program guidelines and managing the submission process to allocate resources and providing administrative support. Employers supervise students/activities and provide feedback to students on work in progress as required. Students attend work placement or participate in activities to suit the placement.

Practice Firms Model

The Australian Network of Practice Firms (ANPF) is a network of training businesses that provide for students to manage and operate simulated businesses as part of their learning programs. Each of these simulated businesses (or 'practice firms' or 'training companies') follows real-world business practices and trades within a virtual economy.

Practice firms are formed from a partnership between a school, a real business that agrees to mentor the students, and the ANPF Central Office. Students work as business people, operating their own business and making decisions that lead the business into profitable (or not-so-profitable) outcomes. ANPF provides a safe and secure learning environment for students to work on a national basis with the 150 Australian firms and the 4,000 or more international firms.

Help desk model

This model provides a realistic work placement experience by using students to provide technical support to schools and other community organisations by running a help desk in a manner consistent with commercial practice.

Students use commercial help desk software to track jobs and provide support to callers as required. While a program coordinator provides technical assistance as required and is in contact with students on a daily basis, students deal with real clients and manage their own work and that of the team. The software used also enables the program coordinator to supervise the progress of jobs remotely. Students attend the help desk as required by work schedule and manage tasks and work in teams.

Learning and Assessment of Competencies in a Simulated Environment

It is noted that in some States/Territories the Board of Studies has authorised virtual or simulated ICT work placements as a legitimate source of work placement in some instances.

Introduction

The following guidance around the use of simulation is most applicable to those school or institution-based programs where there is little or no opportunity presented or taken for real workplace contact (for the purposes of assessment).

The challenge for any institutional educator within a competency based training environment is to provide a variety of opportunities for students to demonstrate competence, and to accurately measure their performance in a real-life situation.

The focus of this section is to define the use of workplace simulation as an assessment strategy to meet ICT Training Package requirements. Within this context, simulation refers to activities that aim to reflect the complexity of the workplace, and are used to assess performance against units of competency.

Advice to Training Package developers and these Assessment Guidelines state that workplace simulations must provide opportunities for integrated assessment of competence that includes:

- performing the task (task skills)
- managing a number of tasks (task management skills)
- dealing with workplace irregularities such as unexpected problems, breakdowns and changes in routine (contingency management skills)
- fulfilling the responsibilities and expectations of the job and workplace, including working with others (job/role environment skills)
- transferring competencies to new contexts.

In many cases however, actual workplaces may remain the most valid and cost effective option for assessing against units of competency from this Training Package. Simulation activities may be integrated into programs using a range of strategies including; identifying and clustering units of competency that are most appropriately delivered and assessed using particular workplace simulation possibilities.

Simulations may also be used in conjunction with other learning and assessment activities including work placements, employment, log books and portfolios.

The eight simulation possibilities that have been identified as being relevant to this Training Package are:

1. actual trading businesses operated by an RTO
2. simulation activities that provide actual products or services but do not trade
3. simulated businesses, trading in a simulated environment
4. model workplaces
5. technology assisted simulations
6. case study scenarios, problem-based learning and project work
7. structured role play of work situations
8. practical tasks.

As far as possible, the workplace simulation possibilities have been presented hierarchically with the first three possibly being more likely to meet the requirements of this Training Package where assessment of competence may occur in the workplace or a simulated workplace environment. Some workplace simulation activities may also combine aspects of several simulation possibilities. Further information on each simulation possibility can be found in a range of reference material.

Workplace Simulation Checklist

The following items should be addressed when using workplace simulations in conjunction with the ICT Training Package.

Ensure the proposed simulation is sufficiently complex to assess ICT competencies

There are certain conditions that exist in the workplace which need to be present to make the workplace simulation realistic and cost effective. These conditions include requirements such as:

- the use of facilities and equipment that meet current industry standards
- the presence of customers (including difficult customers and diverse types of customers)
- integrated approaches to work performance (including the performance of multiple tasks, prioritisation of competing tasks, and the application of service standards and OH&S requirements)
- realistic allocations of time to tasks and deadlines
- consistent performance over time
- working with others in teams and as a team leader
- realistic considerations of budget constraints
- operational procedures and guidelines

Amend assessment and learning documentation

To facilitate the use of simulation as an assessment method, learning and assessment documentation should:

- reflect the intent of the ICT Training Package Assessment Guidelines and address the performance standards specified in relevant units of competency;
- identify realistic workplace simulation possibilities (including the context and purpose of the simulation) for delivery, assessment, and combinations of delivery and assessment, for each module and unit of competency;
- incorporate the variables specified in the range of variables from the relevant units of competency;
- identify the resources required to demonstrate the competence as detailed in the Evidence Guides in the relevant units of competency;
- encourage flexibility, diversity and experimentation in assessment strategies, so that creative approaches to workplace simulation can be used;
- provide advice on strategies for creating realistic work environments and collecting sufficient assessment evidence;
- include opportunities for candidate briefing and self-assessment prior to simulated assessment events, together with debriefing opportunities.

Reflect authentic work environments

Simulated activities used to assess against industry standards must provide opportunities for integrated assessment of competence, which includes:

- performing the task (task skills)
- managing a number of tasks (task management skills)
- dealing with workplace irregularities such as unexpected problems, breakdowns and changes in routine (contingency management skills)
- fulfilling the responsibilities and expectations of the job and workplace, including working with others (job/role environment skills)
- transferring competencies to new contexts
- assessment of performance over time.

The workplace simulated environment must be as realistic and authentic as possible and reproduce workplace conditions as far as possible. A rethinking of teaching and learning processes may be necessary to replicate workplace processes and characteristics.

Collect sufficient assessment evidence

Holistic assessment events should be used to integrate problem solving skills and reproduce workplace conditions as closely as possible.

- simulations need to provide a context where candidates can undertake a number of roles. They also need to provide an opportunity for assessment of performance over time and in different situations as they arise
- the use of comprehensive assessment checklists assists in identifying critical performance criteria and informing holistic judgments is necessary. Use of self assessment, peer assessment and debriefing activities also contribute to valid and reliable assessment in workplace simulated environments.

Work with industry and the community

The reasons for using simulation should be discussed with local business representatives and agreement reached on the nature and scope of proposed simulations, especially where the simulation may be seen as competing unfairly with local enterprises. Ask local enterprises to sponsor practice firms or act as simulation partners. Enterprises may provide:

- a model, authentic business
- up-to-date information and authentic documentation (e.g. workplace roles, occupational health and safety regulations, salary advice, marketing information, procedural manuals, policies)
- advice or on-the-job training for RTO staff, to ensure industry currency
- feedback on the authenticity of the simulation
- work placements for students and/or a venue for workplace visits

Develop resources and initiatives to support the use of workplace simulation

To support the use of valid and cost effective workplace simulation, learning and assessment resources should:

- provide information that explicitly links assessment advice and resources with the ICT Training Package requirements;
- provide parameters and ideas, but also encourage flexibility and local 'ownership' of the assessment resources;
- provide workplace templates, guidelines and policies that are available across different organisations;
- provide practice firm documentation and support.

Evaluate options and create simulated workplace environments

Establishing simulated assessment environments will be easier where strong links exist with local industry and a tradition of industry involvement in training exists within the RTO, through work placements, practicums, field trips or other activities. In these environments, more integrated provision of on- and off-the- job training builds on existing practices.

Address staffing issues

Organisation, teamwork and goodwill are essential for effective simulated environments.

- It may be necessary for teachers, students and support staff to participate in the workplace simulation.
- Local enterprises to sponsor practice firms and/or act as simulation partners
- The presence of customers (including difficult customers and diverse types of customers)

Characteristics of Workplace simulations

Consider the key success factors for an effective simulated environment. Workplace simulations generally comprise the following elements:

- Complex environments
- Current industry resources, customers, operational procedures, multiple task performance, prioritising of tasks, realistic timeframes and budgets, consistent performance, teamwork
- A reflection of authentic work environments
- Opportunities to demonstrate task skills, task management skills and contingency management skills, fulfilling job/role expectations, transference of competency
- Collection of sufficient evidence
- Holistic assessment, self assessment, peer assessment
- Involve industry
- Business models, up-to-date information/documentation, advice on authenticity of the workplace simulation
- Resources to support simulation
- Local flexibility, practice firm documentation and support.
- Includes additional people
- Local business people, teachers, students, support staff, customers.

Competency Standards

Competency Standards

What is competency?

The broad concept of industry competency concerns the ability to perform particular tasks and duties to the standard of performance expected in the workplace. Competency requires the application of specified skills, knowledge and attitudes relevant to effective participation in an industry, industry sector or enterprise

Competency covers all aspects of workplace performance and involves performing individual tasks; managing a range of different tasks; responding to contingencies or breakdowns; and dealing with the responsibilities of the workplace, including working with others. Workplace competency requires the ability to apply relevant skills, knowledge and attitudes consistently over time and in the required workplace situations and environments. In line with this concept of competency, Training Packages focus on what is expected of a competent individual in the workplace as an outcome of learning, rather than focusing on the learning process itself.

Competency standards in Training Packages are determined by industry to meet identified industry skill needs. Competency standards are made up of a number of units of competency each of which describes a key function or role in a particular job function or occupation. Each unit of competency within a Training Package is linked to one or more AQF qualifications.

Contextualisation of Units of Competency by RTOs

Registered training organisations (RTOs) may contextualise units of competency to reflect local outcomes required. Contextualisation could involve additions or amendments to the unit of competency to suit particular delivery methods, learner profiles, specific enterprise equipment requirements, or to otherwise meet local needs. However, the integrity of the overall intended outcome of the unit of competency must be maintained.

Any contextualisation of units of competency in this endorsed Training Package must be within the bounds of the following advice. In contextualising units of competency, RTOs:

- must not remove or add to the number and content of elements and performance criteria
- may add specific industry terminology to performance criteria where this does not distort or narrow the competency outcomes
- may make amendments and additions to the range statement as long as such changes do not diminish the breadth of application of the competency and reduce its portability
- may add detail to the evidence guide in areas such as the critical aspects of evidence or resources and infrastructure required where these expand the breadth of the competency but do not limit its use.

Components of Units of Competency

The components of units of competency are summarised below, in the order in which they appear in each unit of competency.

Unit Title

The unit title is a succinct statement of the outcome of the unit of competency. Each unit of competency title is unique, both within and across Training Packages.

Unit Descriptor

The unit descriptor broadly communicates the content of the unit of competency and the skill area it addresses. Where units of competency have been contextualised from units of competency from other endorsed Training Packages, summary information is provided. There may also be a brief second paragraph that describes its relationship with other units of competency, and any licensing requirements.

Employability Skills statement

A standard Employability Skills statement appears in each unit of competency. This statement directs trainers and assessors to consider the information contained in the Employability Skills Summary in which the unit of competency is packaged.

Prerequisite Units

If there are any units of competency that must be completed before the unit, these will be listed.

Application of the Unit

This sub-section fleshes out the unit of competency's scope, purpose and operation in different contexts, for example, by showing how it applies in the workplace.

Competency Field (Optional)

The competency field either reflects the way the units of competency are categorised in the Training Package or denotes the industry sector, specialisation or function. It is an optional component of the unit of competency.

Sector (Optional)

The industry sector is a further categorisation of the competency field and identifies the next classification, for example an elective or supervision field.

Elements of Competency

The elements of competency are the basic building blocks of the unit of competency. They describe in terms of outcomes the significant functions and tasks that make up the competency.

Performance Criteria

The performance criteria specify the required performance in relevant tasks, roles, skills and in the applied knowledge that enables competent performance. They are usually written in passive voice. Critical terms or phrases may be written in bold italics and then defined in range statement, in the order of their appearance in the performance criteria.

Required Skills and Knowledge

The essential skills and knowledge are either identified separately or combined. Knowledge identifies what a person needs to know to perform the work in an informed and effective manner. Skills describe the application of knowledge to situations where understanding is converted into a workplace outcome.

Range Statement

The range statement provides a context for the unit of competency, describing 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. As applicable, the meanings of key terms used in the performance criteria will also be explained in the range statement.

Evidence Guide

The evidence guide is critical in assessment as it provides information to the Registered Training Organisation (RTO) and assessor about how the described competency may be demonstrated. The evidence guide does this by providing a range of evidence for the assessor to make determinations, and by providing the assessment context. The evidence guide describes:

- conditions under which competency must be assessed including variables such as the assessment environment or necessary equipment
- relationships with the assessment of any other units of competency

- suitable methodologies for conducting assessment including the potential for workplace simulation
- resource implications, for example access to particular equipment, infrastructure or situations
- how consistency in performance can be assessed over time, various contexts and with a range of evidence, and expectations at the AQF qualification level involved

Employability Skills in units of competency

The detail and application of Employability Skills facets will vary according to the job-role requirements of each industry. In developing Training Packages, industry stakeholders are consulted to identify appropriate facets of Employability Skills which are incorporated into the relevant units of competency and qualifications.

Employability Skills are not a discrete requirement contained in units of competency (as was the case with Key Competencies). Employability Skills are specifically expressed in the context of the work outcomes described in units of competency and will appear in elements, performance criteria, range statements and evidence guides. As a result, users of Training Packages are required to review the entire unit of competency in order to accurately determine Employability Skills requirements.

How Employability Skills relate to the Key Competencies

The eight nationally agreed Employability Skills now replace the seven Key Competencies in Training Packages. Trainers and assessors who have used Training Packages prior to the introduction of Employability Skills may find the following comparison useful.

Employability Skills	Mayer Key Competencies
Communication	Communicating ideas and information
Teamwork	Working with others and in teams
Problem solving	Solving problems Using mathematical ideas and techniques
Initiative and enterprise	
Planning and organising	Collecting, analysing and organising information Planning and organising activities
Self-management	
Learning	
Technology	Using technology

When analysing the above table it is important to consider the relationship and natural overlap of Employability Skills. For example, using technology may involve communication skills and combine the understanding of mathematical concepts.

Explicitly embedding Employability Skills in units of competency

This Training Package seeks to ensure that industry-endorsed Employability Skills are explicitly embedded in units of competency. The application of each skill and the level of detail included in each part of the unit will vary according to industry requirements and the nature of the unit of competency.

Employability Skills must be both explicit and embedded within units of competency. This means that Employability Skills will be:

- embedded in units of competency as part of the other performance requirements that make up the competency as a whole
- explicitly described within units of competency to enable Training Packages users to identify accurately the performance requirements of each unit with regards to Employability Skills.

This Training Package also seeks to ensure that Employability Skills are well-defined and written into units of competency so that they are apparent, clear and can be delivered and assessed as an essential component of unit work outcomes.

The following table contains examples of embedded Employability Skills for each component of a unit of competency. Please note that in the examples below the bracketed skills are provided only for clarification and will not be present in units of competency within this Training Package.

Example Employability Skills unit

Unit component	Example of embedded Employability Skill
Unit title	Give formal presentations and take part in meetings (communication)
Unit descriptor	This unit covers the skills and knowledge required to promote the use and implementation of innovative work practices to effect change. (initiative and enterprise)
Element	Proactively resolve issues. (problem solving)
Performance criteria	Information is organised in a format suitable for analysis and dissemination in accordance with organisational requirements. (planning and organising)
Range statement	Software applications may include email, internet, word processing, spreadsheet, database or accounting packages. (technology)
Required skills and knowledge	Modify activities depending on differing workplace contexts, risk situations and environments. (learning) Work collaboratively with others during a fire emergency. (teamwork) Instructions, procedures and other information relevant the maintenance of vessel and port security. (communication)

Evidence guide	Evidence of having worked constructively with a wide range of community groups and stakeholders to solve problems and adapt or design new solutions to meet identified needs in crime prevention. In particular, evidence must be obtained on the ability to: • assess response options to identified crime-prevention needs and determine the optimal action to be implemented • in consultation with relevant others, design an initiative to address identified issues. (initiative and enterprise).

List of Units within this Training Package

List of ICA05 units within this Training Package:

Code	Name	Volume
ICAA4041C	Determine and confirm client business expectations and needs	1
ICAA4047B	Determine project specifications and secure client agreement	1
ICAA4051B	Develop client user interface	1
ICAA4058B	Apply skills in object-oriented design	1
ICAA4142C	Design a website to meet technical requirements	1
ICAA4233B	Determine and apply appropriate development methodologies	1
ICAA5035C	Research and review hardware technology options for organisations	1
ICAA5044C	Develop system infrastructure design plan	1
ICAA5045C	Produce network architecture design	1
ICAA5046B	Model preferred system solutions	1
ICAA5048B	Develop configuration management protocols	1
ICAA5049B	Develop high-level object-oriented class specifications	1
ICAA5050B	Develop detailed component specifications from project	1

	specifications	
ICAA5054C	Validate quality and completeness of system design specifications	1
ICAA5055B	Confirm transition strategy	1
ICAA5056B	Prepare disaster recovery and contingency plans	1
ICAA5138B	Determine acceptable developers for projects	1
ICAA5139B	Design a database	1
ICAA5140C	Design a server	1
ICAA5141C	Design and develop dynamic websites to meet technical requirements	1
ICAA5143C	Implement process re-engineering strategies in an organisation	1
ICAA5144B	Determine best-fit topology for a local network	1
ICAA5145B	Identify best-fit topology for a wide area network	1
ICAA5146B	Develop website information architecture	1
ICAA5147B	Determine suitability of database functionality and scalability	1
ICAA5148B	Select new technology models for business	1
ICAA5150C	Evaluate vendor products and equipment	1
ICAA5151B	Gather data to identify business requirements	1
ICAA5153B	Model data objects	1
ICAA5154B	Model data processes	1
ICAA5156B	Review and plan to minimise risk to business solutions	1
ICAA5158B	Translate business needs into technical requirements	1
ICAA5241C	Design an enterprise wireless local area network	1
ICAA5245A	Evaluate RFID systems	1
ICAA5246A	Design an RFID implementation	1

ICAA6052B	Design an IT security framework	1
ICAA6053B	Design system security and controls	1
ICAA6149B	Implement quality assurance processes for business solutions	1
ICAA6157B	Develop technical requirements for a business solution	1
ICAB3018B	Develop macros and templates for clients using standard products	1
ICAB4057B	Manage a reuse library	1
ICAB4059B	Develop detailed technical design	1
ICAB4060B	Identify physical database requirements	1
ICAB4061B	Monitor physical database implementation	1
ICAB4064B	Prepare software development review	1
ICAB4075B	Use a library or pre-existing components	1
ICAB4076B	Implement configuration management	1
ICAB4135B	Create a simple mark-up language document to specification	1
ICAB4136B	Use structured query language to create database structures and manipulate data	1
ICAB4137B	Produce basic client side script for dynamic web pages	1
ICAB4163B	Create a common gateway interface script	1
ICAB4169B	Use development software and IT tools to build a basic website	1
ICAB4170B	Build a database	1
ICAB4171B	Develop cascading style sheets	1
ICAB4178B	Build a graphical user interface	1
ICAB4219B	Apply introductory object-oriented language skills	1
ICAB4220B	Create scripts for networking	1

ICAB4222B	Apply introductory programming skills in another language	1
ICAB4224B	Apply mathematical techniques for software development	1
ICAB4225B	Automate processes	1
ICAB4229B	Apply intermediate programming skills in another language	1
ICAB4232B	Maintain open source code programs	1
ICAB4235B	Build basic perimeter security into a network	1
ICAB4236B	Build security into a virtual private network	1
ICAB4239C	Build a small wireless local area network	1
ICAB4240C	Build an enterprise wireless network	1
ICAB4247A	Link an RFID system to a database	1
ICAB5062B	Perform data conversion	1
ICAB5063B	Monitor and support data conversion	1
ICAB5065B	Prepare for the build phase	1
ICAB5066B	Coordinate the build phase	1
ICAB5067B	Prepare for software development using rapid application development	1
ICAB5068B	Build using rapid application development	1
ICAB5071B	Review developed software	1
ICAB5072B	Develop integration blueprint	1
ICAB5073B	Pilot the developed system	1
ICAB5074B	Monitor the system pilot	1
ICAB5159C	Build a security shield for a network	1
ICAB5160C	Build and configure a server	1
ICAB5161B	Build a document using extensible mark-up language	1

ICAB5162B	Install, configure and test a payment gateway	1
ICAB5164B	Create a data warehouse	1
ICAB5165B	Create dynamic web pages	1
ICAB5177B	Build Java applets	1
ICAB5179B	Build decks using wireless mark-up language	1
ICAB5180C	Integrate database with a website	1
ICAB5223B	Apply intermediate object-oriented language skills	1
ICAB5226B	Apply advanced object-oriented language skills	1
ICAB5227B	Apply advanced programming skills in another language	1
ICAB5228B	Maintain functionality of legacy code programs	1
ICAB5230B	Maintain custom software	1
ICAB5237B	Build a high performance security perimeter	1
ICAB5238B	Build a highly secure firewall	1
ICAD2003B	Receive and process oral and written communication	2
ICAD2012B	Design organisational documents using computing packages	2
ICAD3218B	Create user documentation	2
ICAD4043B	Develop and present a feasibility report	2
ICAD4190B	Maintain information standards	2
ICAD4198B	Develop guidelines for uploading information to a website	2
ICAD4209B	Write content for web pages	2
ICAD4217B	Create technical documentation	2
ICAD5092B	Update and document operational procedures	2
ICAD5210B	Analyse information and assign meta-tags	2

ICAI2015B	Install software applications	2
ICAI3020B	Install and optimise operating system software	2
ICAI3021B	Connect internal hardware components	2
ICAI3101B	Install and manage network protocols	2
ICAI3110C	Implement system software changes	2
ICAI4029C	Install network hardware to a network	2
ICAI4030B	Install software to networked computers	2
ICAI4091B	Conduct post-implementation review	2
ICAI4097C	Install and configure a network	2
ICAI4099B	Build an intranet	2
ICAI4175C	Select and install a router	2
ICAI4188B	Install and maintain a server	2
ICAI4189B	Ensure website content meets technical protocols and standards	2
ICAI4244A	Install and maintain an RFID system	2
ICAI4249A	Implement and evaluate data security	2
ICAI4251A	Implement and evaluate network and telecommunication security	2
ICAI5085B	Review site in preparation for implementation	2
ICAI5086B	Scope implementation requirements	2
ICAI5087B	Acquire system components	2
ICAI5088B	Evaluate and negotiate vendor offerings	2
ICAI5089B	Implement and hand over system components	2
ICAI5090B	Conduct pre-installation audit for software installation.doc	2
ICAI5096B	Complete data transition	2

ICAI5098C	Install and manage complex networks	2
ICAI5100C	Build an internet infrastructure	2
ICAI5152B	Implement risk management processes	2
ICAI5172B	Implement backbone technologies in a local area network	2
ICAI5173B	Install and configure a single-segment local area network switch	2
ICAI5174B	Install high-end switches in multi-switched local area networks	2
ICAI5176C	Install and configure router	2
ICAI5196B	Implement secure encryption technologies	2
ICAI5197B	Install and maintain valid authentication processes	2
ICAI5212B	Implement quality assurance process for websites	2
ICAI5216B	Monitor and improve knowledge management system	2
ICAI5250A	Develop, implement and evaluate system and application security	2
ICAI5252A	Develop, implement and evaluate an incident response plan	2
ICAI5253A	Implement and evaluate systems for regulatory and standards compliance	2
ICAI6187B	Implement change management processes	2
ICAP4037B	Contribute to the development of a strategy plan	2
ICAP5036B	Determine appropriate IT strategies and solutions	2
ICAP5039B	Match IT needs with the strategic direction of the enterprise	2
ICAP5155B	Plan process re-engineering strategies for business	2
ICAP6038B	Develop strategic and action plans	2
ICAP6040B	Develop contracts and manage contracted performance	2

ICAS1193B	Connect a workstation to the internet	2
ICAS2008B	Maintain inventories for equipment, software and documentation	2
ICAS2009B	Interact with clients	2
ICAS2010B	Apply problem solving techniques to routine malfunctions	2
ICAS2014B	Connect hardware peripherals	2
ICAS2016B	Record client support requirements	2
ICAS2017B	Maintain system integrity	2
ICAS2243B	Detect and protect from spam and destructive software	2
ICAS2248A	Protect and secure information assets	2
ICAS3024B	Provide basic system administration	2
ICAS3031B	Provide advice to clients	2
ICAS3032B	Provide network systems administration	2
ICAS3034B	Determine and action network problems	2
ICAS3115B	Maintain equipment and software in working order	2
ICAS3120C	Configure and administer a network operating system	2
ICAS3121B	Administer network peripherals	2
ICAS3234B	Care for computer hardware	2
ICAS4022B	Determine and action client computing problems	2
ICAS4023B	Provide one-to-one instruction	2
ICAS4033B	Assist with policy development for client support procedures	2
ICAS4106B	Action and complete change requests	2
ICAS4107B	Manage resolution of system faults on a live system	2
ICAS4108B	Complete database back-up and recovery	2

ICAS4109B	Evaluate system status	2
ICAS4112B	Optimise system performance	2
ICAS4113C	Identify and resolve common database performance problems	2
ICAS4114B	Implement maintenance procedures	2
ICAS4116B	Undertake capacity planning	2
ICAS4119B	Monitor and administer system security	2
ICAS4124B	Monitor and administer network security	2
ICAS4125B	Monitor and administer a database	2
ICAS4127B	Support system software	2
ICAS4134C	Provide first-level remote help desk support	2
ICAS4191B	Maintain website performance	2
ICAS4200B	Monitor traffic and compile website traffic reports	2
ICAS4201B	Transfer content to a website using commercial packages	2
ICAS5102B	Establish and maintain client user liaison	2
ICAS5103B	Establish and maintain client user liaison during support activity	2
ICAS5104B	Determine maintenance strategy	2
ICAS5105B	Coordinate change requests	2
ICAS5111B	Review and manage delivery of maintenance services	2
ICAS5118C	Manage system security	2
ICAS5122C	Identify and resolve network problems	2
ICAS5123C	Manage network security	2
ICAS5192B	Configure an internet gateway	2
ICAS5199B	Manage business websites and servers	2

ICAS5202B	Ensure privacy for users	2
ICAS5203B	Evaluate and select a web hosting service	2
ICAS6254A	Manage IT security	2
ICAT1206B	Check site security	2
ICAT3025B	Run standard diagnostic tests	2
ICAT4183B	Confirm accessibility of website for people with special needs	2
ICAT4184B	Ensure site usability for full range of users	2
ICAT4185B	Create a website testing procedure	2
ICAT4186B	Conduct operational acceptance tests of websites	2
ICAT4194B	Ensure basic website security	2
ICAT4195B	Ensure dynamic website security	2
ICAT4221B	Locate equipment, system and software faults	2
ICAT4242B	Perform unit test for a class	2
ICAT5077B	Develop detailed test plan	2
ICAT5079B	Perform integration test	2
ICAT5081B	Perform systems test	2
ICAT5082B	Manage the testing process	2
ICAT5083B	Develop and conduct client acceptance test	2
ICAT5084B	Perform stress and load testing on integrated platform	2
ICAU1128B	Operate a personal computer	2
ICAU1129B	Operate a word processing application	2
ICAU1130B	Operate a spreadsheet application	2
ICAU1131B	Operate a database application	2
ICAU1132B	Operate a presentation package	2

ICAU1133B	Send and retrieve information using web browsers and email	2
ICAU1204B	Locate and use relevant on-line information	2
ICAU1211B	Operate accounting applications	2
ICAU1213B	Conduct on-line transactions	2
ICAU1215B	Use personal productivity tool	2
ICAU2005B	Operate computer hardware	2
ICAU2006B	Operate computing packages	2
ICAU2007B	Maintain equipment and consumables	2
ICAU2013B	Integrate commercial computing packages	2
ICAU2231B	Use computer operating system	2
ICAU3004B	Apply occupational health and safety procedures	2
ICAU3019B	Migrate to new technology	2
ICAU3028B	Customise packaged software applications for clients	2
ICAU3126B	Use advanced features of computer applications	2
ICAU4205B	Select and employ software and hardware tools	2
ICAU4207B	Apply web authoring tool to convert client data for websites	2
ICAU5208B	Use site server tools for transaction management	2
ICAW2001B	Work effectively in an IT environment	2
ICAW2002B	Communicate in the workplace	2
ICAW2011B	Work individually or as a team member to achieve organisational goals	2
ICAW4026B	Coordinate and maintain work teams	2
ICAW4027B	Relate to clients on a business level	2
ICAW4214B	Maintain ethical conduct	2

List of imported units within this Training Package:

Code	Name
BSBFLM510B	Facilitate and capitalise on change and innovation
BSBFLM514A	Manage people
BSBMGT516A	Facilitate continuous improvement
BSBMGT608B	Manage innovation and continuous improvement
BSBMGT615A	Contribute to organisation development
BSBPMG501A	Manage application of project integrative processes
BSBPMG505A	Manage project quality
BSBPMG508A	Manage project risk
BSBPMG510A	Manage projects
BSBPMG601A	Direct the integration of multiple projects/programs
BSBPMG602A	Direct the scope of multiple projects/programs
BSBPMG603A	Direct time management of multiple projects/programs
BSBPMG604A	Direct cost management of multiple projects/programs
BSBPMG605A	Direct quality management of multiple projects/programs
BSBPMG606A	Direct human resources management of multiple projects/programs
BSBPMG607A	Direct communications management of multiple projects/programs
BSBPMG608A	Direct risk management of multiple projects/programs
BSBPMG609A	Direct procurement and contracts of multiple projects/programs
BSBRKG608B	Plan management of records over time
BSBWOR502A	Ensure team effectiveness
CUFANM01A	Develop and implement designs for animation
CUFANM301A	Create 2D digital animation

CUFANM302A	Create 3D digital animation
CUFANM403A	Create titles for screen productions
CUFCAM01A	Set up and operate a basic video camera
CUFCAM03A	Compose camera shots and operate a camera
CUFCAM501A	Shoot material for screen productions under special conditions
CUFDIG201A	Maintain interactive content
CUFDIG302A	Author interactive sequences
CUFDIG303A	Produce and prepare photo images
CUFDIG401A	Author interactive media
CUFDIG501A	Coordinate the testing of interactive media products
CUFDIG502A	Design web environments
CUFDIG504A	Design games
CUFDIG505A	Design information architecture
CUFGEN01A	Develop and apply industry knowledge
CUFIMA05A	Create 3D digital models and images
CUFMEM07A	Apply principles of visual design and communication to the development of a multimedia product
CUFMEM10A	Design and create a multimedia interface
CUFMEM13A	Incorporate, design and edit digital video
CUFPOS402A	Manage multimedia assets
CUFRAD01A	Originate and develop a concept
CUFWRT07A	Write an interactive sequence for multimedia
CUFWRT601A	Write scripts
CUSADM07A	Establish and maintain work and contractual relationships

CUSADM08A	Address copyright requirements
CUSGEN03A	Collaborate with colleagues in planning and producing a project
CUVVSP11B	Apply techniques to produce digital images
ICPKN315B	Apply knowledge and requirements of the multimedia sector
ICPMM263B	Access and use the Internet
ICPMM321B	Capture a digital image
ICPMM344B	Manipulate and incorporate audio into multimedia presentations
ICPMM346B	Incorporate video into multimedia presentations
ICPMM581B	Manage multimedia production
ICPMM582B	Manage multimedia projects
ICPPP311B	Develop a detailed design concept
ICPPP325B	Create graphics using a graphics application
ICPPP411B	Undertake a complex design brief
ICTCC121A	Use an enterprise information system
ICTCC330A	Manage customer relationships
PRSSM503A	Assess security risk management options
PRSSM504A	Prepare security risk management plan
PRSTS301A	Identify technical security requirements
PSPPM402B	Manage simple projects
PSPPM404A	Carry out simple project activities
PSPPM405A	Administer simple projects
PSPPM501B	Design complex projects
PSPPM502B	Manage complex projects
PSPPM503B	Close complex projects
PSPPM504A	Carry out complex project activities

PSPPM601B	Direct complex project activities
TAAASS501B	Lead and coordinate assessment systems and services
TAADEL503B	Provide advanced facilitation to support learning
TAADES501B	Design and develop learning strategies
TAAENV501B	Maintain and enhance professional practice

ICA10105 Certificate I in Information Technology

Modification History

Not Applicable

Description

Description

This qualification provides the skills and knowledge for an individual to function at a basic level of ICT competency in the contemporary information society. It will enable a person to undertake basic ICT functions using a personal computer and to engage in fundamental online activities. It could be described as 'the community standard in ICT literacy' and may be wholly or partially used as an access and equity program. Its objective is to enable people to acquire basic ICT knowledge and skills at a fundamental or foundation level.

This is a relatively 'small' qualification with 6 units required to be completed, 3 of which are core. Electives can be chosen from both ICA05 and to a limited extent from another package. The 3 core units form a 'natural cluster' which could be used for particular ICT literacy purposes including government ICT engagement programs, as a supplement to school curricula in middle to senior years or for adult and community education clients. In this form it may result in the issue of Statements of Attainment. It could also potentially form a relationship with base vendor certifications such as the International Computer Drivers Licence (ICDL).

Prerequisite Requirements

There are no specific entry requirements for this qualification. However, prerequisite arrangements for any non ICA05 elective units in this qualification should be checked with the originating Training Package.

Job Roles

The qualification provides for basic computer skills in the workplace and as such small to medium enterprises (SMEs) will find the contents of this qualification useful at a basic ICT user level. The contents of this qualification may also provide supplement existing roles in other industries where basic ICT skills have become necessary; for example in retailing where basic shop front computer usage is prevalent, in warehousing where automation of stock and inventory control has occurred or in manufacturing at shop floor level for monitoring metrics of team performance and processes.

Pathways Information

Not Applicable

Licensing/Regulatory Information

Not Applicable

Entry Requirements

Not Applicable

Employability Skills Summary

Employability Skills Summary

ICA10105 Certificate I in Information Technology

The following table contains a summary of the Employability Skills required for a Computer Data Entry Operator. The Employability Skills facets described here are broad industry requirements that may vary depending on qualification packaging options.

Employability Skills Summary

Employability skills summary

ICA10105 Certificate I in Information Technology

The following table contains a summary of the employability skills required for a Computer Data Entry Operator. The employability skills facets described here are broad industry requirements that may vary depending on qualification packaging options.

Employability Skill	Industry requirements for this qualification include:
Communication	- communicating with peers and supervisors - reading and interpreting basic work place documents
Teamwork	submitting drafted work to appropriate people for approval or feedback
Problem Solving	using user manuals and help functions to solve problems when using computer applications
Initiative and Enterprise	customising basic computer settings to meet special needs
Planning and Organising	- organising personal computer files - planning the format of documents and tables
Self-management	- adjusting the display of internet browsers to suit personal occupational health and safety requirements - researching the applying the principles of 'netiquette'

Employability Skill	Industry requirements for this qualification include:
Learning	seeking assistance from people when using a personal computer
Technology	using personal computers and applications such as word processing, spreadsheets, databases and presentations

Packaging Rules

Qualification Structure

To attain the Certificate I in Information Technology 6 units must be achieved:

- 3 core units; plus
- 3 elective units, 2 taken from Group A and 1 taken from Group B

Note: Units of competency ICAU1130B, ICAU1131B, ICAU2005B (#) from the electives list below are recommended as electives where an effective pathway to a Certificate II in IT is required.

Core Units

ICAU1128B	Operate a personal computer
ICAU1129B	Operate a word processing application
ICAU1133B	Send and retrieve information using web browsers and email

2 Units from Group A electives

BSBCMN106A	Follow workplace safety procedures
ICAI2015B	Install software applications
ICAS1193B	Connect a workstation to the internet
ICAS2008B	Maintain inventories for equipment, software and documentation
ICAS2014B	Connect hardware peripherals
ICAS2017B	Maintain system integrity
ICAS2243B	Detect and protect from spam and destructive software
ICAS2248A	Protect and secure information assets
ICAT1206B	Check site security
ICAU1130B	Operate a spreadsheet application #
ICAU1131B	Operate a database application #
ICAU1132B	Operate a presentation package
ICAU1204B	Locate and use relevant on line information
ICAU1211B	Operate accounting applications

ICAU1213B Conduct on line transactions
ICAU1215B Use personal productivity tool
ICAU2005B Operate computer hardware #
ICAU2007B Maintain equipment and consumables
ICAU2013B Integrate commercial computing packages
ICAW2002B Communicate in the workplace
ICAU2231B Use computer operating system

1 Unit from Group B electives

(Listed in Recommended Order)

- *ICA10105* Electives list above; or
- elsewhere in ICA05 (at Certificate II); or
- any other Training Package (at Certificate I or Certificate II); or
- any accredited course.

Elective units chosen must be relevant to the work outcome, local industry requirements and the qualification level.

ICA20105 Certificate II in Information Technology

Modification History

Not Applicable

Description

Description

This qualification provides the foundation ICT skills and knowledge for an individual to be an effective ICT user or employee. The qualification has a fundamental ICT knowledge and skills base which is pivotal for all other qualifications in ICA05. The 8 core units contain those basic ICT skills and knowledge required for effective entry into all ICA05 qualifications from Certificate III upwards.

The qualification introduces OH&S and soft skills such as communication into the 8 core units. Electives make up 40 per cent of the qualification and are to be selected predominantly from ICA05 but with the option of up to half of the electives coming from other packages. A number of electives provide effective entry into the Certificate III in IT. It is possible to achieve this qualification during the final years of secondary school education subject to the demonstration of competency to a standard expected in the workplace.

Job Roles

The qualification provides foundation general computing and employment skills that enable participation in an information technology environment in any industry. Small to medium enterprises (SMEs) will find the contents of this qualification useful at an ICT user level. In its own right such a qualification could equip an individual to undertake roles such as office assistant or to work in records management at a junior level; however its usefulness is most likely to be found in supplementing functions in roles prevalent in other industries.

Prerequisite Requirements

A number of units within this qualification have prerequisites. These are detailed as follows:

Code and title	Prerequisite units
ICAD2012B Design organisational documents using computing packages	ICAU1128B Operate a personal computer
ICAS2248A Protect and secure information assets	ICAU2231B Use computer operating system
ICAU2005B Operate computer hardware	ICAU1128B Operate a personal computer
ICAU2013B Integrate commercial computing packages	ICAU1128B Operate a personal computer
ICAU2231B Use computer operating	ICAU1128B Operate a personal computer

Code and title	Prerequisite units
system	

Pathways Information

Not Applicable

Licensing/Regulatory Information

Not Applicable

Entry Requirements

Not Applicable

Employability Skills Summary

Employability skills summary

ICA20105 Certificate II in Information Technology

The following table contains a summary of the employability skills required for a Basic Data Processing and Application Support Officer. The employability skills facets described here are broad industry requirements that may vary depending on qualification packaging options.

Employability skill	Industry requirements for this qualification include:
Communication	• providing client support using verbal and non-verbal communication • reading and writing basic workplace documents and technical manuals
Teamwork	• reporting detected destructive software to appropriate persons • seeking feedback from users of new or upgraded technology
Problem Solving	• configuring operating systems to suit the working environment • solving organisational problems by applying technology
Initiative and Enterprise	• selecting appropriate software and file formats for an activity
Planning and Organising	• identifying work to be completed and then prioritising tasks • planning and organising the selection, manufacture and siting

Employability skill	Industry requirements for this qualification include:
	of hardware
Self-management	- establishing own work schedule and taking responsibility for own outputs in work and learning - following occupational health and safety standards and organisational policies to avoid injury or illness
Learning	- acquiring and using new or upgraded technology skills to enhance learning - having a basic knowledge of current industry accepted hardware and software products
Technology	selecting, installing and using computer software and hardware

Packaging Rules

Qualification Structure

To attain the *ICA20105 Certificate II in Information Technology* 14 units must be achieved:

- 8 core units; plus
- 6 elective units, 3 taken from Group A and 3 taken from Group B

Core Units

BSBCMN106A Follow workplace safety procedures
 ICAD2012B Design organisational documents using computing packages
 ICAU2005B Operate computer hardware
 ICAU2006B Operate computing packages
 ICAU2013B Integrate commercial computing packages
 ICAU2231B Use computer operating system
 ICAW2001B Work effectively in an IT environment
 ICAW2002B Communicate in the workplace

3 Units selected from Group A Electives

ICAD2003B Receive and process oral and written communication
 ICAD3218B Create user documentation
 ICAI2015B Install software applications
 ICAI3021B Connect internal hardware components
 ICAS2008B Maintain inventories for equipment, software and documentation
 ICAS2009B Interact with clients

ICAS2010B	Apply problem solving techniques to routine malfunctions
ICAS2014B	Connect hardware peripherals
ICAS2016B	Record client support requirements
ICAS2017B	Maintain system integrity
ICAS2243B	Detect and protect from spam and destructive software
ICAS2248A	Protect and secure information assets
ICAS3034B	Determine and action network problems
ICAS3115B	Maintain equipment and software in working order
ICAS3121B	Administer network peripherals
ICAS3234B	Care for computer hardware
ICAT3025B	Run standard diagnostic tests
ICAU2007B	Maintain equipment and consumables
ICAU3004B	Apply occupational health and safety procedures
ICAU3019B	Migrate to new technology
ICAW2011B	Work individually or as a team member to achieve organisational goals
ICPKN315B	Apply knowledge and requirements of the multimedia sector
ICPMM32B	Capture a digital image
ICPMM263B	Access and use the internet

3 Units selected from Group B Electives

(Listed in Recommended Order)

- ICA20105 Electives list above; and/or
- from elsewhere in the *ICA05 Information and Communications Technology Training Package* (at Certificate II or Certificate III); and/or
- from the preferred Training Packages (BSB07 Business Services; ICT02 Telecommunications; CUF07 Screen and Media; ICP05 Printing and Graphic Arts; SIR07 Retail Services; CUV03 Visual Arts, Craft and Design) (at Certificate II or Certificate III); and/or
- any other Training Package (at Certificate II or Certificate III) based on documented industry or enterprise need; and/or
- any accredited course.

Elective units chosen must be relevant to the work outcome, local industry requirements and the qualification level.

ICA30105 Certificate III in Information Technology

Modification History

Not Applicable

Description

Description

This qualification provides the skills and knowledge for an individual to be competent in introductory ICT 'technical' functions and is designed to support information activities in the workplace and to achieve a degree of self sufficiency as an advanced ICT 'user'. The will give employers a degree of confidence in an individual's usefulness in the workplace as it has a strong suite of 6 common core ICT units building on the prerequisite knowledge and skills from the 8 Certificate II in IT core units.

The qualification provides for a number of electives at Certificate IV in IT level thus offering a degree of stretch in learning plus potential pathways into higher level qualifications. A small number of electives can be chosen beyond the ICT Training Package and it is possible to achieve this qualification during the final years of secondary school education, subject to the demonstration of competency to a standard expected in the workplace.

It has 3 specialist streams with direct relevance to workplace roles.

Applications Stream Provides skills in advanced use of applications and could provide basic application software support within an organisation. This stream may provide for natural progression into several Certificate IV in IT qualifications including Multimedia or Programming.

Network Administration Stream Develops skills in the administration and maintenance of the user environment for a computer network. Graduates could work as a network administrator within an organisation. There are several vendor courses that may be integrated in this qualification. This stream may provide for natural progression into several Certificate IV in IT qualifications including Networking or Websites.

Support Stream Provides skills in basic use of a range of technologies to provide first level diagnostic support to people using ICT. This stream may provide for natural progression into several Certificate IV in IT qualifications including Support or Websites.

Job Roles

Depending on the stream selected, graduates from this qualification could work in basic personal computer (PC) support, basic network/system administration or in first level help desk roles. Additionally, using a selection of retail or sales units from other Training Packages, people could work in ICT retailing or vendor product support. Small to medium enterprises (SMEs) will find the outcomes of this qualification useful at advanced ICT user or introductory technical support levels.

Possible job titles include:

- Call Centre Support Representative

- Client Support Officer
- Computer Operator
- Customer Liaison
- Customer Service Representative
- Help Desk Officer
- Help Desk Technician
- ICT Operations Support
- ICT User Support
- IT Technician
- Maintenance Technician
- PC Support
- PC Support Specialist
- Sales Support Technician
- Support Technician
- Technical Support
- User Support Specialist

Prerequisite Requirements

A number of the core units within this qualification have prerequisites. These are detailed as follows:

Code and title	Prerequisite units
ICAI3110C Implement system software changes	ICAI3020B Install and optimise operating system software
ICAU3028B Customise packaged software applications for clients	ICAU3126B Use advanced features of computer applications
ICAS3032B Provide network systems administration	ICAI3101B Install and manage network protocols ICAS3024B Provide basic system administration
ICAS3034B Determine and action network problems	ICAS3024B Provide basic system administration ICAT3025B Run standard diagnostic tests

ICAS3120C Configure and administer a network operating system	ICAI3020B Install and optimise operating system software ICAS3032B Provide network systems administration ICAI3101B Install and manage network protocols ICAS3024B Provide basic system administration

Pathways Information

Not Applicable

Licensing/Regulatory Information

Not Applicable

Entry Requirements

Entry Requirements

The following units contain the basic fundamentals of ICT knowledge and skills for all qualifications at Certificate III in IT and above. These units or demonstrated equivalence are required for entry into this qualification:

- BSBCMN106A Follow workplace safety procedures
- ICAD2012B Design organisational documents using computing packages
- ICAU1128B Operate a personal computer
- ICAU2005B Operate computer hardware
- ICAU2006B Operate computing packages
- ICAU2013B Integrate commercial computing packages
- ICAU2231B Use computer operating system
- ICAW2001B Work effectively in an IT environment
- ICAW2002B Communicate in the workplace

Employability Skills Summary

Employability skills summary

ICA30105 Certificate III in Information Technology

The following table contains a summary of the employability skills required for a User Support Specialist. The employability skills facets described here are broad industry requirements that may vary depending on qualification packaging options.

Employability skill	Industry requirements for this qualification include:
Communication	- communicating with clients to determine requirements and ensuring that requirements are met - interpreting software manual instructions
Teamwork	- contacting operating system vendors to obtain technical specifications and system requirements - submitting developed user documentation to the target audience for review
Problem Solving	- determining the uses and audience of a simple mark-up language document - troubleshooting the operation of macros
Initiative and Enterprise	- assessing and recording information from various sources - identifying and applying skills and knowledge to a wide variety of contexts - investigating and documenting solutions to client problems
Planning and Organising	planning for the implementation of software changes by seeking technical and client information and organising the process
Self-management	taking responsibility for own and others' outputs in working and learning
Learning	- adopting and transferring skills and knowledge to new environments - providing one-to-one instruction for clients about operating system software - reviewing client feedback and identifying areas for improvement
Technology	selecting, installing and using computer software and hardware

Packaging Rules

Qualification structure

To attain the *ICA30105 Certificate III in Information Technology* 14 to 16 units must be achieved (depending on the specialist stream chosen):

- 6 common core units; plus
- 4 Units from Group A, or
- 6 Units from Group B, or
- 5 Units from Group C, plus
- 4 elective units

Core units

ICAD3218B	Create user documentation
ICAI3020B	Install and optimise operating system software
ICAS3031B	Provide advice to clients
ICAS3234B	Care for computer hardware
ICAT3025B	Run standard diagnostic tests
ICAU3004B	Apply occupational health and safety procedures

Achieve all units in 1 of the 3 specialist streams (Applications, Network Administration or Support)

Group A Applications electives - complete 4 units

ICAU3019B	Migrate to new technology
ICAU3028B	Customise packaged software applications for clients
ICAU3126B	Use advanced features of computer applications
ICAI3110C	Implement system software changes

Group B Network Administration electives - complete 6 units

ICAI3101B	Install and manage network protocols
ICAS3024B	Provide basic system administration
ICAS3032B	Provide network systems administration
ICAS3034B	Determine and action network problems
ICAS3120C	Configure and administer a network operating system
ICAS3121B	Administer network peripherals

Group C Support electives - complete 5 units

ICAI3021B	Connect internal hardware components
ICAS3024B	Provide basic system administration
ICAS3115B	Maintain equipment and software in working order
ICAU3019B	Migrate to new technology
ICTCC330B	Manage customer relationships

Achieve 2 elective units chosen from the following sources (listed in recommended order)

- other ICA30105 streams not already selected; and/or
- ICA30105 electives list below; and/or
- elsewhere in the ICA05 Information and Communications Technology Training Package (at Certificate III or Certificate IV) ; and/or
- any accredited course.

Achieve 2 elective units chosen from the following sources (Listed in recommended order)

- any of the above core or elective sources; and/or
- preferred Training Packages (at Certificate III or Certificate IV) (BSB07 Business Services; ICT02 Telecommunications; CUF07 Screen and Media ICP05 Printing and Graphic Arts; SIR07 Retail Services; CUV03 Visual Arts, Craft and Design); and/or
- any other Training Package (at Certificate III or Certificate IV) based on documented industry or enterprise need; and/or
- any accredited course.

Elective units chosen must be relevant to the work outcome, local industry requirements and the qualification level.

Group D electives

ICAB3018B	Develop macros and templates for clients using standard products
ICAB4135B	Create a simple mark-up language document to specification
ICAB4169B	Use development software and IT tools to build a basic website
ICAB4225B	Automate processes
ICAD4190B	Maintain information standards
ICAD4217B	Create technical documentation
ICAI3021B	Connect internal hardware components
ICAI3110C	Implement system software changes
ICAI4029B	Install network hardware to a network
ICAI4030B	Install software to networked computers
ICAI4097B	Install and configure a network
ICAS4108B	Complete database back-up and recovery
ICAS4127B	Support system software
ICAS4134C	Provide first-level remote help desk support
ICAS4191B	Maintain website performance
ICAS4201B	Transfer content to a website using commercial packages
ICAT4185B	Create a website testing procedure
ICAU4207B	Apply web authoring tool to convert client data for websites

ICA40105 Certificate IV in Information Technology (General)

Modification History

Not Applicable

Description

Description

This qualification provides the skills and knowledge for an individual to be competent in a range of ICT fields at Certificate IV level. The qualification has a strong core ICT base sharing the same core competencies as several other IT qualifications of the same level. Depending on the stream chosen, this qualification offers pathways into a number of IT qualifications at Diploma level.

It is a broad and flexible qualification with multiple internal pathways and no direct equivalent in ICA99 Version 3. However, where the combination of core and elective units selected matches another ICA05 Certificate IV in IT equivalent, the latter award must be issued in preference to this 'general' qualification. Note: This alternative qualification must be on the RTO's scope of registration to issue the latter award. This will ensure that there is clear identification of the work-related area of specialisation that has been undertaken.

Small to Medium Enterprises (SMEs) will find the contents of this qualification useful at a technical specialist support level.

It has 7 specialist streams (both core and elective) which enable maximum choice and flexibility to suit enterprise needs. Selection of units from at least 3 of the 7 specialist streams are required to complete this qualification. The 7 streams are:

- Software
- Networking
- Client Support
- Hardware/Operating Systems
- Communications/Documentation
- Analysis/Management
- Multimedia

Job Roles

It is difficult to identify one specific vocational outcome for this qualification because of the 'general' nature of this qualification and the diverse array of unit choices and streams available. Graduates exiting this qualification will be likely to secure employment in an ICT 'generalist' role with useful skills and knowledge across several of the specialist streams. The judicious choice of stream and electives units would provide for more specialist vocational outcomes associated with the streams. Job titles listed for other ICA05 Certificate IV qualifications that in part match the above streams could provide some guidance.

Prerequisite Requirements

A number of units within this qualification have prerequisites. These are detailed as follows:

Code and Title		Prerequisite units required	
ICAA4047B	Determine project specifications and secure client agreement	ICAA4041C	Determine and confirm client business expectations and needs
ICAA4058B	Apply skills in object-oriented design	ICAA4233B	Determine and apply appropriate development methodologies
ICAB4136B	Use structured query language to create database structures and manipulate data	ICAB4225B	Automate processes
ICAB4219B	Apply introductory object-oriented language skills	ICAB4225B	Automate processes
ICAB4220B	Create scripts for networking	ICAB4225B	Automate processes
ICAB4222B	Apply introductory programming skills in another language	ICAB4225B	Automate processes
ICAB4247A	Link an RFID system to a database	ICAB4136B	Use structured query language to create database structures and manipulate data
ICAD4190B	Maintain information standards	ICAD4217B	Create technical documentation
ICAD4198B	Develop guidelines for uploading information to a website	ICAD3218B	Create user documentation
		ICAD4217B	Create technical documentation
ICAI4097C	Install and configure a network	ICAI3101B	Install and manage network protocols
ICAI4175C	Select and install a router	ICAI3101B	Install and manage network protocols
ICAI4188B	Install and maintain a server	ICAI3101B	Install and manage network protocols
		ICAI3020B	Install and optimise operating system software #
		ICAS3120C	Configure and administer a network operating system #
ICAI4244A	Install and maintain an RFID system	ICAI3101B	Install and manage network protocols

Code and Title		Prerequisite units required	
		ICAI4029B	Install network hardware to a network
ICAI4249A	Implement and evaluate data security	ICAS3024B	Provide basic system administration
		ICAS4124B	Monitor and administer network security #
ICAI4251A	Implement and evaluate network and telecommunication security	ICAS4119B	Monitor and administer system security #
		ICAS4124B	Monitor and administer network security #
ICAP4037B	Contribute to the development of a strategy plan	ICAA4041C	Determine and confirm client business expectations and needs
ICAS4107B	Manage resolution of system faults on a live system	ICAS3024B	Provide basic system administration
		ICAT3025B	Run standard diagnostic tests
		ICAT4221B	Locate equipment, system and software faults
ICAS4109B	Evaluate system status	ICAT3025B	Run standard diagnostic tests
ICAS4112B	Optimise system performance	ICAI3110C	Implement system software changes #
ICAS4114B	Implement maintenance procedures	ICAT3025B	Run standard diagnostic tests
ICAS4119B	Monitor and administer system security	ICAI3020B	Install and optimise operating system software
		ICAS3024B	Provide basic system administration
ICAS4124B	Monitor and administer network security	ICAS3032B	Provide network systems administration #
ICAS4125B	Monitor and administer a database	ICAS3024B	Provide basic system administration
ICAS4127B	Support system software	ICAI3020B	Install and optimise operating system software

This unit has prerequisite requirements. Section 1.6 provides further details.

Pathways Information

Not Applicable

Licensing/Regulatory Information

Not Applicable

Entry Requirements

Entry Requirements

The following units contain the basic fundamentals of ICT knowledge and skills for all qualifications at Certificate III in IT and above. These units or demonstrated equivalence are required for entry into this qualification:

- BSBCMN106A Follow workplace safety procedures
- ICAD2012B Design organisational documents using computing packages
- ICAU1128B Operate a personal computer
- ICAU2005B Operate computer hardware
- ICAU2006B Operate computing packages
- ICAU2013B Integrate commercial computing packages
- ICAU2231B Use computer operating system
- ICAW2001B Work effectively in an IT environment
- ICAW2002B Communicate in the workplace

Employability Skills Summary

Employability Skills Summary

ICA40105 Certificate IV in Information Technology (General)

The following table contains a summary of the Employability Skills appropriate for a person who is a generalist with responsibility for web site development and maintenance. The Employability Skills facets described here are broad industry requirements that may vary depending on qualification packaging options.

Employability Skill	Industry requirements for this qualification include:

Employability Skill	Industry requirements for this qualification include:
Communication	• being able to undertake open ended questioning techniques and to exercise active listening skills in relation to dealing with clients and team members (e.g. eliciting information for network troubleshooting) • consulting with end users and clients before, during and after development of services to determine their issues and ensure that their needs are met
Teamwork	• consulting with the work team to review proposed changes against current and future business requirements • establishing and improving work teams in an IT environment
Problem Solving	• debugging code • determining criteria for writing script for web pages for example, criteria such as dynamic functionality and appropriate language
Initiative and Enterprise	• developing new criteria and procedures for performing current practices • identifying, analysing and evaluating information from a variety of sources • providing input into the disaster recovery plan
Planning and Organising	• creating project plans to guide the development of systems methodologies • developing installation plans • preparing feasibility reports taking into account the scope, time, cost, quality, communications and risk management
Self-management	• taking responsibility for own output in relation to specified quality standards • working within the Australian Computer Society code of ethics regarding security, legal, moral and ethical issues
Learning	• gathering and organising feedback on draft documentation and client satisfaction • maintaining knowledge of tools and software applications that may be useful and the goods and services provided
Technology	• selecting, sourcing and using appropriate software and tools based on analysis of technical needs

Packaging Rules

Qualification Structure

To attain the ICA40105 Certificate IV in Information Technology (General) 23 units must be achieved:

- 8 common core units; plus
- 9 specialist stream core units (3 units chosen from any 3 specialist core streams - Software, Networking, Client Support, Hardware/Operating Systems, Communications/Documentation, Analysis/Management, Multimedia); plus
- 6 elective units

Achieve 8 Common Core Units

Common Core

BSBCMN304A	Contribute to personal skill development and learning
ICAA4041C	Determine and confirm client business expectations and needs
ICAB4225B	Automate processes
ICAD4043B	Develop and present a feasibility report
ICAD4217B	Create technical documentation
ICAT4221B	Locate equipment, system and software faults
ICAW4214B	Maintain ethical conduct
PSPPM402B	Manage simple projects

Achieve 9 Specialist Core Stream Units (by choosing 3 units from any 3 specialist streams below - Software, Client Support, Hardware/Operating Systems, Communications/Documentation, Analysis/Management, Multimedia, Networking)

Specialist Core Stream - Software

ICAA4051B	Develop client user interface
ICAA4058B	Apply skills in object-oriented design
ICAA4233B	Determine and apply appropriate development methodologies
ICAB4075B	Use a library or pre-existing components
ICAB4135B	Create a simple mark-up language document to specification
ICAB4136B	Use structured query language to create database structures and manipulate data
ICAB4137B	Produce basic client side script for dynamic web pages
ICAB4169B	Use development software and IT tools to build a basic website
ICAB4178B	Build a graphical user interface
ICAB4219B	Apply introductory object-oriented language skills
ICAB4222B	Apply introductory programming skills in another language
ICAI4189B	Ensure website content meets technical protocols and standards
ICAS4125B	Monitor and administer a database
ICAS4201B	Transfer content to a website using commercial packages

ICAT4242B Perform unit test for a class

Specialist Core Stream - Client Support

ICAS4022B Determine and action client computing problems

ICAS4033B Assist with policy development for client support procedures

ICAS4106B Action and complete change requests

ICAW4027B Relate to clients on a business level

Specialist Core Stream - Hardware/Operating Systems

ICAI4188B Install and maintain a server

ICAS4109B Evaluate system status

ICAS4114B Implement maintenance procedures

ICAS4127B Support system software

Specialist Core Stream - Communications/Documentation

ICAD4190B Maintain information standards

ICAD4198B Develop guidelines for uploading information to a website

ICAD4209B Write content for web pages

ICAS4023B Provide one-to-one instruction

ICAW4026B Coordinate and maintain work teams

ICAW4027B Relate to clients on a business level

Specialist Core Stream - Analysis/Management

ICAA4047B Determine project specifications and secure client agreement

ICAA4051B Develop client user interface

ICAA4058B Apply skills in object-oriented design

ICAA4233B Determine and apply appropriate development methodologies

ICAB4076B Implement configuration management

ICAP4037B Contribute to the development of a strategy plan

Specialist Core Stream - Multimedia Stream

CUFWRT601A Write scripts

CUFANM403A Create titles for screen production

ICPPP325B Create graphics using a graphics application

ICPMM321B Capture a digital image

ICPMM344B Manipulate and incorporate audio into multimedia presentations

CUFIMA05A Create 3D digital models and images

CUFDIG201A Maintain interactive content

CUFMEM10A Design and create a multimedia interface

Specialist Core Stream - Networking

ICAB4220B	Create scripts for networking
ICAB4235B	Build basic perimeter security into a network
ICAB4236B	Build security into a virtual private network
ICAB4239C	Build a small wireless local area network
ICAB4240C	Build an enterprise wireless network
ICAI4029C	Install network hardware to a network
ICAI4030B	Install software to networked computers
ICAI4097C	Install and configure a network
ICAI4175C	Select and install a router
ICAI4188B	Install and maintain a server
ICAS4107B	Manage resolution of system faults on a live system
ICAS4108B	Complete database back-up and recovery
ICAS4112B	Optimise system performance
ICAS4113C	Identify and resolve common database performance problems
ICAS4119B	Monitor and administer system security
ICAS4124B	Monitor and administer network security
ICAS4191B	Maintain website performance
ICAS4200B	Monitor traffic and compile website traffic reports

Achieve 3 Elective Units Chosen from the ICA40105 Specialist Cores (above) or Specialist Elective Streams (below) Not Already Selected

Specialist Electives Stream - Software

ICAB4057B	Manage a reuse library
ICAB4224B	Apply mathematical techniques for software development
ICAB5067B	Prepare for software development using rapid application development
ICAB5068B	Build using rapid application development
ICAB5165B	Create dynamic web pages
ICAB5177B	Build Java applets
ICAB5180C	Integrate database with a website
ICAB5228B	Maintain functionality of legacy code programs
ICAB4229B	Apply intermediate programming skills in another language
ICAT5079B	Perform integration test
ICAT5081B	Perform systems test
ICAT5083B	Develop and conduct client acceptance test

Specialist Electives Stream - Client Support

- ICAI5088B Evaluate and negotiate vendor offerings
- ICAS5102B Establish and maintain client user liaison
- ICAS5103B Establish and maintain client user liaison during support activity
- ICAS5105B Coordinate change requests

Specialist Electives Stream - Hardware/Operating Systems

- ICAB4163B Create a common gateway interface script
- ICAA5150C Evaluate vendor products and equipment
- ICAI5087B Acquire system components
- ICAS5104B Determine maintenance strategy

Specialist Electives Stream - Communications/Documentation

- ICAD5092B Update and document operational procedures

Specialist Electives Stream - Analysis/Management

- ICAA5049B Develop high-level object-oriented class specifications
- ICAA5050B Develop detailed component specifications from project specifications
- ICAB4064B Prepare software development review
- ICAI5089B Implement and hand over system components
- ICAI5090B Conduct pre-installation audit for software installation

Specialist Electives Stream - Multimedia Stream

- ICPKN315B Apply knowledge and requirements of the multimedia sector
- ICPMM581B Manage multimedia production
- ICPMM582B Manage multimedia projects

Specialist Electives Stream - Networking Stream

- ICAA5045C Produce network architecture design
- ICAB4247A Link an RFID system to a database
- ICAI4244A Install and maintain an RFID system
- ICAI4249A Implement and evaluate data security
- ICAI4251A Implement and evaluate network and telecommunication security
- ICAI5085B Review site in preparation for implementation

Achieve 3 Elective Units Chosen from the Following Sources (Listed in Recommended Order)

- any of the above core or elective streams; and/or
- elsewhere in the *ICA05 Information and Communications Technology Training Package* (at Certificate III [maximum 2 units], Certificate IV or Diploma); and/or

- any other Training Package (at Certificate IV or Diploma) based on documented industry or enterprise needs
-

ICA40205 Certificate IV in Information Technology (Support)

Modification History

Not Applicable

Description

Description

This qualification provides the skills and knowledge for an individual to be competent in a variety of information technology support roles including database administration. The qualification has a strong ICT base of 12 common core units with the potential for inclusion of a range of broader support, help desk and database units to suit particular needs.

The qualification replaces 3 Certificate IV in IT 'support' qualifications from ICA99 Version 3 and incorporates the database qualification from ICA99, specifically:

It has 2 specialist streams with direct relevance to workplace roles.

Database Administration Stream This stream develops skills in the administration of commercial database systems and could provide database support to an organisation. There are several vendor courses that could potentially relate to this qualification and this stream provides logical entry into the Diploma of Information Technology (Database Design and Development).

Help Desk Stream A person selecting this stream would acquire skills and knowledge to undertake technical, client or product support and help desk activities that require a level of ICT technical expertise. The stream develops skills in defining, diagnosing and rectifying users needs and problems related to the use of hardware and software and with selection of network oriented electives could support a networked environment. It is the logical pathway from the ICA05 Certificate III in IT, *Support* stream and could provide logical entry into the Diploma of Information Technology (Systems Administration).

Job Roles

Small to medium enterprises (SMEs) will find the outcomes of this qualification useful at a technical specialist support level. ICT support job roles apply across all industries.

Possible job titles include:

- Computer Technician
- Customer Support
- Customer Support Professional
- Data Administrator
- Database Administration Associate
- Database Administrator
- Help Desk
- Help Desk Analyst
- Help Desk Specialist

- ICT Support&System Service Engineer
- Information Centre Specialist
- Information Systems Administrator
- Information Systems Operator
- Network Support Technician
- PC Network Engineer
- PC Support
- PC Support Technician
- PC Systems Coordinator
- Product Support Engineer
- Systems Administrator
- Systems Engineer
- Systems Support
- Technical Support
- Technical Support Engineer
- Technical Support Representative
- Technical Support Specialist
- Technical Writer
- User Support Technician

Prerequisite Requirements

A number of units within this qualification have prerequisites. These are detailed as follows:

Code and Title	Prerequisite units required
ICAB4060B Identify physical database requirements	ICAA4041C Determine and confirm client business expectations and needs
ICAB4136B Use structured query language to create database structures and manipulate data	ICAB4225B Automate processes
ICAS4107B Manage resolution of system faults on a live system	ICAS3024B Provide basic system administration
	ICAT3025B Run standard diagnostic tests
	ICAT4221B Locate equipment, system and software faults
ICAS4109B Evaluate system status	ICAT3025B Run standard diagnostic tests
ICAS4114B Implement maintenance procedures	ICAT3025B Run standard diagnostic tests
ICAS4125B Monitor and administer a database	ICAS3024B Provide basic system administration

Pathways Information

Not Applicable

Licensing/Regulatory Information

Not Applicable

Entry Requirements

Entry Requirements

The following units contain the basic fundamentals of ICT knowledge and skills for all qualifications at Certificate III in IT and above. These units or demonstrated equivalence are required for entry into this qualification:

- BSBCMN106A Follow workplace safety procedures
- ICAD2012B Design organisational documents using computing packages
- ICAU1128B Operate a personal computer
- ICAU2005B Operate computer hardware
- ICAU2006B Operate computing packages
- ICAU2013B Integrate commercial computing packages
- ICAU2231B Use computer operating system
- ICAW2001B Work effectively in an IT environment
- ICAW2002B Communicate in the workplace

Employability Skills Summary

Employability Skills Summary

ICA40205 Certificate IV in Information Technology (Support)

The following table contains a summary of the Employability Skills required for a Help Desk Support Officer. The Employability Skills facets described here are broad industry requirements that may vary depending on qualification packaging options.

Employability Skill	Industry requirements for this qualification include:

Employability Skill	Industry requirements for this qualification include:
Communication	- consulting with end users and clients before, during and after development of services to determine their issues and ensuring that their needs are met - interpreting technical manuals
Teamwork	- working with clients to maintain security on computer networks and manage problems - working with internal users and third party suppliers to determine and update service level agreements
Problem Solving	- solving client computing problems which may be non-routine and unpredictable - using discretion and judgement to interpret available information and solve problems
Initiative and Enterprise	- developing new criteria and procedures for performing current practices - identifying, analysing and evaluating information from a variety of sources
Planning and Organising	- creating project plans to guide the development of systems methodologies - organising resources for providing one on one instruction to clients on technical issues - planning the evaluation of system status taking into account time, environment, and internal and external issues
Self-management	- taking responsibility for own output in relation to specified quality standards - working within the Australian Computer Society code of ethics regarding security, legal, moral and ethical issues
Learning	- maintaining knowledge of current industry accepted hardware and software products - providing technical advice towards resolution of specified problems - selecting, adapting and transferring skills and knowledge to new environments
Technology	selecting, sourcing and using appropriate software and tools based on analysis of technical needs

Packaging Rules

Qualification Structure

To attain the *ICA40205 Certificate IV in Information Technology (Support)* 22 units must be achieved (depending on the specialist stream chosen):

- 12 common core units; plus
- 6 specialist core stream units - Database Administration; or
- 6 specialist core stream units - Help Desk; plus
- 4 elective units

Achieve 12 Common Core Units

Common Core

BSBCM304A	Contribute to personal skill development and learning
ICAA4041C	Determine and confirm client business expectations and needs
ICAB4225B	Automate processes
ICAD4043B	Develop and present a feasibility report
ICAD4217B	Create technical documentation
ICAS4022B	Determine and action client computing problems
ICAS4106B	Action and complete change requests
ICAS4113C	Identify and resolve common database performance problems
ICAS4114B	Implement maintenance procedures
ICAT4221B	Locate equipment, system and software faults
ICAW4214B	Maintain ethical conduct
PSPPM402B	Manage simple projects

Achieve All Core Units in 1 of the 2 Specialist Core Streams (Database Administration or Help Desk)

Specialist Core Stream - Database Administration (6 Units)

ICAB4060B	Identify physical database requirements
ICAB4136B	Use structured query language to create database structures and manipulate data
ICAS4107B	Manage resolution of system faults on a live system
ICAS4108B	Complete database back-up and recovery
ICAS4125B	Monitor and administer a database
ICAB4170B	Build a database

Specialist Core Stream - Help Desk 6 Units)

ICAS4023B	Provide one-to-one instruction
ICAS4033B	Assist with policy development for client support procedures
ICAS4109B	Evaluate system status
ICAS4134C	Provide first-level remote help desk support

ICAW4027B Relate to clients on a business level

ICTCC121A Use an enterprise information system

Achieve 4 Elective Units Chosen from the Following Sources (Listed in Recommended Order)

the other ICA40205 specialist core stream not already selected; and/or

- elsewhere in the *ICA05 Information and Communications Technology Training Package* (at Certificate III [maximum 2 units], Certificate IV or Diploma); and/or
- the *BSB01 Business Services Training Package* (at Certificate IV or Diploma); and/or
- any other Training Package (up to maximum 2 units and at Certificate IV or Diploma) based on documented industry or enterprise needs
-

ICA40305 Certificate IV in Information Technology (Websites)

Modification History

Not Applicable

Description

Description

This qualification provides the skills and knowledge for an individual to be competent in website design and/or administration either as an independent ICT specialist or as part of a team. The qualification has a strong ICT base with the potential for inclusion of a range of broader design and multimedia units to suit particular needs. The qualification could provide logical progression from the ICA05 Certificate III in IT and entry into the Diploma of Information Technology (Website Development) and several other diplomas.

It is the logical pathway from the ICA05 Certificate III in IT, Support or Applications streams and has 2 specialist streams with direct relevance to workplace roles.

Design Stream This role involves designing and constructing web pages and creating the look and feel of the site. The design role's objective is to create, in consultation with the client, the flow or 'story' of the website and how information will be displayed. From a technical perspective, designers will make use of graphical knowledge, knowledge of specific technologies and various platforms, creative flair and ability to put down an image, layout and design skills, technical knowledge of hardware, software and specific web languages.

The stream provides for training in the specific design tools built on a fundamental ICT technical base. It is possible to come into this area without qualifications but this is likely to be difficult. The provision for selecting some electives from elsewhere in the Training Package enables other ICT oriented skill areas (e.g. network development or e-business strategy) to also be included in the qualification.

Administration Stream Depending on the level of responsibility and the particular job role involved an administration stream graduate would be expected to manage the various technical aspects of the website including technical performance analysis and reporting, development of protocols for transferring content, maintenance of standards and security, building basic sites and creating basic script and other technical elements for a website.

Additionally, such a role may also include developing custom programs to extend the function of the website and administering the day to day operation of the server software, monitoring logs and usage statistics, adjusting configuration settings and backing up the system.

The electives in this qualification allow for a degree of specialisation, for example in database work, content development or basic programming. The provision for selecting some electives from elsewhere in either the ICT or any other Training Package enables the incorporation of other skill areas (e.g. design or e-business database). Depending on the stream and electives chosen, this qualification could provide entry into one of several ICA05 Diploma qualifications including Website Development and Systems Administration.

Complementary qualifications with less of an ICT focus can be found in several other Training Packages including:

- CUF07 Screen and Media
- ICP05 Printing and Graphic Arts
- CUV03 Visual Arts, Craft and Design
- BSB07 Business Services

Job Roles

Individual job roles relating to this qualification span a range of ICT technical areas. Those graduates with a design focus would use skills in the design and production of websites to work as a designer and builder of websites. Administration graduates could use skills in the management of websites, corporate intranets and extranets to work as a web manager, intranet manager or network systems manager.

Possible job titles include:

- Games Designer
- Internet Webmaster
- Internet/Intranet Administrator
- Multimedia Content Author
- Multimedia Graphic Designer
- Online Producer
- Web Administrator
- Web Applications Developers
- Web Developer/Technical Writer
- Web Development Officer
- Web Graphic Designer
- Webmaster
- Webmaster/Assistant
- Website Coordinator
- Website or Web Administrator

Prerequisite Requirements

A number of units within this qualification have prerequisites. These are detailed as follows:

Code and Title	Prerequisite units required
ICAA4142C Design a website to meet technical requirements	ICAB4135B Create a simple mark-up language document to specification ICAB4137B Produce basic client side script for dynamic web pages CUFMEM07A Apply principles of visual design and communication to the development of a multimedia product

Code and Title		Prerequisite units required	
ICAB4220B	Create scripts for networking	ICAB4225B	Automate processes
ICAD4198B	Develop guidelines for uploading information to a website	ICAD3218B	Create user documentation
		ICAD4217B	Create technical documentation
ICAT4186B	Conduct operational acceptance tests of websites	ICAT4184B	Ensure site usability for full range of users
ICAT4194B	Ensure basic website security	ICAI3101B	Install and manage network protocols

Pathways Information

Not Applicable

Licensing/Regulatory Information

Not Applicable

Entry Requirements

Entry Requirements

The following units contain the basic fundamentals of ICT knowledge and skills for all qualifications at Certificate III in IT and above. These units or demonstrated equivalence are required for entry into this qualification:

- BSBCMN106A Follow workplace safety procedures
- ICAD2012B Design organisational documents using computing packages
- ICAU1128B Operate a personal computer
- ICAU2005B Operate computer hardware
- ICAU2006B Operate computing packages
- ICAU2013B Integrate commercial computing packages
- ICAU2231B Use computer operating system
- ICAW2001B Work effectively in an IT environment
- ICAW2002B Communicate in the workplace

Employability Skills Summary

Employability Skills Summary

ICA40305 Certificate IV in Information Technology (Websites)

The following table contains a summary of the Employability Skills required for a WebMaster/Assistant. The Employability Skills facets described here are broad industry requirements that may vary depending on qualification packaging options.

Employability Skill	Industry requirements for this qualification include:
Communication	- consulting with end users and clients before, during and after development of websites to determine their issues and ensuring that their needs are met - interpreting technical manuals
Teamwork	- consulting with the work team to review proposed changes against current and future business requirements - establishing and improving work teams in an IT environment
Problem Solving	determining criteria for writing script for web pages for example, criteria such as dynamic functionality and appropriate language
Initiative and Enterprise	- developing new criteria and procedures for performing current practices - identifying, analysing and evaluating information from a variety of sources
Planning and Organising	- creating project plans to guide the development of systems methodologies - preparing feasibility reports taking into account the scope, time, cost, quality, communications and risk management
Self-management	- taking responsibility for own output in relation to specified quality standards - working within the Australian Computer Society code of ethics regarding security, legal, moral and ethical issues
Learning	- gathering and organising feedback on draft documentation and client satisfaction - maintaining knowledge of tools and software applications and the goods and services provided
Technology	selecting and using software and hardware diagnostic tools, including multimedia contexts and automated testing environments

Packaging Rules

Qualification Structure

To attain the ICA40305 Certificate IV in Information Technology (Websites) 24 or 25 units must be achieved:

- 12 common core units; plus
- 9 specialist core stream units - Design; or
- 8 specialist core stream units - Administration; plus
- 4 elective units

Achieve 12 Common Core Units

Common Core

BSBCM304A	Contribute to personal skill development and learning
CUSADM08A	Address copyright requirements
ICAA4041C	Determine and confirm client business expectations and needs
ICAB4135B	Create a simple mark-up language document to specification
ICAB4225B	Automate processes
ICAD4043B	Develop and present a feasibility report
ICAD4217B	Create technical documentation
ICAI4189B	Ensure website content meets technical protocols and standards
ICAT4221B	Locate equipment, system and software faults
ICAU4205B	Select and employ software and hardware tools
ICAW4214B	Maintain ethical conduct
PSPPM402B	Manage simple projects

Achieve all Core Units in 1 of the 2 Specialist Core Streams (Design or Administration)

Specialist Core Stream - Design (9 Units)

CUFMEM07A	Apply principles of visual design and communication to the development of a multimedia product
ICAA4142C	Design a website to meet technical requirements
ICAA4233B	Determine and apply appropriate development methodologies
ICAB4137B	Produce basic client side script for dynamic web pages
ICAB4171B	Develop cascading style sheets
ICAD4198B	Develop guidelines for uploading information to a website
ICAS4201B	Transfer content to a website using commercial packages

ICAT4183B Confirm accessibility of website for people with special needs

ICAU4207B Apply web authoring tool to convert client data for websites

Specialist Core Stream - Administration (8 Units)

ICAB4220B Create scripts for networking

ICAS4191B Maintain website performance

ICAS4200B Monitor traffic and compile website traffic reports

ICAS4201B Transfer content to a website using commercial packages

ICAT4184B Ensure site usability for full range of users

ICAT4185B Create a website testing procedure

ICAT4186B Conduct operational acceptance tests of websites

ICAT4194B Ensure basic website security

Achieve 4 Elective Units Chosen from the Following Sources (Listed in Recommended Order)

- the other *ICA40305* stream not already selected; and/or
- elsewhere in the *ICA05 Information and Communications Technology Training Package* (at Certificate III [maximum of 2 units], Certificate IV or Diploma); and/or
- preferred Training Packages BSB07 Business Services and/or CUF07 Screen and Media and/or CUV03 Visual Arts, Craft and Design and/or ICP05 Printing and Graphic Arts (at Certificate IV or Diploma); and/or
- any other Training Package (up to a maximum of 2 units) and at Certificate IV or Diploma based on documented industry or enterprise needs
-

ICA40405 Certificate IV in Information Technology (Networking)

Modification History

Not Applicable

Description

Description

This qualification develops skills and knowledge in the installation and management of simple networks and provides for an individual to be effective in network management either as an independent ICT specialist or as part of a team.

The qualification has a number of logical relationships with vendor certifications for ICT networking technologies. The units *ICAI4097C Install and configure a network* and *ICAI4029C Install network hardware to a network* could be used as a conduit to deliver CISCO semester 1 training.

Job Roles

A competent person could work as a network manager or administrator within an organisation.

Possible job titles include:

- Network Administrator
- Network Manager
- Network Operations Analyst
- Network Operations Engineer
- Network Operations Technician
- Network Technician

Prerequisite Requirements

A number of units within this qualification have prerequisites. These are detailed as follows:

Code and Title		Prerequisite units required	
ICAB4220B	Create scripts for networking	ICAB4225B	Automate processes
ICAB4247A	Link an RFID system to a database	ICAB4136B	Use structured query language to create database structures and manipulate data
ICAI4097C	Install and configure a network	ICAI3101B	Install and manage network protocols
ICAI4099B	Build an intranet	ICAI3101B	Install and manage network

Code and Title	Prerequisite units required
	protocols ICAS3120C Configure and administer a network operating system [#] ICAI4029C Install network hardware to a network
ICAI4188B Install and maintain a server	ICAI3101B Install and manage network protocols ICAI3020B Install and optimise operating system software ICAS3120C Configure and administer a network operating system
ICAI4244A Install and maintain an RFID system	ICAI3101B Install and manage network protocols ICAI4029B Install network hardware to a network
ICAI4249A Implement and evaluate data security	ICAS3024B Provide basic system administration ICAS4124B Monitor and administer network security [#]
ICAI4251A Implement and evaluate network and telecommunication security	ICAS4119B Monitor and administer system security [#] ICAS4124B Monitor and administer network security [#]
ICAS4124B Monitor and administer network security	ICAS3032B Provide network systems administration [#]
ICAS4127B Support system software	ICAI3020B Install and optimise operating system software

[#] This unit has prerequisite requirements. Section 1.6 provides further details.

Pathways Information

Not Applicable

Licensing/Regulatory Information

Not Applicable

Entry Requirements

Entry Requirements

The following units contain the basic fundamentals of ICT knowledge and skills for all qualifications at Certificate III in IT and above. These units or demonstrated equivalence are required for entry into this qualification:

- BSBCMN106A Follow workplace safety procedures
- ICAD2012B Design organisational documents using computing packages
- ICAU1128B Operate a personal computer
- ICAU2005B Operate computer hardware
- ICAU2006B Operate computing packages
- ICAU2013B Integrate commercial computing packages
- ICAU2231B Use computer operating system
- ICAW2001B Work effectively in an IT environment
- ICAW2002B Communicate in the workplace

Employability Skills Summary

Employability Skills Summary

ICA40405 Certificate IV in Information Technology (Networking)

The following table contains a summary of the Employability Skills required for a Network Administrator. The Employability Skills facets described here are broad industry requirements that may vary depending on qualification packaging options.

Employability Skill	Industry requirements for this qualification include:
Communication	writing skills for business, requiring depth in some areas, and analysis and evaluation of information in a defined range of areas (e.g. when hardware and asset recording documentation is completed in line with organisational requirements)
Teamwork	- consulting with the work team to review proposed changes against current and future business requirements - establishing and improving work teams in an IT environment

Employability Skill	Industry requirements for this qualification include:
Problem Solving	- debugging code - solving network problems related to the installation of hardware, software and networks
Initiative and Enterprise	- developing new criteria and procedures for performing current practices - identifying, analysing and evaluating information from a variety of sources
Planning and Organising	- creating project plans to guide the development of systems methodologies - planning and designing an intranet - preparing feasibility reports taking into account the scope, time, cost, quality, communications and risk management
Self-management	- taking responsibility for own output in relation to specified quality standards - working within the Australian Computer Society code of ethics regarding security, legal, moral and ethical issues
Learning	- maintaining knowledge of tools and software applications and the goods and services provided - obtaining client evaluation and feedback - providing one-to-one instruction for clients and users
Technology	selecting and using software and hardware diagnostic tools, including multimedia contexts and automated testing environments

Packaging Rules

Qualification Structure

To attain the ICA40405 Certificate IV in Information Technology (Networking) 20 units must be achieved:

- 16 core units; plus
- 4 elective units

Achieve 16 Core Units

Core

BSBCMN304A Contribute to personal skill development and learning

ICAA4041C Determine and confirm client business expectations and needs

ICAB4220B Create scripts for networking

ICAB4225B Automate processes

ICAD4043B	Develop and present a feasibility report
ICAD4217B	Create technical documentation
ICAI4029C	Install network hardware to a network
ICAI4030B	Install software to networked computers
ICAI4097C	Install and configure a network
ICAI4099B	Build an intranet
ICAI4188B	Install and maintain a server
ICAS4124B	Monitor and administer network security
ICAS4127B	Support system software
ICAT4221B	Locate equipment, system and software faults
ICAW4214B	Maintain ethical conduct
PSPPM402B	Manage simple projects

Achieve 2 Elective Units Chosen from the Following Sources (Listed in Recommended Order)

- electives listed below; and/or
- *ICA05 Information and Communications Technology Training Package* (at Certificate III [maximum of 2 units], Certificate IV or Diploma); and/or
- *BSB07 Business Services Training Package* (at Certificate IV or Diploma)

Achieve 2 Elective Units Chosen from the Following Sources (Listed in Recommended Order)

- any other Training Package (at Certificate IV or Diploma) based on documented industry or enterprise needs; and/or
- electives listed below

Electives

ICAI4244A	Install and maintain an RFID system
ICAI4249A	Implement and evaluate data security
ICAI4251A	Implement and evaluate network and telecommunication security
ICAB4247A	Link an RFID system to a database

ICA40505 Certificate IV in Information Technology (Programming)

Modification History

Not Applicable

Description

Description

This qualification develops basic programming skills in languages used in commercial systems. A person with this qualification could work as a programmer within a team of software developers or implementation project. The qualification contains a strong base of ICT core units with the potential for inclusion of ICA05 or other training package units to suit particular needs.

Job Roles

Depending on the choice of electives, graduates could work in a number of 'junior' programming roles. Selecting design or games development oriented electives could equip an individual for digital, multimedia or games programming, while other electives could underpin a systems programmer role.

Possible job titles include:

- Analyst/Programmer
- Applications Analyst
- Applications Engineer
- Applications Programmer
- Computer Engineer
- Developer/Programmer
- Digital Programmer
- Games Designer
- Games Programmer
- IT Research Engineer
- Multimedia Programmer
- PC Games Programmer
- PS2 Lead Programmer
- Programmer
- Programmer/Analyst
- Software Engineer Games
- Software Support Engineer
- Streaming Media Specialist
- Systems Engineer
- Systems Programmer

- UnrealEd Level Designer
- Virtual Reality Specialist
- Web Designer
- Xbox Programmer

Prerequisite Requirements

A number of units within this qualification have prerequisites. These are detailed as follows:

Code and Title	Prerequisite units required
ICAB4219B Apply introductory object-oriented language skills	ICAB4225B Automate processes
ICAB4222B Apply introductory programming skills in another language	ICAB4225B Automate processes
ICAB4229B Apply intermediate programming skills in another language	ICAB4222B Apply introductory programming skills in another language
ICAB4232B Maintain open source code programs	ICAB4222B Apply introductory programming skills in another language #

This unit has prerequisite requirements. Section 1.6 provides further details.

Pathways Information

Not Applicable

Licensing/Regulatory Information

Not Applicable

Entry Requirements

Entry Requirements

The following units contain the basic fundamentals of ICT knowledge and skills for all qualifications at Certificate III in IT and above. These units or demonstrated equivalence are required for entry into this qualification:

- BSBCMN106A Follow workplace safety procedures
- ICAD2012B Design organisational documents using computing packages
- ICAU1128B Operate a personal computer
- ICAU2005B Operate computer hardware

ICAU2006B Operate computing packages
ICAU2013B Integrate commercial computing packages
ICAU2231B Use computer operating system
ICAW2001B Work effectively in an IT environment
ICAW2002B Communicate in the workplace

Employability Skills Summary

Employability Skills Summary

ICA40505 Certificate IV in Information Technology (Programming)

The following table contains a summary of the Employability Skills required for an Assistant Programmer. The Employability Skills facets described here are broad industry requirements that may vary depending on qualification packaging options.

Employability Skill	Industry requirements for this qualification include:
Communication	• using plain English literacy and communication skills in relation to analysis, evaluation and presentation of information
Teamwork	• exchanging messages with other project members and actively participating in community activities
Problem Solving	• analysing project design and functionality to identify reuse components • using an integrated development environment, in particular the language debugging facilities, to debug code • using problem-solving skills involving participation in the development of strategic initiatives
Initiative and Enterprise	• developing new criteria and procedures for performing current practices • identifying, analysing and evaluating information from a variety of sources
Planning and Organising	• preparing feasibility reports taking into account the scope, time, cost, quality, communications and risk management
Self-management	• taking responsibility for own outputs in relation to specified quality standards • working within the Australian Computer Society code of ethics regarding security, legal, moral and ethical issues
Learning	• maintaining knowledge of tools and software applications and the goods and services provided

Employability Skill	Industry requirements for this qualification include:
	- obtaining client evaluation and feedback - providing one-to-one instruction for clients and users
Technology	selecting and using software and hardware diagnostic tools, including for multimedia contexts and automated testing environments

Packaging Rules

Qualification Structure

To attain the ICA40505 Certificate IV in Information Technology (Programming) 21 units must be achieved:

- 17 core units; plus
- 4 elective units

Achieve 17 Core Units

Core

BSBCMN304A	Contribute to personal skill development and learning
ICAA4041C	Determine and confirm client business expectations and needs
ICAA4058B	Apply skills in object-oriented design
ICAA4233B	Determine and apply appropriate development methodologies
ICAB4075B	Use a library or pre-existing components
ICAB4178B	Build a graphical user interface
ICAB4219B	Apply introductory object-oriented language skills
ICAB4222B	Apply introductory programming skills in another language
ICAB4225B	Automate processes
ICAB4229B	Apply intermediate programming skills in another language
ICAB4232B	Maintain open source code programs
ICAD4043B	Develop and present a feasibility report
ICAD4217B	Create technical documentation
ICAT4221B	Locate equipment, system and software faults
ICAT4242B	Perform unit test for a class
ICAW4214B	Maintain ethical conduct
PSPPM402B	Manage simple projects

Achieve 2 Elective Units Chosen from:

- *ICA05 Information and Communications Technology Training Package* (at Certificate III [maximum of 2 units], Certificate IV or Diploma)

Achieve 2 Elective Units Chosen from the Following Sources (Listed in Recommended Order)

- *ICA05 Information and Communications Technology Training Package* (at Certificate III [maximum of 2 units], Certificate IV or Diploma); and/or
- any other Training Package (at Certificate IV or Diploma) based on documented industry or enterprise needs
-

ICA40605 Certificate IV in Information Technology (Testing)

Modification History

Not Applicable

Description

Description

This qualification provides the skills and knowledge for an individual to be competent in a range of ICT positions directly related to testing either as an independent specialist or as part of a team. The qualification has a strong ICT core competency base with the potential for inclusion of a range of broader units through stream choice to suit particular needs.

This new ICA05 Certificate IV qualification has clustered and structured test units together with 'non-test' ICT units to form the first nationally recognised testing qualification in ICT. It also has validity as a more broad qualification (sharing a number of common core units with other Certificate IVs) but with a stronger testing emphasis than other qualifications.

Its development has highlighted the testing discipline more generally within the overall package. This potentially enables other ICA05 qualifications to pick up clusters of testing units from the specialist streams as part of a holistic or 'full delivery cycle' approach to ICT development.

The *Applications* stream of Certificate III provides one pathway to this qualification, while several Diploma qualifications may be the next step for a Certificate IV in IT (Testing) graduate.

There are 4 specialist streams in the qualification to provide flexibility in choice and focus while ensuring strong core competencies.

- Software
- Websites
- Multimedia
- Networking

Job Roles

Industry requirements in respect of testing, tend to come from one of two perspectives: that testing is an inherent and integral part of all ICT roles within the full delivery cycle or that testing is a discipline in its own right. The latter perspective is more easily identified in the recruitment marketplace and is reflected below.

Possible job titles include:

- Computer Systems Auditor
- ICT Auditor
- ICT Quality Management Specialist
- ICT Quality Specialist
- ICT Tester

- IT Auditor
- IT Tester
- Quality Assurance Analyst
- Quality Assurance Specialist
- Quality Assurance Engineer
- Software Design Engineer and Tester
- Software QA Specialist
- Software Tester
- Systems Tester
- Team Leader QA/Software testing
- Test Analyst
- Test Engineer
- Tester
- Testing Engineer
- Web Tester

Prerequisite Requirements

A number of units within this qualification have prerequisites. These are detailed as follows:

Code and Title		Prerequisite units required	
ICAB4220B	Create scripts for networking	ICAB4225B	Automate processes
ICAB4222B	Apply introductory programming skills in another language	ICAB4225B	Automate processes
ICAS4107B	Manage resolution of system faults on a live system	ICAS3024B	Provide basic system administration
		ICAT3025B	Run standard diagnostic tests
		ICAT4221B	Locate equipment, system and software faults
ICAS4109B	Evaluate system status	ICAT3025B	Run standard diagnostic tests
ICAT4186B	Conduct operational acceptance tests of websites	ICAT4184B	Ensure site usability for full range of users
ICAT4194B	Ensure basic website security	ICAI3101B	Install and manage network protocols
ICAT4195B	Ensure dynamic website security	ICAI3020B	Install and optimise operating system software
		ICAT4194B [#]	Ensure basic website security

This unit has prerequisite requirements. Section 1.6 provides further details.

Pathways Information

Not Applicable

Licensing/Regulatory Information

Not Applicable

Entry Requirements

Entry Requirements

The following units contain the basic fundamentals of ICT knowledge and skills for all qualifications at Certificate III in IT and above. These units or demonstrated equivalence are required for entry into this qualification:

BSBCMN106A Follow workplace safety procedures

ICAD2012B Design organisational documents using computing packages

ICAU1128B Operate a personal computer

ICAU2005B Operate computer hardware

ICAU2006B Operate computing packages

ICAU2013B Integrate commercial computing packages

ICAU2231B Use computer operating system

ICAW2001B Work effectively in an IT environment

ICAW2002B Communicate in the workplace

Employability Skills Summary

Employability Skills Summary

ICA40605 Certificate IV in Information Technology (Testing)

The following table contains a summary of the Employability Skills required for a Software Tester. The Employability Skills facets described here are broad industry requirements that may vary depending on qualification packaging options.

Employability Skill	Industry requirements for this qualification include:
Communication	using plain English literacy communication skills in relation to analysis, evaluation and presentation of

Employability Skill	Industry requirements for this qualification include:
	information, for example when conducting user acceptance testing
Teamwork	- exchanging messages with other project members and actively participating in community activities - scheduling feedback meetings to discuss reports and possible next actions with stakeholders
Problem Solving	recording and investigating discrepancies and corrections of client acceptance tests according to the project procedures and timeframe
Initiative and Enterprise	transferring and applying theoretical concepts and/or technical or creative skills to a range of situations
Planning and Organising	- effectively managing and administering the end to end testing process including test definition, execution and reporting - planning and conducting acceptance testing - planning for testing by collating documentation of conditions and expected results
Self-management	- taking responsibility for own outputs in relation to specified quality standards - working within the Australian Computer Society code of ethics regarding security, legal, moral and ethical issues
Learning	- maintaining knowledge of tools and software applications and the goods and services provided - obtaining client evaluation and feedback - providing one-to-one instruction for clients and users
Technology	selecting and using software and hardware diagnostic tools, including for multimedia contexts and automated testing environments

Packaging Rules

Qualification Structure

To attain the *ICA40605 Certificate IV in Information Technology (Testing)* 21 to 23 units must be achieved (depending upon the specialist stream selected):

- 12 common core units; plus
- 3 specialist core stream units - Software; or
- 5 specialist core stream units - Websites; or
- 4 specialist core stream units - Multimedia; or

- 4 specialist core stream units - Networking; plus
- 6 elective units

Achieve 12 Common Core Units

Common Core

BSBCMN304A	Contribute to personal skill development and learning
ICAA4041C	Determine and confirm client business expectations and needs
ICAB4225B	Automate processes
ICAD4043B	Develop and present a feasibility report
ICAD4217B	Create technical documentation
ICAS4022B	Determine and action client computing problems
ICAT4221B	Locate equipment, system and software faults
ICAT4242B	Perform unit test for a class
ICAU4205B	Select and employ software and hardware tools
ICAW4027B	Relate to clients on a business level
ICAW4214B	Maintain ethical conduct
PSPPM402B	Manage simple projects

Achieve all Core Units in 1 of the 4 Specialist Streams (Software, Websites, Multimedia, Networking) below

Specialist Core Stream -Software (3 Units)

ICAA4058B	Apply skills in object-oriented design
ICAA4233B	Determine and apply appropriate development methodologies
ICAB4222B	Apply introductory programming skills in another language

Specialist Core Stream - Websites (5 Units)

ICAT4183B	Confirm accessibility of website for people with special needs
ICAT4185B	Create a website testing procedure
ICAT4186B	Conduct operational acceptance tests of websites
ICAT4194B	Ensure basic website security
ICAT4195B	Ensure dynamic website security

Specialist Core Stream - Multimedia (4 Units)

CUFDIG501A	Coordinate the testing of interactive media products
CUFMEM07A	Apply principles of visual design and communication to the development of a multimedia product
CUSADM08A	Address copyright requirements
CUFDIG201A	Maintain interactive content

Specialist Core Stream - Networking (4 Units)

- ICAB4220B Create scripts for networking
- ICAS4107B Manage resolution of system faults on a live system
- ICAS4109B Evaluate system status
- ICAS4113C Identify and resolve common database performance problems

Achieve 3 Elective Units from the ICA40605 Testing Electives Units list below

Testing Electives

- ICAT4184B Ensure site usability for full range of users
- ICAT5077B Develop detailed test plan
- ICAT5079B Perform integration test
- ICAT5081B Perform systems test
- ICAT5082B Manage the testing process
- ICAT5083B Develop and conduct client acceptance test
- ICAT5084B Perform stress and load testing on integrated platform

Achieve 3 Elective Units from the Following Sources (Listed in Recommended Order)

- other ICA40605 Specialist units not previously chosen (above); and/or
- ICA40605 Testing Electives units list not previously chosen (above); and/or
- ICA40605 General Electives units list below; and/or
- elsewhere in the *ICA05 Information and Communications Technology Training Package* (at Certificate III [maximum of 2 units], Certificate IV or Diploma); and/or
- any other Training Package (at Certificate IV or Diploma) based on documented industry or enterprise needs

General Electives

- BSBPMG508A Manage project risk
- ICAA4051B Develop client user interface
- ICAA5054C Validate quality and completeness of system design specifications
- ICAB4075B Use a library or pre-existing components
- ICAB4135B Create a simple mark-up language document to specification
- ICAB4136B Use structured query language to create database structures and manipulate data
- ICAB4137B Produce basic client side script for dynamic web pages
- ICAB4169B Use development software and IT tools to build a basic website
- ICAB4170B Build a database
- ICAB4178B Build a graphical user interface
- ICAB4219B Apply introductory object-oriented language skills
- ICAB4224B Apply mathematical techniques for software development

ICAB5063B	Monitor and support data conversion
ICAB5074B	Monitor the system pilot
ICAB5228B	Maintain functionality of legacy code programs
ICAB5230B	Maintain custom software
ICAD4190B	Maintain information standards
ICAD4198B	Develop guidelines for uploading information to a website
ICAD5092B	Update and document operational procedures
ICAI4029C	Install network hardware to a network
ICAI4030B	Install software to networked computers
ICAI4097C	Install and configure a network
ICAI4188B	Install and maintain a server
ICAI4189B	Ensure website content meets technical protocols and standards
ICAI5152B	Implement risk management processes
ICAS4023B	Provide one-to-one instruction
ICAS4033B	Assist with policy development for client support procedures
ICAS4106B	Action and complete change requests
ICAS4108B	Complete database back-up and recovery
ICAS4112B	Optimise system performance
ICAS4114B	Implement maintenance procedures
ICAS4200B	Monitor traffic and compile website traffic reports
ICAS5105B	Coordinate change requests
ICAS5122C	Identify and resolve network problems

ICA40705 Certificate IV in Information Technology (Systems Analysis and Design)

Modification History

Not Applicable

Description

Description

This qualification provides the skills and knowledge for an individual to be competent in examining existing systems and designing or modifying them to suit changing user needs. Graduates at this level would most likely work as part of a project team. The qualification has a strong ICT base but provides the potential for inclusion of up to 30 per cent of the total required units from other packages such as BSB07 Business Services Training Package.

Job Roles

The qualification is designed to provide an individual with basic technical skills for a 'junior' business or systems analysis and design position.

Possible job titles include:

- IT Analyst
- IT Architect
- IT Designer
- Systems Analyst
- System Designer

Prerequisite Requirements

A number of units within this qualification have prerequisites. These are detailed as follows:

Code and title		Prerequisite units required
ICAB4060B	Identify physical database requirements	ICAA4041C Determine and confirm client business expectations and needs
ICAB4136B	Use structured query language to create database structures and manipulate data	ICAB4225B Automate processes
ICAP4037B	Contribute to the development of a strategy plan	ICAA4041C Determine and confirm client business expectations and needs

Pathways Information

Not Applicable

Licensing/Regulatory Information

Not Applicable

Entry Requirements

Entry Requirements

The following units contain the basic fundamentals of ICT knowledge and skills for all qualifications at Certificate III in IT and above. These units or demonstrated equivalence are required for entry into this qualification:

- BSBCMN106A Follow workplace safety procedures
- ICAD2012B Design organisational documents using computing packages
- ICAU1128B Operate a personal computer
- ICAU2005B Operate computer hardware
- ICAU2006B Operate computing packages
- ICAU2013B Integrate commercial computing packages
- ICAU2231B Use computer operating system
- ICAW2001B Work effectively in an IT environment
- ICAW2002B Communicate in the workplace

Employability Skills Summary

Employability Skills Summary

ICA40705 Certificate IV in Information Technology (Systems Analysis and Design)

The following table contains a summary of the Employability Skills required for a Junior Analyst. The Employability Skills facets described here are broad industry requirements that may vary depending on qualification packaging options.

Employability Skill	Industry requirements for this qualification include:
Communication	• determining and confirming client business expectations and needs • documenting system requirements and problems • recording client responses

Employability Skill	Industry requirements for this qualification include:
Teamwork	- exchanging messages with other project members and actively participating in IT community activities - scheduling feedback meetings to discuss reports and possible next actions with stakeholders
Problem Solving	using project project planning skills to set benchmarks and scope, such as contributing to the identification of business strategy, vision, goals and objectives and confirming that the proposed project will come in on time and within budget
Initiative and Enterprise	transferring and applying theoretical concepts and/or technical or creative skills to a range of situations
Planning and Organising	contributing to the development of a strategic plan
Self-management	- taking responsibility for own outputs in relation to specified quality standards - working within the Australian Computer Society code of ethics regarding security, legal, moral and ethical issues
Learning	- maintaining knowledge of tools and software applications and the goods and services provided - obtaining client evaluation and feedback - providing one-to-one instruction for clients and users
Technology	selecting and using software and hardware diagnostic tools, including for multimedia contexts and automated testing environments

Packaging Rules

Qualification Structure

To attain the ICA40705 Certificate IV in Information Technology (Systems Analysis and Design) 22 units must be achieved:

- 15 core units; plus
- 7 elective units

Achieve 15 Core Units

Core

BSBCMN304A Contribute to personal skill development and learning

ICAA4041C Determine and confirm client business expectations and needs

ICAA4233B Determine and apply appropriate development methodologies

ICAB4059B Develop detailed technical design

- ICAB4060B Identify physical database requirements
- ICAB4136B Use structured query language to create database structures and manipulate data
- ICAB4170B Build a database
- ICAB4225B Automate processes
- ICAD4043B Develop and present a feasibility report
- ICAD4217B Create technical documentation
- ICAP4037B Contribute to the development of a strategy plan
- ICAT4221B Locate equipment, system and software faults
- ICAW4026B Coordinate and maintain work teams
- ICAW4214B Maintain ethical conduct
- PSPPM402B Manage simple projects

Achieve 4 Elective Units from the Following Sources (Listed in Recommended Order)

- *ICA05 Information and Communications Technology Training Package* (at Certificate III (maximum of 2 units], Certificate IV or Diploma); and/or
- preferred Training Packages, BSB07 Business Services and/or CUF07 Screen and Media and/or CUV03 Visual Arts, Craft and Design (maximum of 3 units at Certificate IV or Diploma)

Achieve 3 Elective Units from the Following Sources (Listed in Recommended Order)

- any of the above elective sources; and/or
- any other Training Package (up to a maximum 2 units and at Certificate IV or Diploma) based on documented industry or enterprise needs
-

ICA40805 Certificate IV in Information Technology (Multimedia)

Modification History

Not Applicable

Description

Description

This qualification provides the skills and knowledge for an individual to be competent in designing, developing and utilising basic multimedia briefs either as an independent ICT specialist or as part of a team. The qualification has a small suite of core units with the opportunity for inclusion of 70 per cent of the qualification as electives selected from 7 'natural clusters' of units and beyond, thus providing exceptional flexibility for individuals and enterprises.

The Electives Clusters in the qualification are designed to provide a degree of guidance to individuals who may wish to develop deeper skills in particular fields within the multimedia industry, however the choice of electives is not confined to a single cluster. The 7 Electives Clusters are:

- Design
- Animation
- Games Development
- Website
- Multimedia Development
- Digital and Video
- IT

Complementary, 'non-ICT' qualifications can be found in several other Training Packages including:

- CUF07 Screen and Media
- ICP05 Printing and Graphic Arts
- CUV03 Visual Arts, Craft and Design
- BSB07 Business Services

Job Roles

Depending on the cluster selected, a person could work in a number of areas in the broad ICT and multimedia industries.

Possible job titles include:

- 2D/3D Artist
- 3D Animator
- 3D Artist/Modeller
- Animator

- Audio/Video Engineer
- Designer
- Digital Media Specialist
- Game Development Producer
- Games Developer
- Graphic/Media Designer
- Interaction Media Developer
- Media/Instructional Designer
- Multimedia Author
- Multimedia Authoring Specialist
- Multimedia Designer
- Multimedia Developer
- Multimedia Developer/Engineer
- Multimedia Development Technician
- Multimedia Producer
- Multimedia Programmer
- Multimedia Specialist Producer
- PC Games Programmer
- PS2 Lead Programmer
- Software Engineer Games
- Software Support Engineer
- Streaming Media Specialist
- UnrealEd Level Designer
- Virtual Reality Specialist
- Web Designer
- Xbox Programmer
-

Pathways Information

Not Applicable

Licensing/Regulatory Information

Not Applicable

Entry Requirements

Entry Requirements

The following units contain the basic fundamentals of ICT knowledge and skills for all qualifications at Certificate III in IT and above. These units or demonstrated equivalence are required for entry into this qualification:

BSBCMN106A Follow workplace safety procedures

ICAD2012B Design organisational documents using computing packages

ICAU1128B Operate a personal computer

ICAU2005B Operate computer hardware

ICAU2006B Operate computing packages

ICAU2013B Integrate commercial computing packages

ICAU2231B Use computer operating system

ICAW2001B Work effectively in an IT environment

ICAW2002B Communicate in the workplace

Employability Skills Summary

Employability Skills Summary

ICA40805 Certificate IV in Information Technology (Multimedia)

The following table contains a summary of the Employability Skills required for a Multimedia Developer. The Employability Skills facets described here are broad industry requirements that may vary depending on qualification packaging options.

Employability Skill	Industry requirements for this qualification include:
Communication	using plain English literacy communication skills in relation to analysis, evaluation and presentation of information
Teamwork	- exchanging messages with other project members and actively participating in IT community activities - scheduling feedback meetings to discuss report and possible next actions with stakeholders
Problem Solving	identifying possible approaches to multimedia projects and the benefits of each approach
Initiative and Enterprise	transferring and applying theoretical concepts and/or technical or creative skills to a range of situations
Planning and Organising	planning and developing a multimedia design which meets the project specifications
Self-management	- taking responsibility for own outputs in relation to specified quality standards - working within the Australian Computer Society code of ethics regarding security, legal, moral and ethical issues
Learning	- maintaining knowledge of tools and software applications and the goods and services provided - obtaining client evaluation and feedback

Employability Skill	Industry requirements for this qualification include:
Technology	selecting and using software and hardware diagnostic tools, including for multimedia contexts and automated testing environments

Packaging Rules

Qualification Structure

To attain the ICA40805 Certificate IV in Information Technology (Multimedia) 19 units must be achieved:

- 6 core units; plus
- 13 elective units

Achieve 6 Core Units

Core

BSBCMN304A Contribute to personal skill development and learning

CUFGEN01A Develop and apply industry knowledge

CUFDIG401A Author interactive media

CUSADM08A Address copyright requirements

ICAW4214B Maintain ethical conduct

PSPPM402B Manage simple projects

Achieve 9 Elective Units from any of the ICA40805 Electives Clusters below

Note 1: The grouping of units into these clusters is for guidance only. It is *not* a requirement of this qualification that a complete cluster be completed.

Note 2: People intending to complete other Certificate IVs in IT or proceed to a Diploma of IT qualification are encouraged to complete the IT cluster of units.

Electives Clusters

Design

CUFDIG303A Produce and prepare photo images

CUFDIG502A Design web environments

CUFMEM07A Apply principles of visual design and communication to the development of a multimedia product

CUFMEM10A Design and create a multimedia interface

ICPPP311B Develop a detailed design concept

Animation

CUFANM302A Create 3D digital animation

CUFANM301A Create 2D digital animation

CUFIMA05A Create 3D digital models and images

Games Development

CUFDIG504A Design games

ICAA4058B Apply skills in object-oriented design

ICAB4075B Use a library or pre-existing components

ICAB4219B Apply introductory object-oriented language skills

ICAB4224B Apply mathematical techniques for software development

ICAB4225B Automate processes

ICAT4242B Perform unit test for a class

ICAB5223B Apply intermediate object-oriented language skills

Website

ICAB4135B Create a simple mark-up language document to specification

ICAB4137B Produce basic client side script for dynamic web pages

ICAB4169B Use development software and IT tools to build a basic website

ICAI4189B Ensure website content meets technical protocols and standards

ICAT4183B Confirm accessibility of website design for people with special needs

CUFDIG201A Maintain interactive content

Multimedia Development

CUFDIG501A Coordinate the testing of interactive media products

CUFMEM10A Design and create a multimedia interface

CUFDIG505A Design information architecture

CUFWRT601A Write scripts

ICPKN315B Apply knowledge and requirements of the multimedia sector

Digital and Video

CUFCAM01A Set up and operate a basic video camera

CUFCAM03A Compose camera shots and operate a camera

CUFMEM13A Incorporate, design and edit digital video

ICPMM321B Capture a digital image

ICPMM346B Incorporate video into multimedia presentations

IT

ICAA4041C Determine and confirm client business expectations and needs

ICAB4225B Automate processes

ICAD4043B Develop and present a feasibility report

ICAD4217B Create technical documentation

ICAT4221B Locate equipment, system and software faults

Achieve 4 Elective Units from the Following Sources (Listed in Recommended Order)

- any of the Electives Clusters above; and/or
- elsewhere in the *ICA05 Information and Communications Technology Training Package* (at Certificate III [maximum 2 units], Certificate IV or Diploma; and/or
- preferred Training Packages (CUF07 Screen and Media; ICP05 Printing and Graphic Arts; SIR07 Retail Services; CUV03 Visual Arts, Craft and Design) at Certificate IV or Diploma; and/or
- any other Training Package (up to a maximum 2 units) based on documented industry or enterprise needs (at Certificate IV or Diploma)
-

Prerequisite Requirements

Prerequisite Requirements

There are no specific prerequisites for ICA05 core units in this qualification, however prerequisite arrangements for non-ICA05 core and any elective units should be checked with the originating Training Package.

ICA50105 Diploma of Information Technology (General)

Modification History

Not Applicable

Description

Description

This qualification provides the skills and knowledge for an individual to be competent in a range of ICT fields at Diploma level. The qualification has a strong core ICT base sharing the same core competencies as several other ICT qualifications of the same level. Depending on the stream chosen, this qualification offers pathways into a number of ICT qualifications at Advanced Diploma level.

It is a broad and flexible qualification with multiple internal pathways and no direct equivalent in ICA99 Version 3. However, where the combination of core and elective units selected matches another ICA05 Diploma of IT equivalent, the latter award must be issued in preference to this 'general' qualification. Note: This alternative qualification must be on the RTO's scope of registration to issue the latter award. This will ensure that there is clear identification of the work-related area of specialisation that has been undertaken.

There are 8 streams provided for in this qualification:

- E-business and Management
- Client Support
- Communication and Documentation
- Hardware and Operating Systems
- Networks
- Software
- Multimedia and Websites
- Database

Job Roles

This qualification is designed to be very flexible with a wide selection of unit choices and options. It is intended that the qualification provides those skills and knowledge required by an individual to operate effectively in high level ICT technical support roles within organisations.

It is not feasible to identify one specific vocational outcome for this qualification because of the 'general' nature of this qualification and the diverse array of unit choices and streams available. The judicious choice of stream and electives units would provide for more specialist vocational outcomes associated with the streams. Job titles listed for other ICA05 Diploma qualifications that in part match the above streams could provide some guidance.

Prerequisite Requirements

A number of units within this qualification have prerequisites. These are detailed as follows:

Code and title	Prerequisite units required
ICAA5049B Develop high-level object-oriented class specifications	ICAA4233B Determine and apply appropriate development methodologies
ICAA5141C Design and develop dynamic websites to meet technical requirements	ICAA4142C Design a website to meet technical requirements #
ICAA5147B Determine suitability of database functionality and scalability	ICAA4041C Determine and confirm client business expectations and needs
ICAA5151B Gather data to identify business requirements	ICAA4041C Determine and confirm client business expectations and needs ICAA4233B Determine and apply appropriate development methodologies
ICAA5158B Translate business needs into technical requirements	ICAA4233B Determine and apply appropriate development methodologies
ICAA5245A Evaluate RFID systems	ICAA4041C Determine and confirm client business expectations and needs ICAD4217B Create technical documentation
ICAA5246A Design an RFID implementation	ICAA4041C Determine and confirm client business expectations and needs ICAD4217B Create technical documentation
ICAB4229B Apply intermediate programming skills in another language	ICAB4222B Apply introductory programming skills in another language
ICAB5159C Build a security shield for a network	ICAS5192B Configure an internet gateway #
ICAB5160C Build and configure a server	ICAA5140C Design a server #
ICAB5228B Maintain functionality of legacy code programs	ICAB4222B Apply introductory programming skills in another language #
ICAB5230B Maintain custom software	ICAB4222B Apply introductory programming skills in another language #
ICAD5092B Update and document operational procedures	ICAD3218B Create user documentation ICAD4217B Create technical

Code and title		Prerequisite units required	
		documentation	
ICAI5173B	Install and configure a single-segment local area network switch	ICAI3101B	Install and manage network protocols
		ICAI2015B	Install software applications
ICAI5176C	Install and configure router	ICAI3101B	Install and manage network protocols
ICAI5250A	Develop, implement and evaluate system and application security	ICAB4225B	Automate processes
ICAI5252A	Develop, implement and evaluate an incident response plan	ICAP4037B	Contribute to the development of a strategy plan #
		ICAI5152B	Implement risk management processes
ICAI5253A	Implement and evaluate systems for regulatory and standards compliance	ICAA4041C	Determine and confirm client business expectations and needs
ICAP5036B	Determine appropriate IT strategies and solutions	ICAP4037B	Contribute to the development of a strategy plan #
ICAP5039B	Match IT needs with the strategic direction of the enterprise	ICAA4041C	Determine and confirm client business expectations and needs
ICAS5103B	Establish and maintain client user liaison during support activity	ICAW4027B	Relate to clients on a business level
ICAS5104B	Determine maintenance strategy	ICAT3025B	Run standard diagnostic tests
ICAS5105B	Coordinate change requests	ICAP4037B	Contribute to the development of a strategy plan #
ICAT5083B	Develop and conduct client acceptance test	ICAW4027B	Relate to clients on a business level

This unit has prerequisite requirements. Section 1.6 provides further details.

Pathways Information

Not Applicable

Licensing/Regulatory Information

Not Applicable

Entry Requirements

Entry Requirements

The following units contain the basic fundamentals of ICT knowledge and skills for all qualifications at Certificate III in IT and above. These units or demonstrated equivalence are required for entry into this qualification:

- BSBCMN106A Follow workplace safety procedures
- ICAD2012B Design organisational documents using computing packages
- ICAU1128B Operate a personal computer
- ICAU2005B Operate computer hardware
- ICAU2006B Operate computing packages
- ICAU2013B Integrate commercial computing packages
- ICAU2231B Use computer operating system
- ICAW2001B Work effectively in an IT environment
- ICAW2002B Communicate in the workplace

Employability Skills Summary

Employability Skills Summary

ICA50105 Diploma of Information Technology (General)

The following table contains a summary of the Employability Skills required for a General Application Support Officer. The Employability Skills facets described here are broad industry requirements that may vary depending on qualification packaging options.

Employability Skill	Industry requirements for this qualification include:
Communication	- analysing, evaluating and presenting information about computing systems and information technology in conjunction with stakeholders - negotiating the provision of goods and services with service and product suppliers
Teamwork	- working with a project team to identify business critical functions and the security environment - working with key stakeholders to gather, analyse and report on information

Employability Skill	Industry requirements for this qualification include:
Problem Solving	solving a range of unpredictable problems, for example when validating system design specifications or preparing a disaster recovery plan
Initiative and Enterprise	- initiating alternative approaches to problem-solving - participating in the development of strategic initiatives
Planning and Organising	- identifying problems, planning solutions and validating results - using project planning skills to take into account scope, time, cost, quality, communications, and risk analysis and management
Self-management	using personal responsibility and autonomy in performing complex technical operations and organising others
Learning	transferring and applying theoretical concepts, technical information and creative skills in a range of situations
Technology	- identifying technology needs, sourcing, purchasing, using and testing system components - understanding conflicts and integration capabilities between diverse pieces of equipment

Packaging Rules

Qualification Structure

To attain the *ICA50105 Diploma of Information Technology (General)* 21 units must be achieved:

- 6 common core units; plus
- 9 specialist core stream units (3 units chosen from any 3 specialist core stream units - E-business and Management, Client Support, Communication and Documentation, Hardware and Operating Systems, Networks, Software, Multimedia and Websites, Database); plus
- 6 elective units

Achieve 6 Common Core Units

Common Core

BSBPMG505A Manage project quality

ICAA5056B Prepare disaster recovery and contingency plans

ICAA5158B Translate business needs into technical requirements

ICAP5039B Match IT needs with the strategic direction of the enterprise

ICAS5202B Ensure privacy for users

PSPPM502B Manage complex projects

Achieve 9 specialist core stream units (by choosing 3 units from any 3 specialist core streams below - E-business and Management, Client Support, Communication and Documentation, Hardware and Operating Systems, Networks, Software, Multimedia and Websites, Database)

Specialist Core Stream - E-business and Management

ICAA5054C Validate quality and completeness of system design specifications

ICAA5138B Determine acceptable developers for projects

ICAA5148B Select new technology models for business

ICAA5151B Gather data to identify business requirements

ICAI5088B Evaluate and negotiate vendor offerings

ICAI5152B Implement risk management processes

ICAS5111B Review and manage delivery of maintenance services

Specialist Core Stream - Client Support

BSBWOR502A Ensure team effectiveness

ICAA5143C Implement process re-engineering strategies in an organisation

ICAI5216B Monitor and improve knowledge management system

ICAP5036B Determine appropriate IT strategies and solutions

ICAT5083B Develop and conduct client acceptance test

Specialist Core Stream - Communication and Documentation

(Note: There is no electives list for this stream)

ICAB5161B Build a document using extensible mark-up language

ICAD5092B Update and document operational procedures

ICAD5210B Analyse information and assign meta-tags

ICAS5102B Establish and maintain client user liaison

ICAS5103B Establish and maintain client user liaison during support activity

ICAS5105B Coordinate change requests

Specialist Core Stream - Hardware and Operating Systems (Note: There is no electives list for this stream)

ICAA5150C Evaluate vendor products and equipment

ICAB5160C Build and configure a server

ICAI5087B Acquire system components

ICAS5104B Determine maintenance strategy

Specialist Core Stream - Networks

ICAA5145B Identify best-fit topology for a wide area network

ICAB5159C Build a security shield for a network

ICAI5173B Install and configure a single-segment local area network switch

ICAI5176C Install and configure router

Specialist Core Stream - Software

ICAB5062B Perform data conversion

ICAB4229B Apply intermediate programming skills in another language

ICAB5228B Maintain functionality of legacy code programs

ICAB5230B Maintain custom software

ICAT4242B Perform unit test for a class

ICAT5079B Perform integration test

Specialist Core Stream - Multimedia and Websites

CUFANM01A Develop and implement designs for animation

CUFRAD01A Originate and develop the concept

CUFWRT07A Write an interactive sequence for multimedia

ICAA5141C Design and develop dynamic websites to meet technical requirements

ICAB5165B Create dynamic web pages

ICAB5177B Build Java applets

ICAB5180C Integrate database with a website

ICAS5203B Evaluate and select a web hosting service

ICAU5208B Use site server tools for transaction management

Specialist Core Stream - Database

ICAA5046B Model preferred system solutions

ICAA5049B Develop high-level object-oriented class specifications

ICAA5050B Develop detailed component specifications from project specifications

ICAA5147B Determine suitability of database functionality and scalability

Achieve 3 Elective Units Chosen from the ICA50105 specialist core (above) or specialist elective streams (below) not already selected

Specialist Electives Stream - E-business and Management

BSBEBUS510A Manage e-business outsourcing

BSBEBUS511A Implement a knowledge management strategy for an e-business

BSBFLM514A Manage people

BSBPMG508A Manage project risk

BSBEBUS505A Implement new technologies for business

BSBEBUS510A Manage e-business outsourcing

ICAA5150C Evaluate vendor products and equipment

ICAP5155B Plan process re-engineering strategies for business

ICAA5143C Implement process re-engineering strategies in an organisation

Specialist Electives Stream - Client Support

BSBEBUS510A Manage e-business outsourcing

BSBMGT516A Facilitate continuous improvement

ICAS4116B Undertake capacity planning

Specialist Electives Stream - Networks

ICAA5045C Produce network architecture design

ICAS5123C Manage network security

ICAA5140C Design a server

ICAA5245A Evaluate RFID systems

ICAA5246A Design an RFID implementation

ICAB5162B Install, configure and test a payment gateway

ICAI5250A Develop, implement and evaluate system and application security

ICAI5252A Develop, implement and evaluate an incident response plan

ICAI5253A Implement, and evaluate systems for regulatory and standards compliance

ICTTC168A Design and implement an enterprise VoIP and unified communications network

Specialist Electives Stream - Software

ICAA5048B Develop configuration management protocols

ICAB5065B Prepare for the build phase

ICAB5066B Coordinate the build phase

ICAB5072B Develop integration blueprint

ICAB5179B Build decks using wireless mark-up language

ICAB5223B Apply intermediate object-oriented language skills

ICAT5081B Perform systems test

Specialist Electives Stream - Multimedia and Websites

ICAA5146B Develop website information architecture

ICAS5199B Manage business websites and servers

CUFANM403A Create titles for screen production

ICPPP325B Create graphics using a graphics application

ICPMM321B Capture a digital image

ICPKN315B Apply knowledge and requirements of the multimedia sector

Specialist Electives Stream - Database

ICAA5139B Design a database

ICAA5153B Model data objects

ICAA5154B Model data processes

ICAB4170B Build a database

Achieve 3 Elective Units Chosen from the Following Sources (Listed in Recommended Order)

- any of the above core or electives sources; and/or
- elsewhere in the *ICA05 Information and Communications Technology Training Package* (at Certificate IV [maximum 2 units], Diploma or Advanced Diploma); and/or
- any other Training Package (at Diploma or Advanced Diploma) based on documented industry or enterprise needs
-

ICA50205 Diploma of Information Technology (Project Management)

Modification History

Not Applicable

Description

Description

This qualification provides the skills and knowledge for an individual to be competent in managing end-to-end project management processes and activities in an information technology context. The qualification has a strong ICT base with the potential for inclusion of a range of broader ICT and business units to suit particular project environment needs.

This project management qualification is structured in such a way as to include a significant proportion of project management competencies from other training packages, while maintaining a level of ICT technical competence within the other core units. At the electives level, there is a choice of technical units to suit the individual or enterprise including database, server and website design, architecture and e-business. A number of project management units referenced in this qualification may contribute to industry certifications through the Australian Institute of Project Management (AIPM).

Typically, ICT project leaders and managers have experience as ICT specialists in their own right although other professionals from line functions are sometimes trained in the project management discipline and promoted into ICT project management positions. Credibility in the technical component of projects is important in the ICT sector. The provision for selecting electives from the ICT Training Package enables other ICT oriented skill areas to also be included in the qualification.

Job Roles

Project managers have the responsibility for scheduling, controlling and directing the resources, people, funding and facilities to achieve the customer's business objectives for the particular information technology project. These projects may cover the full spectrum of the ICT industry including software and hardware development, web development or system development. Project managers are also responsible for assembling the team as well as the transitioning of the team to other projects at the end.

Possible job titles include:

- E-business Project Manager
- Ecommerce Production Support Manager
- ICT Project Manager
- IS Manager
- IS Procurement Manager
- IT Business Manager
- IT Manager

- IT Procurement Manager
- Middleware Project Manager
- Manager - Project Development for Ecommerce
- Online Production Coordinator
- Program Delivery Manager
- Project Director
- Project Manager
- Project Manager - Development
- Project Manager (Small Projects)
- Quality Assurance Manager - IT Projects
- Senior Project Manager (SOE)

Prerequisite Requirements

A number of units within this qualification have prerequisites. These are detailed as follows:

Code and Title	Prerequisite units required
ICAA5151B Gather data to identify business requirements	ICAA4041C Determine and confirm client business expectations and needs ICAA4233B Determine and apply appropriate development methodologies
ICAA5158B Translate business needs into technical requirements	ICAA4233B Determine and apply appropriate development methodologies

Pathways Information

Not Applicable

Licensing/Regulatory Information

Not Applicable

Entry Requirements

Entry Requirements

The following units contain the basic fundamentals of ICT knowledge and skills for all qualifications at Certificate III in IT and above. These units or demonstrated equivalence are required for entry into this qualification:

BSBCMN106A Follow workplace safety procedures

ICAD2012B Design organisational documents using computing packages

ICAU1128B Operate a personal computer

ICAU2005B Operate computer hardware

ICAU2006B Operate computing packages

ICAU2013B Integrate commercial computing packages

ICAU2231B Use computer operating system

ICAW2001B Work effectively in an IT environment

ICAW2002B Communicate in the workplace

Employability Skills Summary

Employability Skills Summary

ICA50205 Diploma of Information Technology (Project Management)

The following table contains a summary of the Employability Skills required for a Project Manager of small projects. The Employability Skills facets described here are broad industry requirements that may vary depending on qualification packaging options.

Employability Skill	Industry requirements for this qualification include:
Communication	• canvassing stakeholders regarding the need for projects • preparing documentation according to standards when analysing behaviour scenarios • using group facilitation and presentation skills in relation to transferring and collecting information and gaining consensus on concepts • using plain English literacy and communication skills in relation to analysis, evaluation and presentation of information
Teamwork	• participating in teams concerned with planning and evaluation functions • coordinating groups and teams
Problem Solving	• using problem solving skills for a defined range of unpredictable problems, for example when specifying and developing classes, objects and system abstract data types
Initiative and Enterprise	• identifying project opportunities • transferring and applying theoretical concepts and/or technical or creative skills to a range of situations
Planning and Organising	• coordinating resource allocation and usage • planning approaches to technical problems or management requirements

Employability Skill	Industry requirements for this qualification include:
	using project planning skills in relation to scope, time, cost, quality, communications and risk management
Self-management	- acting ethically when managing projects - taking responsibility for own outputs in relation to broad quantity and quality parameters
Learning	- coaching and mentoring others to acquire new knowledge and skills - managing the performance of team members by regular monitoring and review
Technology	- identifying technology needs, sourcing, purchasing, using and testing system components - using project management tools such as computer programs

Packaging Rules

Qualification Structure

To attain the ICA50205 Diploma of Information Technology (Project Management) 19 units must be achieved:

- 13 core units; plus
- 6 elective units

Achieve 13 Core Units

Core

BSBWOR502A	Ensure team effectiveness
BSBFLM514A	Manage people
BSBPMG501A	Manage application of project integrative processes
BSBPMG508A	Manage project risk
ICAA5056B	Prepare disaster recovery and contingency plans
ICAA5138B	Determine acceptable developers for projects
ICAA5151B	Gather data to identify business requirements
ICAA5158B	Translate business needs into technical requirements
ICAS5102B	Establish and maintain client user liaison
ICAS5202B	Ensure privacy for users
PSPPM501B	Design complex projects
PSPPM502B	Manage complex projects

PSPPM503B Close complex projects

Achieve 2 Elective Units Chosen from the ICA50205 Electives List below

Electives List

BSBEBUS501A	Evaluate e-business opportunities
BSBEBUS504A	Implement an e-business strategy
BSBEBUS505A	Implement new technologies for business
BSBEBUS510A	Manage e-business outsourcing
BSBEBUS511A	Implement a knowledge management strategy for an e-business
BSBEBUS605A	Identify and implement e-business innovation
BSBMGT516A	Facilitate continuous improvement
CUFPOS402A	Manage multimedia assets
CUSGEN03A	Collaborate with colleagues in planning and producing a project
ICAA5035C	Research and review hardware technology options for organisations
ICAA5054C	Validate quality and completeness of system design specifications
ICAA5055B	Confirm transition strategy
ICAA5143C	Implement process re-engineering strategies in an organisation
ICAA5148B	Select new technology models for business
ICAA5150C	Evaluate vendor products and equipment
ICAA5156B	Review and plan to minimise risk to business solutions
ICAA6149B	Implement quality assurance processes for business solutions
ICAA6157B	Develop technical requirements for a business solution
ICAB5063B	Monitor and support data conversion
ICAB5071B	Review developed software
ICAB5073B	Pilot the developed system
ICAB5074B	Monitor the system pilot
ICAD5092B	Update and document operational procedures
ICAI4091B	Conduct post-implementation review
ICAI5085B	Review site in preparation for implementation
ICAI5086B	Scope implementation requirements
ICAI5087B	Acquire system components
ICAI5088B	Evaluate and negotiate vendor offerings
ICAI5089B	Implement and hand over system components
ICAI5090B	Conduct pre-installation audit for software installation
ICAI5152B	Implement risk management processes

ICAI5212B	Implement quality assurance process for web sites
ICAI6187B	Implement change management processes
ICAP5036B	Determine appropriate IT strategies and solutions
ICAP5039B	Match IT needs with the strategic direction of the enterprise
ICAP5155B	Plan process re-engineering strategies for business
ICAP6040B	Develop contracts and manage contracted performance
ICAS5103B	Establish and maintain client user liaison during support activity
ICAS5104B	Determine maintenance strategy
ICAS5105B	Coordinate change requests
ICAS5111B	Review and manage delivery of maintenance services
ICAS5122C	Identify and resolve network problems
ICAS5199B	Manage business websites and servers
ICAS5203B	Evaluate and select a web hosting service
ICAT5077B	Develop detailed test plan
ICAT5081B	Perform systems test
ICAT5082B	Manage the testing process
ICAT5083B	Develop and conduct client acceptance test
ICPMM582B	Manage multimedia projects

Achieve 4 Elective Units Chosen from the Following Sources (Listed in Recommended Order)

- elsewhere in the *ICA05 Information and Communications Technology Training Package* at Certificate IV (maximum of 2 units at Certificate IV), Diploma or Advanced Diploma; and/or
- BSB07 Business Services Training Package at Diploma or Advanced Diploma; and/or
- any other Training Package (up to maximum of 2 units) at Diploma or Advanced Diploma and based on documented industry or enterprise need
-

ICA50305 Diploma of Information Technology (Systems Administration)

Modification History

Not Applicable

Description

Description

This qualification provides the skills and knowledge for an individual to be competent in the management and maintenance of systems as it includes high end development and integrative competencies and delivers the competence to effectively manage and maintain complex ICT systems.

Job Roles

This technical qualification is designed to produce individuals who are highly skilled in systems administration.

Possible job titles include:

- IS Manager
- Internet Administrator
- Internet Systems Administrator
- Intranet Administrator
- IT Manager
- Systems Administrator
- System Manager

Prerequisite Requirements

A number of units within this qualification have prerequisites. These are detailed as follows:

Code and title	Prerequisite units required
ICAA5151B Gather data to identify business requirements	ICAA4041C Determine and confirm client business expectations and needs ICAA4233B Determine and apply appropriate development methodologies
ICAA5158B Translate business needs into technical requirements	ICAA4233B Determine and apply appropriate development methodologies
ICAB5159C Build a security shield for a network	ICAS5192B [#] Configure an internet gateway

Code and title	Prerequisite units required
ICAB5160C Build and configure a server	ICAA5140C Design a server # ICAS3120C Configure and administer a network operating system #
ICAP5039B Match IT needs with the strategic direction of the enterprise	ICAA4041C Determine and confirm client business expectations and needs
ICAT5081B Perform systems test	ICAT3025B Run standard diagnostic tests
ICAT5082B Manage the testing process	ICAT5077B Develop detailed test plan

This unit has requirements. Section 1.6 provides further details.

Pathways Information

Not Applicable

Licensing/Regulatory Information

Not Applicable

Entry Requirements

Entry Requirements

The following units contain the basic fundamentals of ICT knowledge and skills for all qualifications at Certificate III in IT and above. These units or demonstrated equivalence are required for entry into this qualification:

- BSBCMN106A Follow workplace safety procedures
- ICAD2012B Design organisational documents using computing packages
- ICAU1128B Operate a personal computer
- ICAU2005B Operate computer hardware
- ICAU2006B Operate computing packages
- ICAU2013B Integrate commercial computing packages
- ICAU2231B Use computer operating system
- ICAW2001B Work effectively in an IT environment
- ICAW2002B Communicate in the workplace

Employability Skills Summary

Employability Skills Summary

ICA50305 Diploma of Information Technology (Systems Administration)

The following table contains a summary of the Employability Skills required for a Systems Administrator. The Employability Skills facets described here are broad industry requirements that may vary depending on qualification packaging options.

Employability Skill	Industry requirements for this qualification include:
Communication	- communicating clear concepts and solutions to complex issues in an unambiguous manner to colleagues and clients - using plain English literacy and communication skills in relation to analysis, evaluation and presentation of information, for example when developing policies and procedures - using report writing skills for business, requiring depth in some areas, and analysis and evaluation of information, for example when developing supporting documentation regarding maintenance issues
Teamwork	- participating in teams concerned with planning and evaluation functions - coordinating groups and teams
Problem Solving	- analysing and planning approaches to technical problems or management requirements - analysing error reports and making changes as required - comparing service standards and infrastructure discrepancies, identifying gaps in existing service and providing solutions
Initiative and Enterprise	- demonstrating creative skills in a range of complex situations - participating in the development of strategic initiatives - transferring and applying theoretical concepts and/or technical or creative skills to a range of situations
Planning and Organising	- creating detailed task lists identifying the breakdown of the logical stages and sequence of work - preparing plans and determining impact appraisal costs to manage protection of assets
Self-management	taking personal responsibility and autonomy in performing complex technical operations and organising others
Learning	instructing clients on the security shield and their responsibilities according to enterprise security plan
Technology	identifying technology needs, sourcing, purchasing, using and testing system components including software and hardware

Packaging Rules

Qualification Structure

To attain the ICA50305 Diploma of Information Technology (Systems Administration) 19 units must be achieved:

- 15 core units; plus
- 4 elective units

Achieve 15 Core Units

Core

BSBPMG505A	Manage project quality
ICAA5056B	Prepare disaster recovery and contingency plans
ICAA5151B	Gather data to identify business requirements
ICAA5158B	Translate business needs into technical requirements
ICAB5159C	Build a security shield for a network
ICAB5160C	Build and configure a server
ICAI5089B	Implement and hand over system components
ICAP5039B	Match IT needs with the strategic direction of the enterprise
ICAS5102B	Establish and maintain client user liaison
ICAS5111B	Review and manage delivery of maintenance services
ICAS5118C	Manage system security
ICAS5202B	Ensure privacy for users
ICAT5081B	Perform systems test
ICAT5082B	Manage the testing process
PSPPM502B	Manage complex projects

Achieve 4 Elective Units Chosen from the Following Sources (Listed in Recommended Order)

- *ICA05 Information and Communications Technology Training Package* at Certificate IV (maximum of 2 units at Certificate IV), Diploma or Advanced Diploma; and/or
- *ICT02 Telecommunications Training Package* (at Diploma or Advanced Diploma); and/or
- any other Training Package (up to maximum 2 units) at Diploma or Advanced Diploma and based on documented industry or enterprise need
-

ICA50405 Diploma of Information Technology (Networking)

Modification History

Not Applicable

Description

Description

This qualification provides the skills and knowledge for an individual to be competent in high level network management and engineering. The qualification has a strong ICT networking base with the potential for inclusion of a range of broader ICT internetworking, security or e-business units to suit particular needs.

One pathway into this qualification could be through the ICA05 Certificate IV in IT (Networking) and graduates of the Diploma could progress into the ICA05 network security qualification at Advanced Diploma level.

There are a number of relevant and complementary IT 'vendor' certifications that relate to this Diploma qualification. For example, ICAS5192B Configure an internet gateway and ICAA5144B Determine best fit topology for a local network are appropriate competencies to integrate with Cisco Semester 3. ICAA5145B Determine best fit topology for a local network and ICAA5045C Produce network architecture design are appropriate competencies to integrate with Cisco Semester 4.

Selection from a stream of specialist units is part of the packaging rules for this qualification. By judicious selection of units, individuals can build an 'internetworking' specialty within the qualification. The composition of this potential specialty reflects the integrative nature of the role with emphasis on gateways, bridges/switches and installation/configuration of routers and networks. This would be unlikely to suit an entry level position unless the individual had other networking or installation/configuration experience. To be successful, integrators and internetworking specialists cannot operate in a vacuum, they need to be familiar with the offerings of technology providers that have the product set on which to build the solutions and be experienced and accountable as their work is often pivotal to a wider project or business strategy.

The provision for selecting non-internetworking some electives either from elsewhere in ICA05 or from another package provides the flexibility for other skill areas (e.g. business development or e-business strategy) to also be included in the qualification.

Job Roles

Possible job titles include:

- Configuration Specialist
- Enterprise Application Integration Consultant
- E-Security Analyst/Manager
- Integration Analyst
- Integration Centre Specialist

- Intranet Engineer
- Middleware Integration Specialist
- Network Engineer
- Senior Java Developer (major systems integration)
- Solutions Architect
- Systems Engineer

Prerequisite Requirements

A number of units within this qualification have prerequisites. These are detailed as follows:

Code and Title	Prerequisite units required
ICAA5045C Produce network architecture design	ICAD4217B Create technical documentation
ICAA5158B Translate business needs into technical requirements	ICAA4233B Determine and apply appropriate development methodologies
ICAA5245A Evaluate RFID systems	ICAA4041C Determine and confirm client business expectations and needs ICAD4217B Create technical documentation
ICAA5246A Design an RFID implementation	ICAA4041C Determine and confirm client business expectations and needs ICAD4217B Create technical documentation
ICAI5098C Install and manage complex networks	ICAI4097C Install and configure a network #
ICAI5100C Build an internet infrastructure	ICAB5160C Build and configure a server #
ICAI5250A Develop, implement and evaluate system and application security	ICAB4225B Automate processes
ICAI5252A Develop, implement and evaluate an incident response plan	ICAP4037B Contribute to the development of a strategy plan # ICAI5152B Implement risk management processes
ICAI5253A Implement and evaluate systems for regulatory and standards compliance	ICAA4041C Determine and confirm client business expectations and needs

This unit has prerequisite requirements. Section 1.6 provides further details.

Pathways Information

Not Applicable

Licensing/Regulatory Information

Not Applicable

Entry Requirements

Entry Requirements

The following units contain the basic fundamentals of ICT knowledge and skills for all qualifications at Certificate III in IT and above. These units or demonstrated equivalence are required for entry into this qualification:

- BSBCMN106A Follow workplace safety procedures
- ICAD2012B Design organisational documents using computing packages
- ICAU1128B Operate a personal computer
- ICAU2005B Operate computer hardware
- ICAU2006B Operate computing packages
- ICAU2013B Integrate commercial computing packages
- ICAU2231B Use computer operating system
- ICAW2001B Work effectively in an IT environment
- ICAW2002B Communicate in the workplace

Employability Skills Summary

Employability Skills Summary

ICA50405 Diploma of Information Technology (Networking)

The following table contains a summary of the Employability Skills required for a Network/Systems Engineer. The Employability Skills facets described here are broad industry requirements that may vary depending on qualification packaging options.

Employability Skill	Industry requirements for this qualification include:
Communication	• communicating clear concepts and solutions to complex issues in an unambiguous manner to colleagues and clients • using plain English literacy and communication skills in

Employability Skill	Industry requirements for this qualification include:
	relation to analysis, evaluation and presentation of information, for example when developing policies and procedures • using report writing skills for business, requiring depth in some areas, and analysis and evaluation of information, for example when developing supporting documentation regarding maintenance issues
Teamwork	• coordinating groups and teams • liaising with relevant personnel to obtain approval for plans • participating in teams concerned with planning and evaluation functions
Problem Solving	• measuring parameters then modifying, correcting and debugging the network • rapidly deploying solutions to problems involving failure • using problem-solving skills for complex networks, including systems processes
Initiative and Enterprise	• providing alternative solutions with reference to required server application and server features • transferring and applying theoretical concepts and/or technical or creative skills to a range of situations
Planning and Organising	• developing plans, with prioritised tasks and contingency arrangements, for the implementation of the network design with minimum disruption to client • using project planning skills in relation to scope, time, cost, quality, communications and risk management, for example when reviewing user requirements
Self-management	• taking personal responsibility and autonomy in performing complex technical operations or organising others
Learning	• determining the support and training requirements needed for network support • gathering and analysing user feedback about using the changed system • preparing and delivering relevant training in a manner appropriate to the audience
Technology	• identifying technology needs, sourcing, purchasing, installing, configuring and testing network components including software and hardware • using tools such as generic benchmarks, software sizing models, workload testing and performance monitoring

Packaging Rules

Qualification Structure

ICA50405 Diploma of Information Technology (Networking) comprises 18 units:

- 8 core units; plus
 - 6 units from the specialist electives list; plus
- 4 elective units

Achieve 8 Core Units

Core

BSBPMG505A	Manage project quality
ICAA5056B	Prepare disaster recovery and contingency plans
ICAA5045C	Produce network architecture design
ICAA5158B	Translate business needs into technical requirements
ICAI5098C	Install and manage complex networks
ICAI5100C	Build an internet infrastructure
ICAS5202B	Ensure privacy for users
PSPPM502B	Manage complex projects

Achieve 6 Elective Units from the Specialist Electives list below

Specialist Electives

ICAA5044C	Develop system infrastructure design plan
ICAA5144B	Determine best-fit topology for a local network
ICAA5145B	Identify best-fit topology for a wide area network
ICAA5151B	Gather data to identify business requirements
ICAA5245A	Evaluate RFID systems
ICAA5246A	Design an RFID implementation
ICAB5159C	Build a security shield for a network
ICAB5160C	Build and configure a server
ICAB5237B	Build a highly secure firewall
ICAB5238B	Build a high performance security perimeter
ICAI5173B	Install and configure a single-segment local area network switch
ICAI5174B	Install high-end switches in multi-switched local area networks
ICAI5176C	Install and configure router
ICAI5196B	Implement secure encryption technologies
ICAI5197B	Install and maintain valid authentication processes
ICAI5250A	Develop, implement and evaluate system and application security

- ICAI5252A Develop, implement and evaluate an incident response plan
- ICAI5253A Implement and evaluate systems for regulatory and standards compliance
- ICAP5039B Match IT needs with the strategic direction of the enterprise
- ICAS5102B Establish and maintain client user liaison
- ICAS5123C Manage network security
- ICAS5192B Configure an internet gateway
- ICTTC168A Design and implement an enterprise VoIP&unified communications network

Achieve 4 Elective Units Chosen from the Following Sources (Listed in Recommended Order)

- units not previously selected from the Specialist Electives list (above); and/or
- *ICA05 Information and Communications Technology Training Package* at Diploma or Advanced Diploma (up to 2 units can be selected at Certificate IV); and/or
- preferred Training Packages at Diploma or Advanced Diploma (ICT02 Telecommunications; BSB07 Business Services; CUF07 Screen and Media; ICP05 Printing and Graphic Arts); and/or
- any other Training Package (to maximum of 2 units) at Diploma or Advanced Diploma based on documented industry or enterprise needs
-

ICA50505 Diploma of Information Technology (Database Design and Development)

Modification History

Not Applicable

Description

Description

This qualification provides the skills and knowledge for an individual to be competent in the effective design and development of ICT database systems. Graduates will have detailed knowledge of the technical intricacies of database development and design, but will also be well-rounded in a range of other competencies such as process re-engineering, QA, business needs analysis and client expectations.

Job Roles

Appropriate database design with relevance to the organisation's objectives can provide rapid access to information, achieve client satisfaction and provides an ability to change to meet new demands on the organisation. The integration of databases with web connectivity is of fundamental importance to e-commerce transactions.

Possible job titles include:

- Business Intelligence/Data Warehousing Consultants
- Coldfusion Developer
- CRM Database Designer
- Data Warehouse Trainer
- Data Warehousing and Business Intelligence Manager
- Database Designer
- Database Developer
- Database Specialist
- Developer
- Senior Database Administrator
- Senior Project manager - Data Warehousing CRM

Prerequisite Requirements

A number of units within this qualification have prerequisites. These are detailed as follows:

Code and Title	Prerequisite units required
ICAA5151B Gather data to identify business requirements	ICAA4041C Determine and confirm client business expectations and needs ICAA4233B Determine and apply

Code and Title	Prerequisite units required
	appropriate development methodologies
ICAA5158B Translate business needs into technical requirements	ICAA4233B Determine and apply appropriate development methodologies
ICAP5039B Match IT needs with the strategic direction of the enterprise	ICAA4041C Determine and confirm client business expectations and needs

Pathways Information

Not Applicable

Licensing/Regulatory Information

Not Applicable

Entry Requirements

Entry Requirements

The following units contain the basic fundamentals of ICT knowledge and skills for all qualifications at Certificate III in IT and above. These units or demonstrated equivalence are required for entry into this qualification:

- BSBCMN106A Follow workplace safety procedures
- ICAD2012B Design organisational documents using computing packages
- ICAU1128B Operate a personal computer
- ICAU2005B Operate computer hardware
- ICAU2006B Operate computing packages
- ICAU2013B Integrate commercial computing packages
- ICAU2231B Use computer operating system
- ICAW2001B Work effectively in an IT environment
- ICAW2002B Communicate in the workplace

Employability Skills Summary

Employability Skills Summary

ICA50505 Diploma of Information Technology (Database Design and Development)

The following table contains a summary of the Employability Skills required for a Database Designer/Developer. The Employability Skills facets described here are broad industry requirements that may vary depending on qualification packaging options.

Employability Skill	Industry requirements for this qualification include:
Communication	- communicating clear concepts and solutions to complex issues in an unambiguous manner to colleagues and clients - using plain English literacy and communication skills in relation to analysis, evaluation and presentation of information, for example when developing policies and procedures - using report writing skills for business, requiring depth in some areas, and analysis and evaluation of information, for example when developing supporting documentation regarding maintenance issues
Teamwork	- coordinating groups and teams - liaising with relevant personnel to obtain approval for plans - participating in teams concerned with planning and evaluation functions
Problem Solving	- analysing and planning approaches to technical problems or management requirements - identifying bottlenecks, overlooked functionalities and other issues and resolving them with client input
Initiative and Enterprise	transferring and applying theoretical concepts and/or technical or creative skills to a range of situations
Planning and Organising	- developing plans, with prioritised tasks and contingency arrangements, for the implementation of the database design - using project planning skills in relation to scope, time, cost, quality, communications and risk management for example, when reviewing user requirements
Self-management	taking personal responsibility and autonomy in performing complex technical operations or organising others
Learning	developing detailed knowledge of current industry accepted design methodologies and prototyping tools
Technology	- identifying technology needs, sourcing, purchasing, installing, configuring and testing database components including software and hardware - using rapid application development tools

Packaging Rules

Qualification Structure

To attain ICA50505 Diploma of Information Technology (Database Design and Development) 19 units must be achieved:

- 15 core units; plus
- 4 elective units

Achieve 15 Core Units

Core

BSBPMG505A	Manage project quality
ICAA5046B	Model preferred system solutions
ICAA5050B	Develop detailed component specifications from project specifications
ICAA5054C	Validate quality and completeness of system design specifications
ICAA5056B	Prepare disaster recovery and contingency plans
ICAA5139B	Design a database
ICAA5151B	Gather data to identify business requirements
ICAA5153B	Model data objects
ICAA5154B	Model data processes
ICAA5158B	Translate business needs into technical requirements
ICAB5068B	Build using rapid application development
ICAP5039B	Match IT needs with the strategic direction of the enterprise
ICAS5102B	Establish and maintain client user liaison
ICAS5202B	Ensure privacy for users
PSPPM502B	Manage complex projects

Achieve 4 Elective Units Chosen from the Following Sources (Listed in Recommended Order)

- *Information Technology and Communications Training Package ICA05* at Diploma or Advanced Diploma (up to 2 units can be selected at Certificate IV); and/or
- preferred Training Packages at Diploma or Advanced Diploma (ICT02 Telecommunications; BSB07 Business Services; CUF07 Screen and Media; ICP05 Printing and Graphic Arts); and/or
- any other Training Package (to maximum of 2 unit) at Diploma or Advanced Diploma based on documented industry or enterprise needs
-

ICA50605 Diploma of Information Technology (Website Development)

Modification History

Not Applicable

Description

Description

This qualification provides the skills and knowledge for an individual to be competent as a senior ICT professional with responsibilities spanning design, development, site performance, database integration through to implementation and acceptance testing. The qualification has a strong common core ICT Diploma base with the potential for up to 30 per cent of all units to come from outside of ICA05 if appropriate.

Job Roles

Depending on the level of responsibility and the particular job roles involved, duties may include integration of internal business systems with a browser interface, designing the processes and architecture of an enterprise's internet presence, aligning the client's web presence with its business strategy and specifying e-business application system requirements. At a project management level, a person may provide advice to business units and coordinate related activities, coordinate the on-time, on-budget delivery of e-business solutions or oversee the technical and creative team from conception to delivery.

Typically, web development professionals have experience in programming and systems design, with e-commerce/e-business roles generally calling for experience in either business systems analysis and systems development.

Possible job titles include:

- Analyst Programmer
- Analyst/Systems Analyst
- E-business Development Manager
- Ecommerce Architect
- Ecommerce Consultant
- Ecommerce Programmer
- eServices - Web Programmer
- Intranet Engineer
- Java Developer
- Manager Business Development
- Perl Programmer
- Project Manager
- Senior Architect - Ecommerce
- Solutions/Applications Architect

- WAP Designer/Developer
- Web Architect
- Web Business Development Manager
- Web Developer
- Web Development Manager
- Web Production Manager
- Web Programmer
- Web Programmer/Software Engineer
- Website Group Manager
- Web Usability Engineer
- Webmaster/Internet Developer

Prerequisite Requirements

A number of units within this qualification have prerequisites. These are detailed as follows:

Code and Title	Prerequisite units required
ICAA5141C Design and develop dynamic websites to meet technical requirements	ICAA4142C Design a website to meet technical requirements #
ICAA5151B Gather data to identify business requirements	ICAA4041C Determine and confirm client business expectations and needs ICAA4233B Determine and apply appropriate development methodologies
ICAA5158B Translate business needs into technical requirements	ICAA4233B Determine and apply appropriate development methodologies
ICAP5039B Match IT needs with the strategic direction of the enterprise	ICAA4041C Determine and confirm client business expectations and needs
ICAT5081B Perform systems test	ICAT3025B Run standard diagnostic tests
ICAT5083B Develop and conduct client acceptance test	ICAW4027B Relate to clients on a business level

This unit has prerequisite requirements. Section 1.6 provides further details.

Pathways Information

Not Applicable

Licensing/Regulatory Information

Not Applicable

Entry Requirements

Entry Requirements

The following units contain the basic fundamentals of ICT knowledge and skills for all qualifications at Certificate III in IT and above. These units or demonstrated equivalence are required for entry into this qualification:

- BSBCMN106A Follow workplace safety procedures
- ICAD2012B Design organisational documents using computing packages
- ICAU1128B Operate a personal computer
- ICAU2005B Operate computer hardware
- ICAU2006B Operate computing packages
- ICAU2013B Integrate commercial computing packages
- ICAU2231B Use computer operating system
- ICAW2001B Work effectively in an IT environment
- ICAW2002B Communicate in the workplace

Employability Skills Summary

Employability Skills Summary

ICA50605 Diploma of Information Technology (Website Development)

The following table contains a summary of the Employability Skills required for a Web Developer/Architect. The Employability Skills facets described here are broad industry requirements that may vary depending on qualification packaging options.

Employability Skill	Industry requirements for this qualification include:
Communication	- communicating clear concepts and solutions to complex issues in an unambiguous manner to colleagues and clients - using plain English literacy and communication skills in relation to analysis, evaluation and presentation of information, for example when record keeping and auditing - using report writing skills for business, requiring depth in some areas, and analysis and evaluation of information, for example when developing supporting documentation regarding maintenance issues

Employability Skill	Industry requirements for this qualification include:
Teamwork	• coordinating groups and teams • participating in teams concerned with planning and evaluation functions
Problem Solving	• analysing and planning approaches to technical problems or management requirements • developing and implementing risk management plans
Initiative and Enterprise	• transferring and applying theoretical concepts and/or technical or creative skills to a range of situations
Planning and Organising	• planning and documenting a process to design, build and test a dynamic website so that it meets technical requirements and web development standards • using project planning skills in relation to scope, time, cost, quality, communications and risk management for example, when reviewing user requirements
Self-management	• taking personal responsibility and autonomy in performing complex technical operations or organising others
Learning	• undertaking awareness training to inform relevant stakeholders
Technology	• identifying technology needs, sourcing, purchasing, installing, configuring and testing website components including software and hardware

Packaging Rules

Qualification Structure

To attain the ICA50605 Diploma of Information Technology (Website Development) 20 units must be achieved:

- 16 core units; plus
- 4 elective units

Achieve 16 Core Units

Core

BSBPMG505A Manage project quality

ICAA5054C Validate quality and completeness of system design specifications

ICAA5056B Prepare disaster recovery and contingency plans

ICAA5141C Design and develop dynamic websites to meet technical requirements

ICAA5146B Develop website information architecture

ICAA5151B	Gather data to identify business requirements
ICAA5158B	Translate business needs into technical requirements
ICAB5165B	Create dynamic web pages
ICAB5180C	Integrate database with a website
ICAP5039B	Match IT needs with the strategic direction of the enterprise
ICAS5102B	Establish and maintain client user liaison
ICAS5202B	Ensure privacy for users
ICAT5081B	Perform systems test
ICAT5083B	Develop and conduct client acceptance test
ICAU5208B	Use site server tools for transaction management
PSPPM502B	Manage complex projects

Achieve 4 Elective Units Chosen from the Following Sources (Listed in Recommended Order)

- *Information Technology and Communications Training Package ICA05* at Diploma or Advanced Diploma (up to 2 units can be selected at Certificate IV); and/or
- preferred Training Packages at Diploma or Advanced Diploma (ICT02 Telecommunications; BSB07 Business Services; CUF07 Screen and Media; ICP05 Printing and Graphic Arts); and/or
- any other Training Package (to maximum of 2 units) at Diploma or Advanced Diploma based on documented industry or enterprise needs
-

ICA50705 Diploma of Information Technology (Software Development)

Modification History

Not Applicable

Description

Description

This qualification provides the skills and knowledge for an individual to be competent in programming and software development. A competent person could work as a specialist in the area of programming including the ICT and programming aspects of games development. The qualification has a strong ICT base with the potential for inclusion of a range of broader design and multimedia units to suit particular needs. Up to 25 per cent of all units can potentially be selected from outside of ICA05 enabling significant flexibility in the composition of the qualification.

Job Roles

Possible job titles include:

- Games Developer
- Games Programmer
- Middleware Programmer
- Programming/Software Engineer
- Software Applications Specialist
- Software Architect
- Software Design Engineer
- Software Developer
- Software Developer/Programmer
- Software Development Engineer
- Software Engineer
- Xbox Programmer
-

Pathways Information

Not Applicable

Licensing/Regulatory Information

Not Applicable

Entry Requirements

Entry Requirements

The following units contain the basic fundamentals of ICT knowledge and skills for all qualifications at Certificate III in IT and above. These units or demonstrated equivalence are required for entry into this qualification:

- BSBCMN106A Follow workplace safety procedures
- ICAD2012B Design organisational documents using computing packages
- ICAU1128B Operate a personal computer
- ICAU2005B Operate computer hardware
- ICAU2006B Operate computing packages
- ICAU2013B Integrate commercial computing packages
- ICAU2231B Use computer operating system
- ICAW2001B Work effectively in an IT environment
- ICAW2002B Communicate in the workplace

Employability Skills Summary

Employability Skills Summary

ICA50705 Diploma of Information Technology (Software Development)

The following table contains a summary of the Employability Skills required for a Software Developer. The Employability Skills facets described here are broad industry requirements that may vary depending on qualification packaging options.

Employability Skill	Industry requirements for this qualification include:
Communication	- communicating clear concepts and solutions to complex issues in an unambiguous manner to colleagues and clients - using plain English literacy and communication skills in relation to analysis, evaluation and presentation of information, for example when developing policies and procedures - using report writing skills for business, requiring depth in some areas, and analysis and evaluation of information, for example when developing supporting documentation
Teamwork	- coordinating groups and teams - delegating roles and responsibilities to team for the implementation of project plans - participating in teams concerned with planning and evaluation functions

Employability Skill	Industry requirements for this qualification include:
Problem Solving	- analysing and planning approaches to technical problems or management requirements - determining the system design audit technique or methodology that will be followed - using a debugger to detect logical and coding errors
Initiative and Enterprise	transferring and applying theoretical concepts and/or technical or creative skills to a range of situations
Planning and Organising	using project planning skills in relation to scope, time, cost, quality, communications and risk management for example when reviewing user requirements
Self-management	taking personal responsibility and autonomy in performing complex technical operations or organising others
Learning	providing learning and development opportunities for the project team
Technology	identifying technology needs, sourcing, purchasing, installing, configuring and testing software components including hardware

Packaging Rules

Qualification Structure

To attain the ICA50705 Diploma of Information Technology (Software Development) 17 units must be achieved:

- 9 core units; plus
- 8 elective units

Achieve 9 Core Units

Core

BSBPMG505A Manage project quality

ICAA5056B Prepare disaster recovery and contingency plans

ICAA5158B Translate business needs into technical requirements

ICAB5223B Apply intermediate object-oriented language skills

ICAB5226B Apply advanced object-oriented language skills

ICAB5227B Apply advanced programming skills in another language

ICAS5202B Ensure privacy for users

ICAT5079B Perform integration test

PSPPM502B Manage complex projects

Achieve 4 Elective Units from the Specialist Electives list below

Specialist Electives

ICAA5054C Validate quality and completeness of system design specifications

ICAA5151B Gather data to identify business requirements

ICAB5068B Build using rapid application development

ICAB5228B Maintain functionality of legacy code programs

ICAB5230B Maintain custom software

ICAP5039B Match IT needs with the strategic direction of the enterprise

ICAS5102B Establish and maintain client user liaison

ICAT5081B Perform systems test

Achieve 4 Elective Units Chosen from the Following Sources (Listed in Recommended Order)

- further units from the Specialist Electives list above; and/or
- *ICA05 Information and Communications Technology Training Package* at Diploma or Advanced Diploma (up to 2 units can be selected at Certificate IV); and/or
- preferred Training Packages at Diploma or Advanced Diploma (ICT02 Telecommunications; BSB07 Business Services; CUF07 Screen and Media; ICP05 Printing and Graphic Arts); and/or
- any other Training Package (to maximum of 2 units) at Diploma or Advanced Diploma based on documented industry or enterprise needs
-

Prerequisite Requirements

Prerequisites Requirements

A number of units within this qualification have prerequisites. These are detailed as follows:

Code and Title	Prerequisite units required
ICAA5158B Translate business needs into technical requirements	ICAA4233B Determine and apply appropriate development methodologies
ICAB5223B Apply intermediate object-oriented language skills	ICAB4219B Apply introductory object-oriented language skills #
ICAB5226B Apply advanced object-oriented language skills	ICAB5223B Apply intermediate object-oriented language skills #
ICAB5227B Apply advanced programming skills in another language	ICAB4229B Apply intermediate programming skills in another language #

This unit has prerequisite requirements. Section 1.6 provides further details.

ICA50805 Diploma of Information Technology (Systems Analysis and Design)

Modification History

Not Applicable

Description

Description

This qualification provides the skills and knowledge for an individual to be competent in high order technical skills in information systems and business analysis and design. The qualification has a strong ICT base with the potential for inclusion of a range of broader ICT or business units to suit particular needs.

The qualification places emphasis on client interaction and relationships as well as close attention to organisational and business needs. It has a strong core and fewer elective choices than other Diplomas.

Job Roles

Possible job titles include:

- Applications Architect
- Business Analyst
- Systems Analyst
- Systems Architect
-

Pathways Information

Not Applicable

Licensing/Regulatory Information

Not Applicable

Entry Requirements

Entry Requirements

The following units contain the basic fundamentals of ICT knowledge and skills for all qualifications at Certificate III in IT and above. These units or demonstrated equivalence are required for entry into this qualification:

BSBCMN106A Follow workplace safety procedures

ICAD2012B Design organisational documents using computing packages

ICAU1128B Operate a personal computer
ICAU2005B Operate computer hardware
ICAU2006B Operate computing packages
ICAU2013B Integrate commercial computing packages
ICAU2231B Use computer operating system
ICAW2001B Work effectively in an IT environment
ICAW2002B Communicate in the workplace

Employability Skills Summary

Employability Skills Summary

ICA50805 Diploma of Information Technology (Systems Analysis and Design)

The following table contains a summary of the Employability Skills required for a Junior Systems Analyst. The Employability Skills facets described here are broad industry requirements that may vary depending on qualification packaging options.

Employability Skill	Industry requirements for this qualification include:
Communication	- communicating clear concepts and solutions to complex issues in an unambiguous manner to colleagues and clients - using plain English literacy and communication skills in relation to analysis, evaluation and presentation of information for example when developing policies and procedures - using report writing skills for business, requiring depth in some areas, and analysis and evaluation of information, for example when developing supporting documentation
Teamwork	participating in teams concerned with planning and evaluation functions, for example when identifying implementation areas to be developed
Problem Solving	- analysing and planning approaches to technical problems or management requirements - holding discussions on quality issues with development staff and establishing agreed actions
Initiative and Enterprise	transferring and applying theoretical concepts and/or technical or creative skills to a range of situations
Planning and Organising	using project planning skills in relation to scope, time, cost, quality, communications and risk management, for example when reviewing user requirements

Employability Skill	Industry requirements for this qualification include:
Self-management	taking personal responsibility and autonomy in performing complex technical operations or organising others
Learning	providing learning and development opportunities for the project team
Technology	identifying technology needs, sourcing, purchasing, installing, configuring and testing system components including software and hardware

Packaging Rules

Qualification Structure

To attain the ICA50805 Diploma of Information Technology (Systems Analysis and Design) 21 units must be achieved:

- 17 core units; plus
- 4 elective units

Achieve 17 Core Units

Core

BSBPMG505A	Manage project quality
ICAA5046B	Model preferred system solutions
ICAA5050B	Develop detailed component specifications from project specifications
ICAA5056B	Prepare disaster recovery and contingency plans
ICAA5139B	Design a database
ICAA5151B	Gather data to identify business requirements
ICAA5153B	Model data objects
ICAA5154B	Model data processes
ICAA5158B	Translate business needs into technical requirements
ICAB5071B	Review developed software
ICAB5074B	Monitor the system pilot
ICAI5086B	Scope implementation requirements
ICAP5039B	Match IT needs with the strategic direction of the enterprise
ICAS5102B	Establish and maintain client user liaison
ICAS5202B	Ensure privacy for users
ICAT5077B	Develop detailed test plan

PSPPM502B Manage complex projects

Achieve 4 Elective Units Chosen from the Following Sources (Listed in Recommended Order)

- *ICA05 Information and Communications Technology Training Package* at Diploma or Advanced Diploma (up to 2 units can be selected at Certificate IV); and/or
- preferred Training Packages at Diploma or Advanced Diploma (ICT02 Telecommunications; BSB07 Business Services; CUF07 Screen and Media; ICP05 Printing and Graphic Arts); and/or
- any other Training Package (to maximum of 2 units) at Diploma or Advanced Diploma based on documented industry or enterprise needs
-

Prerequisite Requirements

Prerequisites Requirements

A number of units within this qualification have prerequisites. These are detailed as follows:

Code and Title	Prerequisite units required
ICAA5151B Gather data to identify business requirements	ICAA4041C Determine and confirm client business expectations and needs ICAA4233B Determine and apply appropriate development methodologies
ICAA5158B Translate business needs into technical requirements	ICAA4233B Determine and apply appropriate development methodologies
ICAP5039B Match IT needs with the strategic direction of the enterprise	ICAA4041C Determine and confirm client business expectations and needs

ICA50905 Diploma of Information Technology (Multimedia)

Modification History

Not Applicable

Description

Description

This qualification provides the skills and knowledge for an individual to be competent in designing, developing, utilising and securing multimedia. A person competent in these competencies could work in the area of online services or multimedia development. The qualification has a relatively small core unit base with the potential for inclusion of a wide range of design, ICT and multimedia units to suit particular needs. It does not include 'streams' as such but has grouped its electives list into 7 Electives Clusters as guidance for users who may wish to select related and complementary units.

In order to provide individuals with some guidance as to natural groupings present in the listed electives, this qualification shows the electives grouped into the following Electives Clusters:

- Design
- Animation
- Games Development
- Website
- Multimedia Development
- Digital and Video
- Communication

Complementary, 'non-ICT' qualifications can be found in several other Training Packages including:

- CUF07 Screen and Media
- ICP05 Printing and Graphic Arts
- CUV03 Visual Arts, Craft and Design
- BSB07 Business Services

Job Roles

Possible job titles include:

- Audio/Video Engineer
- Contract Manager - Multimedia
- Digital Media Specialist
- Game Development Producer
- Games Developer
- Interaction Media Developer
- Multimedia Authoring Specialist

- Multimedia Designer
- Multimedia Developer
- Multimedia Developer/Engineer
- Multimedia Producer
- Multimedia Programmer
- Multimedia Specialist Producer
- PC Games Programmer
- Project Manager - Multimedia
- PS2 Lead Programmer
- Software Engineer Games
- Software Support Engineer
- Streaming Media Specialist
- Web Designer
-

Pathways Information

Not Applicable

Licensing/Regulatory Information

Not Applicable

Entry Requirements

Entry Requirements

The following units contain the basic fundamentals of ICT knowledge and skills for all qualifications at Certificate III in IT and above. These units or demonstrated equivalence are required for entry into this qualification:

BSBCMN106A Follow workplace safety procedures

ICAD2012B Design organisational documents using computing packages

ICAU1128B Operate a personal computer

ICAU2005B Operate computer hardware

ICAU2006B Operate computing packages

ICAU2013B Integrate commercial computing packages

ICAU2231B Use computer operating system

ICAW2001B Work effectively in an IT environment

ICAW2002B Communicate in the workplace

Employability Skills Summary

Employability Skills Summary

ICA50905 Diploma of Information Technology (Multimedia)

The following table contains a summary of the Employability Skills required for a Multimedia Designer. The Employability Skills facets described here are broad industry requirements that may vary depending on qualification packaging options.

Employability Skill	Industry requirements for this qualification include:
Communication	- communicating clear concepts and solutions to complex issues in an unambiguous manner to colleagues and clients - using plain English literacy and communication skills in relation to analysis, evaluation and presentation of information for example when negotiating with clients - using report writing skills for business, requiring depth in some areas, and analysis and evaluation of information, for example when developing supporting documentation
Teamwork	- briefing design team members and allocating work roles to facilitate the orderliness and timeliness of the design process - participating in teams concerned with planning and evaluating the production of multimedia products
Problem Solving	- ensuring projects meet client specifications - resolving technical problems by re-designing or amending the brief in consultation with the client
Initiative and Enterprise	- making adjustments or recommendations to enhance the design according to the brief and in consultation with the client - transferring and applying theoretical concepts and/or technical or creative skills to a range of situations
Planning and Organising	- designing the production cycle and project plan for a multimedia product - using project planning skills in relation to scope, time, cost, quality, communications and risk management for example when reviewing user requirements
Self-management	taking personal responsibility and autonomy in performing complex technical operations or organising others
Learning	- investigating and becoming conversant with current privacy legislation - providing learning and development opportunities for the project team
Technology	identifying technology needs, sourcing, purchasing, installing, configuring and testing multimedia components

Employability Skill	Industry requirements for this qualification include:
	including software and hardware

Packaging Rules

Qualification Structure

To attain the ICA50905 Diploma of Information Technology (Multimedia) 19 units must be achieved:

- 6 core units; plus
- 13 elective units

Achieve 6 Core Units

Core

*CUFDIG401A Author interactive media**

ICAS5202B Ensure privacy for users

ICPMM581B Manage multimedia production

ICPMM582B Manage multimedia projects

ICPPP411B Undertake a complex design brief

PSPPM502B Manage complex projects

Achieve 8 Elective Units from any of the ICA50905 Elective Cluster lists below

Note: the grouping of units into these clusters is for guidance only. It is *not* a requirement of this qualification that a complete cluster be completed.

Elective Clusters

Design

*CUFDIG303A Produce and prepare photo images**

*CUFDIG502A Design web environments**

*CUFMEM07A Apply principles of visual design and communication to the development of a multimedia product**

*CUFMEM10A Design and create a multimedia interface**

*ICPPP311B Develop a detailed design concept**

Animation

CUFANM01A Develop and implement designs for animation

*CUFANM301A Create 2D digital animation**

*CUFANM302A Create 3D digital animation**

*CUFIMA05A Create 3D digital models and images**

Games Development

CUFDIG504A Design games

*ICAA4058B Apply skills in object-oriented design**

*ICAB4075B Use a library or pre-existing components**

*ICAB4219B Apply introductory object-oriented language skills**

*ICAB5223B Apply intermediate object-oriented language skills**

ICAB5226B Apply advanced object-oriented language skills

*ICAT4242B Perform unit test for a class**

Website

ICAA5035C Research and review hardware technology options for organisations

*ICAB4137B Produce basic client side script for dynamic web pages**

ICAB5165B Create dynamic web pages

*ICAI4189B Ensure website content meets technical protocols and standards**

*ICAT4183B Confirm accessibility of website design for people with special needs**

ICAT4185B Create a website testing procedure

ICAT4186B Conduct operational acceptance tests of websites

CUFDIG201A Maintain interactive content

Multimedia Development

CUFDIG302A Author interactive sequence

*CUFDIG501A Coordinate the testing of interactive media products**

*CUFMEM10A Design and create a multimedia interface**

CUFDIG505A Design information architecture

CUFWRT07A Write an interactive sequence for multimedia

*CUFWRT601A Write scripts**

*ICPKN315B Apply knowledge and requirements of the multimedia sector**

Digital and Video

*CUFCAM01A Set up and operate a basic video camera**

*CUFCAM03A Compose camera shots and operate a camera**

CUFCAM501A Shoot material for screen productions under special conditions

*CUFMEM13A Incorporate, design and edit digital video**

*ICPMM321B Capture a digital image**

*ICPMM346B Incorporate video into multimedia presentations**

Communication

BSBPMG505A Manage project quality

CUSADM07A Establish and maintain work and contractual relationships

CUSGEN03A Collaborate with colleagues in planning and producing a project

ICAS5102B Establish and maintain client user liaison

Achieve 5 Elective Units Chosen from the Following Sources (Listed in Recommended Order)

- from the Elective Cluster units above; and/or
- elsewhere in the *ICA05 Information and Communications Technology Training Package* at Diploma or Advanced Diploma (up to 3 units can be selected at Certificate IV); and/or
- preferred Training Packages at Diploma or Advanced Diploma (CUF07 Screen and Media; ICP05 Printing and Graphic Arts; SIR07 Retail Services; CUV03 Visual Arts, Craft and Design); and/or
- any other Training Package (up to a maximum of 2 units) at Diploma or Advanced Diploma based on documented industry or enterprise needs
-

Prerequisite Requirements

Prerequisites Requirements

There are no specific prerequisites for ICA05 core units in this qualification, however prerequisite arrangements for non-ICA05 core and any elective units should be checked with the originating Training Package.

However, it should be noted that units shown in *italics* and with * in the following lists may have been completed in Certificate IV in IT (Multimedia) if this was the pathway to this Diploma qualification.

ICA60105 Advanced Diploma of Information Technology

Modification History

Not Applicable

Description

Description

This qualification provides high level 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 core management base with streaming and electives choice to suit particular ICT and business needs.

The qualification accommodates a number of qualifications from ICA99 Version 3, specifically:

This qualification also provides a logical next step as a capstone qualification for ICT Diploma graduates and could also be entered on a 'discipline transfer' basis for individuals without ICA05 qualifications.

It has 4 specialist streams each with definable vocational outcomes:

Systems or Software Process Improvement Stream Designed to equip people to undertake high level systems and software improvement. These process improvement activities may be ISA15504, ISO9000, CMMI or other equivalent system.

Systems Development Stream Focuses on the development of high level strategic planning and evaluation skills, which underpin ICT technical decision making in the development and execution of web, database and related systems technology solutions for business. It imports several units with research and security assessment, which round out the strong ICT technical and managerial base underpinning this stream.

E-learning Stream A 'blend' based on the common core of innovation, change and project management with the e-learning stream it provides a design and development focus in e-learning. By judicious choice of electives, it can inject the appropriate ICT robustness of technical foundations recommended for online and interactive delivery. Possible job titles include E-learning Business Development Manager, ICT Curriculum Manager, E-learning Developer, Online Training Manager.

Knowledge Management Stream This stream also incorporates a number of imported business units provide knowledge and skills for managing the acquisition, analysis and distribution of information and knowledge. In the context of growing commercial needs in this area, the stream is designed to provide individuals with the fundamental ICT skills to develop, implement and manage a range of systems, procedures and work practices to capture, share and leverage business information and knowledge. Based on a core of strong ICT skills covering fields such as data modelling, database design and warehousing, the stream also recognises other necessary skills by incorporating communication and business strategy and policy formulation. Possible job titles include Business Intelligence Consultant, Information Architect, Knowledge Manager.

The overall qualification structure provides flexibility to pick up studies in areas other than the listed 'streams' such as e-business, marketing, business development and project management based on the wide choice of electives from General Electives list and the opportunity to select up to 25 per cent of total units from any other Training Package.

Job Roles

Vocational outcomes will vary with the fields of studies and streams selected. Guidance is provided within several streams above and additional information (adjusted for the different levels) can be found in Diploma level qualifications in the same area of ICT (software, database and web development).

Pathways Information

Not Applicable

Licensing/Regulatory Information

Not Applicable

Entry Requirements

Entry Requirements

The following units contain the basic fundamentals of ICT knowledge and skills for all qualifications at Certificate III in IT and above. These units or demonstrated equivalence are required for entry into this qualification:

- BSBCMN106A Follow workplace safety procedures
- ICAD2012B Design organisational documents using computing packages
- ICAU1128B Operate a personal computer
- ICAU2005B Operate computer hardware
- ICAU2006B Operate computing packages
- ICAU2013B Integrate commercial computing packages
- ICAU2231B Use computer operating system
- ICAW2001B Work effectively in an IT environment
- ICAW2002B Communicate in the workplace

Employability Skills Summary

Employability Skills Summary

ICA60105 Advanced Diploma of Information Technology

The following table contains a summary of the Employability Skills required for a Senior Systems Analyst/Programmer. The Employability Skills facets described here are broad industry requirements that may vary depending on qualification packaging options.

Employability Skill	Industry requirements for this qualification include:
Communication	• negotiating with stakeholders and team members • using a range of communication styles to suit different audiences and purposes • using communication skills to achieve stakeholder engagement
Teamwork	• coordinating groups and teams • participating in teams including teams concerned with planning and evaluation functions
Problem Solving	• managing processes related to business involves analysis, documentation and process re engineering across a broad range of technical and managerial functions, including identifying technical and human processes interactions
Initiative and Enterprise	• generating ideas through the analysis of information and concepts at an abstract level • initiating alternative approaches to skills or knowledge applications across a broad range of technical and/or management requirements, including evaluation and coordination • participating in development of strategic initiatives
Planning and Organising	• analysing and planning approaches to technical problems or management requirements • planning, implementing and monitoring information technology change
Self-management	• applying ethical decision making and problem-solving related to project management of complex projects • having personal responsibility and autonomy in performing complex technical operations or organising others • self directing application of knowledge and skills, with substantial depth in some areas where judgement is required in planning and selecting appropriate equipment, services and techniques for self and others • taking responsibility for own outputs in relation to broad quantity and quality parameters
Learning	• leading and mentoring people to achieve project outcomes • transferring and applying theoretical concepts and/or technical or creative skills to a range of situations
Technology	• identifying high level hardware, software and network

Employability Skill	Industry requirements for this qualification include:
	requirements and implementing solutions

Packaging Rules

Qualification Structure

To attain the ICA60105 Advanced Diploma of Information Technology 16 units must be achieved:

- 3 common core units; plus
- 5 specialist core stream units - Systems or Software Process Improvement; or
- 5 specialist core stream units - Systems Development; or
- 5 specialist core stream units - E-learning; or
- 5 specialist core stream units - Knowledge Management; plus
- 8 elective units

Achieve 3 Common Core Units

Common Core

BSBEBUS605A Identify and implement e-business innovation

ICAI6187B Implement change management processes

PSPPM601B Direct complex project activities

Achieve 5 Core Units Chosen from 1 of the following Specialist Core Streams (Systems or Software Process Improvement, Systems Development, E-learning, Knowledge Management)

Specialist Core Stream - Systems or Software Process Improvement

BSBEBUS609A Develop a knowledge management strategy for an e-business

BSBMGT516A Facilitate continuous improvement

BSBFLM510B Facilitate and capitalise on change and innovation

ICAA6149B Implement quality assurance processes for business solutions

ICAA6157B Develop technical requirements for a business solution

Specialist Core Stream - Systems Development

ICAA5035C Research and review hardware technology options for organisations

ICAA6149B Implement quality assurance processes for business solutions

ICAA6157B Develop technical requirements for a business solution

ICAP6040B Develop contracts and manage contracted performance

PRSTS301A Identify technical security requirements

Specialist Core Stream - E-Learning

CUFDIG502A Design web environments

TAAASS501B Lead and coordinate assessment systems and services

TAADEL503B Provide advanced facilitation to support learning

TAADES501B Design and develop learning strategies

TAAENV501B Maintain and enhance professional practice

Specialist Core Stream - Knowledge Management

BSBEBUS511A Implement a knowledge management strategy for an e-business

BSBEBUS609A Develop a knowledge management strategy for an e-business

ICAI5216B Monitor and improve knowledge management system

ICAA5150C Evaluate vendor products and equipment

ICAA5138B Determine acceptable developers for projects

Achieve 8 elective units chosen from the following sources (listed in preferential order)

- any *ICA60105* Specialist Core Stream above (units not already taken); and/or
- any *ICA60105* Specialist Electives Stream below; and/or
- *ICA60105* General Electives list below; and/or
- *ICA05 Information and Communications Technology Training Package* at Diploma or Advanced Diploma level units and which have not been previously counted in a Diploma qualification; and/or
- any other Training Package units at Advanced Diploma (to a maximum of 4 units) based on documented industry or enterprise needs

Specialist Electives Stream - Systems or Software Process Improvement

BSBEBUS505A Implement new technologies for business

BSBMGT516A Facilitate continuous improvement

BSBWOR502A Ensure team effectiveness

BSBFLM514A Manage people

BSBMGT608B Manage innovation and continuous improvement

BSBPMG508A Manage project risk

ICAP5036B Determine appropriate IT strategies and solutions

ICAP6038B Develop strategic and action plans

Specialist Electives Stream - Systems Development

ICAA5046B Model preferred system solutions

ICAA5050B Develop detailed component specifications from project specifications

ICAA5139B Design a database

ICAA5141C Design and develop dynamic websites to meet technical requirements

- ICAA5146B Develop website information architecture
- ICAA5147B Determine suitability of database functionality and scalability
- ICAA5148B Select new technology models for business
- ICAA5153B Model data objects
- ICAA5154B Model data processes
- ICAB5068B Build using rapid application development
- ICAB5165B Create dynamic web pages
- ICAB5180C Integrate database with a website
- ICAS5118C Manage system security
- ICAS5199B Manage business websites and servers
- ICAS5203B Evaluate and select a web hosting service
- ICAT5081B Perform systems test
- ICAT5083B Develop and conduct client acceptance test
- ICAU5208B Use site server tools for transaction management

Specialist Electives Stream - E-Learning

- BSBEBUS501A Evaluate e-business opportunities
- BSBEBUS505A Implement new technologies for business
- BSBEBUS513A Plan e-learning
- BSBEBUS514A Implement e-learning
- BSBEBUS515A Facilitate e-learning
- BSBWOR502A Ensure team effectiveness
- BSBMGT615A Contribute to organisational development
- BSBRKG608B Plan management of records over time
- CUFWRT601A Write scripts
- CUFWRT07A Write an interactive sequence for multimedia
- CUSGEN03A Collaborate with colleagues in planning and producing a project
- ICAA5035C Research and review hardware technology options for organisations
- ICAA5143C Implement process re-engineering strategies in an organisation
- ICAS5199B Manage business websites and servers
- ICAS5203B Evaluate and select a web hosting service

Specialist Electives Stream - Knowledge Management

- BSBEBUS512A Implement electronic communication policy
- ICAA5143C Implement process re-engineering strategies in an organisation
- ICAP5155B Plan process re-engineering strategies for business

- ICAB5062B Perform data conversion
- ICAB5063B Monitor and support data conversion
- ICAB5164B Create a data warehouse
- ICAI5096B Complete data transition

General Electives

- BSBEBUS501A Evaluate e-business opportunities
- BSBEBUS503A Design an e-business
- BSBEBUS504A Implement an e-business strategy
- BSBEBUS505A Implement new technologies for business
- BSBEBUS510A Manage e-business outsourcing
- BSBEBUS601A Develop an e-business strategy
- BSBPMG505A Manage project quality
- BSBPMG601A Direct the integration of multiple projects/programs
- BSBPMG602A Direct the scope of multiple projects/programs
- BSBPMG603A Direct time management of multiple projects/programs
- BSBPMG604A Direct cost management of multiple projects/programs
- BSBPMG605A Direct quality management of multiple projects/programs
- BSBPMG606A Direct human resources management of multiple projects/programs
- BSBPMG607A Direct communications management of multiple projects/programs
- BSBPMG608A Direct risk management of multiple projects/programs
- BSBPMG609A Direct procurement and contracts of multiple projects/programs
- ICAI5152B Implement risk management processes
- ICAI5253A Implement and evaluate systems for regulatory and standards compliance
- ICAP5036B Determine appropriate IT strategies and solutions
- ICAP6040B Develop contracts and manage contracted performance
- ICTTC168A Design and implement an enterprise VoIP&unified communications network

Prerequisite Requirements

Prerequisites Requirements

There are no specific prerequisites for ICA05 core units in this qualification, however prerequisite arrangements for non-ICA05 core and any elective units should be checked with the originating Training Package.

ICA60208 Advanced Diploma of Information Technology (Network Security)

Modification History

Not Applicable

Description

Description

This qualification provides the skills and knowledge for an individual to be competent in planning, technical design, implementation and management of complex and high level ICT network security systems and components. The qualification has a robust ICT technical base with appropriate security units imported from other Training Packages.

Within previous ICT Training Packages, the security of networks and systems was a priority and a number of units in the areas of risk management, websites and privacy were developed. These have been included in Advanced Diploma core along with several more traditional Property Services security units. A number of server, network and interface electives are offered to allow a further level of specialisation as required. The facility for selecting electives from ICA05 and other Training Packages enables other ICT oriented skill areas (e.g. programming or database development) or broader business units to be included.

Job Roles

Possible job titles include:

- Database Security Expert
- Database Security Expert
- E-Risk Manager
- E-security Specialist
- ICT Network Specialist
- ICT Security Consultants
- ICT Security Specialist
- Information Risk Manager (IRM)
- Internal Computer Audit Specialist
- IT Security Administrator
- IT Security Analyst/Engineer
- IT Security Specialist
- Lead Security Analyst
- MCSE&CCNE Systems/Network Administrator
- Network and Systems Manager
- Network Engineer
- Network Security Analyst
- Network Security Specialist

- Network Specialist - Technical Lead
- Security Administrator
- Security Engineer
- Senior Network Administrator
- Senior Software Engineer (Security)
- Systems Security Analyst
- Web Security Administrator
-

Pathways Information

Not Applicable

Licensing/Regulatory Information

Not Applicable

Entry Requirements

Entry Requirements

The following units contain the basic fundamentals of ICT knowledge and skills for all qualifications at Certificate III in IT and above. These units or demonstrated equivalence are required for entry into this qualification:

- BSBCMN106A Follow workplace safety procedures
- ICAD2012B Design organisational documents using computing packages
- ICAU1128B Operate a personal computer
- ICAU2005B Operate computer hardware
- ICAU2006B Operate computing packages
- ICAU2013B Integrate commercial computing packages
- ICAU2231B Use computer operating system
- ICAW2001B Work effectively in an IT environment
- ICAW2002B Communicate in the workplace

Employability Skills Summary

Employability Skills Summary

ICA60208 Advanced Diploma of Information Technology (Network Security)

The following table contains a summary of the Employability Skills required for a Security Consultant. The Employability Skills facets described here are broad industry requirements that may vary depending on qualification packaging options.

Employability Skill	Industry requirements for this qualification include:
Communication	• articulating complex security scenarios in a clear, concise manner relevant to all levels of the organisation • documenting information related to attacks, threats, risks and controls in a security plan • using report writing skills for business requiring depth in some areas, and analysis and evaluation of information in a defined range of areas, for example when documenting recommendations for improvement and referring them to appropriate technical specialists
Teamwork	• managing group facilitation and presentation skills in relation to transferring and collecting information, for example when senior management and auditor approval is obtained for the design of the controls • reviewing the security strategy with security approved key stakeholders
Problem Solving	• developing controls and contingencies to alleviate security threats • taking corrective action on system implementation breakdowns • using problem-solving skills for an evolving complex scenario of security threats
Initiative and Enterprise	• developing new criteria, applications, knowledge and procedures • generating ideas at an abstract level through the analysis of information and concepts • identifying and applying skill and knowledge areas to a wide variety of contexts, with depth in some areas
Planning and Organising	• developing security plans • planning for controls and contingencies when designing an IT security framework
Self-management	• having accountability and responsibility for self and others in achieving workplace outcomes • taking responsibility for own outputs in relation to broad quantity and quality parameters
Learning	• having knowledge of current industry accepted hardware and software products, including broad knowledge of security features and capabilities

Employability Skill	Industry requirements for this qualification include:
Technology	- identifying technology needs, sourcing, purchasing, installing, configuring and testing components including software and hardware - using technological capability assessment skills involving analysis, diagnosis and evaluation, for example when evaluating various products against architecture requirements to determine the best IT solution, and for estimating current and future capacity requirements and evaluating against client's future requirements

Packaging Rules

Qualification Structure

To attain the ICA60208: Advanced Diploma of Information Technology (Network Security) 17 units must be achieved:

- 8 core units; plus
- 9 elective units

Achieve 8 Core from the following 9 Units

Core (9 Units, choose 8)

BSBEBUS605A Identify and implement e-business innovation

ICAA5044C Develop system infrastructure design plan

ICAA6052B Design an IT security framework

ICAA6053B Design system security and controls

ICAI5152B Implement risk management processes

ICAI6187B Implement change management processes

PRSTS301A Identify technical security requirements

PRSSM504A Prepare security risk management plan

PSPPM601B Direct complex project activities

Achieve 4 Elective Units Chosen from the ICA60208 Electives list below which have not previously counted in a Diploma qualification

Electives

ICAA5045C Produce network architecture design

ICAA5056B Prepare disaster recovery and contingency plans

ICAA5141C	Design and develop dynamic websites to meet technical requirements
ICAA5145B	Identify best-fit topology for a wide area network
ICAA5245A	Evaluate RFID systems
ICAA5246A	Design an RFID implementation
ICAB5159C	Build a security shield for a network
ICAB5160C	Build and configure a server
ICAB5237B	Build a highly secure firewall
ICAB5238B	Build a high performance security perimeter
ICAI5098C	Install and manage complex networks
ICAI5100C	Build an internet infrastructure
ICAI5176C	Install and configure router
ICAI5197B	Install and maintain valid authentication processes
ICAI5250A	Develop, implement and evaluate system and application security
ICAI5252A	Develop, implement and evaluate an incident response plan
ICAI5253A	Implement and evaluate systems for regulatory and standards compliance
ICAS5192B	Configure an internet gateway
ICAS5199B	Manage business websites and servers
ICTTC168A	Design and implement an enterprise VoIP&unified communications network

Achieve 5 Elective Units Chosen from the Following Sources, which have not previously counted in a Diploma qualification (Listed in Recommended Order)

- ICA60208 Electives list; and/or
- ICA05 Information and Communications Technology Training Package or BSB07 Business Services Training Package at Diploma or Advanced Diploma; and/or
- any other Training Package at Advanced Diploma (to a maximum of 3 units) based on documented industry or enterprise needs
-

Prerequisite Requirements

Prerequisites Requirements

A number of units within this qualification have prerequisites. These are detailed as follows:

Code and Title	Prerequisite units required
ICAA5044C Develop system infrastructure design plan	ICAA4041C Determine and confirm client business expectations and needs
	ICAA5144B Determine best-fit topology for a local network

Code and Title	Prerequisite units required
	ICAA5145B Identify best-fit topology for a wide area network ICAD4217B Create technical documentation
ICAA5245A Evaluate RFID systems	ICAA4041C Determine and confirm client business expectations and needs ICAD4217B Create technical documentation
ICAA5246A Design an RFID implementation	ICAA4041C Determine and confirm client business expectations and needs ICAD4217B Create technical documentation
ICAA6052B Design an IT security framework	ICAA4041C Determine and confirm client business expectations and needs
ICAI5250A Develop, implement and evaluate system and application security	ICAB4225B Automate processes
ICAI5252A Develop, implement and evaluate an incident response plan	ICAP4037B Contribute to the development of a strategy plan # ICAI5152B Implement risk management processes
ICAI5253A Implement and evaluate systems for regulatory and standards compliance	ICAA4041C Determine and confirm client business expectations and needs

This unit has prerequisites.

ICA60308 Advanced Diploma of Information Technology (E-Security)

Modification History

Not Applicable

Description

Description

This qualification provides the skills and knowledge for an individual to manage complex and high-level ICT security systems and components. The qualification has a robust ICT technical base with appropriate security units aligned to the Certified Information Systems Security Professional (CISSP) and the IT Security Essential Body of Knowledge (EBK).

CISSP is an independent information security certification governed by the International Information Systems Security Certification Consortium (ISC).

EKB is a Competency and Functional Framework for IT Security Workforce Development. The EBK characterises the IT security workforce and provides a national baseline representing the essential knowledge and skills that IT security practitioners should have to perform specific roles and responsibilities.

The US Department of Homeland Security's (DHS), National Cyber Security Division worked with subject matter experts from government, the private sector, and academia to develop an umbrella framework that establishes a national baseline representing the essential knowledge and skills IT security practitioners must have to perform their jobs. The *IT Security EBK* builds directly on established work and is not intended to represent a standard, directive, or policy by DHS. Instead, it further clarifies key IT security terms and concepts for well-defined competencies, identifies notional security roles, and defines primary functional perspectives to help advance the IT security training and certification landscape as we strive to ensure that we have the most qualified and appropriately trained IT security workforce possible.

In previous versions of the ICA05 Training Package, the security of networks and systems was a priority and a number of units in the areas of risk management, websites and privacy were developed. These have been included in Advanced Diploma core along with several more traditional Property Services security units. A number of server, network and interface electives are offered to allow a further level of specialisation as required. The facility for selecting electives from ICA05 and other Training Packages enables other ICT oriented skill areas (e.g. programming or database development) or broader business units to be included.

New units relating to e-security have been added at AQF level 4 that complement and extend security as a more holistic approach throughout the 'systems life cycle'. A new unit, ICAS6254A Manage IT security, has been added to the core units at the AQF level 6 to provide a holistic approach to management of e-security.

Consideration should be given to selecting these units as electives where they are relevant to workplace roles.

This qualification also provides a logical next step as a capstone qualification for ICT Diploma graduates particularly those that have progressed through the networking stream and AQF 3 to AQF 5 pathway. This qualification is particularly relevant to those that have developed technical specialisations in networking but an emphasis on the E-security units at the Diploma level. It is also possible to transition from other Diploma qualifications (e.g. Software Development or Systems Analysis and Design or Website development or General) if an appropriate selection of electives have been chosen especially with a focus on the E-security units.

Pathway

An appropriate pathway for this qualification is from the ICA50408 Diploma of Information Technology (Networking)

Job Roles

Possible job titles include:

- Database Security Expert
- E-risk Manager
- E-security Specialist
- ICT Security Consultants
- ICT Security Specialist
- Information Risk Manager (IRM)
- Internal Computer Audit Specialist
- IT Security Analyst/Engineer
- IT Security Specialist
- Lead Security Analyst
- Security Engineer
- Senior Software Engineer (Security)
- Systems Security Analyst
- Web Security Administrator
-

Pathways Information

Not Applicable

Licensing/Regulatory Information

Not Applicable

Entry Requirements

Not Applicable

Employability Skills Summary

Employability skills summary

ICA60308 Advanced Diploma of Information Technology (E-security)

The following table contains a summary of the employability skills required for a Security Consultant. The employability skills facets described here are broad industry requirements that may vary depending on qualification packaging options.

Employability skill	Industry requirements for this qualification include:
Communication	- articulating complex security scenarios in a clear, concise manner relevant to all levels of the organisation - documenting information related to attacks, threats, risks and controls in a security plan - using report writing skills for business requiring depth in some areas, and analysis and evaluation of information in a defined range of areas, for example when documenting recommendations for improvement and referring them to appropriate technical specialists
Teamwork	- managing group facilitation and presentation skills in relation to transferring and collecting information, for example when senior management and auditor approval is obtained for the design of the controls - reviewing the security strategy with security approved key stakeholders
Problem Solving	- developing controls and contingencies to alleviate security threats - taking corrective action on system implementation breakdowns - using problem-solving skills for an evolving complex scenario of security threats
Initiative and Enterprise	- developing new criteria, applications, knowledge and procedures - generating ideas at an abstract level through the analysis of information and concepts - identifying and applying skill and knowledge areas to a wide variety of contexts, with depth in some areas
Planning and Organising	- developing security plans - planning for controls and contingencies when designing an IT security framework
Self-management	- having accountability and responsibility for self and others in achieving workplace outcomes - taking responsibility for own outputs in relation to broad

Employability skill	Industry requirements for this qualification include:
	quantity and quality parameters
Learning	having knowledge of current industry accepted hardware and software products, including broad knowledge of security features and capabilities
Technology	- identifying technology needs, sourcing, purchasing, installing, configuring and testing components including software and hardware - using technological capability assessment skills involving analysis, diagnosis and evaluation, for example when evaluating various products against architecture requirements to determine the best IT solution, and for estimating current and future capacity requirements and evaluating against client's future requirements

Packaging Rules

Qualification structure

To attain the ICA60308 Advanced Diploma of Information Technology (E-security) 17 units must be achieved:

- 12 core units; plus
- 5 elective units

Achieve 12 Core Units

Core

ICAA5056B Prepare disaster recovery and contingency plans

ICAA6052B Design an IT security framework

ICAA6053B Design system security and controls

ICAB5159C Build a security shield for a network

ICAB5237B Build a high performance security perimeter

ICAB5238B Build a highly secure firewall

ICAI5152B Implement risk management processes

ICAI5252A Develop, implement and evaluate an incident response plan

ICAI5250A Develop, implement and evaluate system and application security

ICAS5192B Configure an internet gateway

ICAS6254A Manage IT security

PSPPM601B Direct complex project activities

Achieve 3 elective units chosen from the ICA60308 electives list below which have not previously counted in a Diploma qualification

Electives

ICAA5044C	Develop system infrastructure design plan
ICAD5092C	Update and document operational procedures
ICAI5098C	Install and manage complex networks
ICAI5100C	Build an internet infrastructure
ICAI5176C	Install and configure router
ICAI5196C	Implement secure encryption technologies
ICAI5197C	Install and maintain valid authentication processes
ICAI5253A	Implement and evaluate systems for regulatory and standards compliance
ICAI6187B	Implement change management processes
ICTTC168A	Design and implement an enterprise VoIP&Unified Communications
PRSSM504A	Prepare security risk management plan
PRSTS301A	Identify technical security requirements

Achieve 2 elective units chosen from the following sources, which have not previously counted in a Diploma qualification (listed in recommended order)

- ICA60308 electives list; and/or
- ICA05 Information and Communications Technology Training Package or BSB07 Business Services Training Package at Diploma or Advanced Diploma; and/or
- any other Training Package at Advanced Diploma (to a maximum of 2 units) based on documented industry or enterprise needs
-

Prerequisite Requirements

Prerequisites Requirements

Prerequisite arrangements for any elective units should be checked with the originating Training Package.

A number of the core units within this qualification have prerequisites. These are detailed as follows:

Code and title	Prerequisite units
ICAA6052B Design an IT security framework	ICAA4041C Determine and confirm client business expectations and needs
ICAB5159C Build a security shield for a network	ICAS5192B Configure an internet gateway #
ICAI5252A Develop, implement and evaluate	ICAP4037B Contribute to the development

Code and title	Prerequisite units
an incident response plan	of a strategy plan # ICAI5152B Implement risk management processes
ICAI5250A Develop, implement and evaluate system and application security	ICAB4225C Automate processes
ICAS5192B Configure an internet gateway	ICAI4097B Install and configure a network #
ICAS6254A Manage IT security	ICAI4249A Implement and evaluate data security # ICAI4251A Implement and evaluate network and telecommunication security # ICAI5250A Develop, implement and evaluate system and application security # ICAI5252A Develop, implement and evaluate an incident response plan #

ICAA4041C Determine and confirm client business expectations and needs

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to determine client business requirements and verify the accuracy of the information gathered. The following units are linked and form an appropriate cluster: • ICAA4047B Determine project specifications and secure client agreement • ICAD4043B Develop and present a feasibility report No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

Prerequisite units		

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. Determine context of business need or problem	1.1. Establish the business <i>problem</i> to be investigated including determination of <i>system</i> boundaries, scope and the development methodology to be used 1.2. Choose <i>information gathering method</i> and develop questions appropriate to business <i>problem</i> 1.3. Develop objectives and identify expected outcomes to be achieved 1.4. Document the business <i>problem</i> 1.5. Submit <i>documentation</i> to <i>appropriate person</i> for substantiation
2. Gather information	2.1. Use chosen <i>information gathering method</i> to identify <i>clients</i> of the <i>system</i> and <i>problems</i> they encounter 2.2. Record <i>client</i> responses 2.3. Analyse gathered information to identify new <i>system</i>

ELEMENT	PERFORMANCE CRITERIA
	requirements and establish problem specifications 2.4. Document system requirements and problems 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 3.2. Submit documentation to the client for verification of accuracy and approval 3.3. Make changes to the documentation as necessary as indicated by the client 3.4. Submit documentation to client for final approval/sign-off

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Problem solving skills for a defined range of unpredictable problems involving participation in the development of strategic initiatives
- Communication skills in relation to analysis, evaluation and presentation of information (e.g. when questionnaires or material needed for workshops and interviews are developed and trialled)
- Teamwork skills involving the contribution to solutions
- Group facilitation and presentation skills in relation to transferring and collecting information and gaining consensus
- Research skills for specifying, analysing and evaluating broad features of a particular business domain

Required knowledge

- Detailed knowledge of the client business area
- Broad knowledge of data gathering techniques
- Software products related to data capture
- Features and capabilities, with detailed knowledge in areas related to the client
- Broad knowledge of the role of stakeholders and the degree of stakeholder involvement
- Detailed knowledge of the organisation's current functionality

REQUIRED SKILLS AND KNOWLEDGE

- Physical requirements of the client's business, taking into account current system functionality, geography, environment, client user and cost constraints

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

Evidence of the following is essential:

- Assessment must confirm sufficient knowledge of investigation, interview and documentation techniques, and the ability to produce a clear statement of business expectations and needs, including critical business requirements.

To demonstrate competency in this unit the following resources will be needed:

- Business current needs
- A client expectations brief
- Business objectives

Context of and specific resources for assessment

Determining and confirming client business needs is essential if cost, quality and timelines are to be planned accurately.

The breadth, depth and complexity of knowledge and skills in this competency would cover a broad range of varied activities or application in a wider variety of contexts most of which are complex and non-routine. Leadership and guidance would be involved when organising activities of self and others as well as contributing to technical solutions of a non-routine or contingency nature.

EVIDENCE GUIDE	
	Assessment must ensure: • Performance of a broad range of skilled applications including the requirement to evaluate and analyse current practices, develop new criteria and procedures for performing current practices and provision of some leadership and guidance to others in the application and planning of the skills would be characteristic. • Applications may involve responsibility for, and limited organisation of, others.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should to be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process.
Guidance information for assessment	The interdependence of units for assessment purposes may vary with the particular project or scenario. Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended,

EVIDENCE GUIDE

	for example: • ICAA4047B Determine project specifications and secure client agreement • ICAD4043B Develop and present a feasibility report An individual demonstrating this competency would be able to: • Demonstrate understanding of a broad knowledge base incorporating some theoretical concepts • Apply solutions to a defined range of unpredictable problems • Identify and apply skill and knowledge areas to a wide variety of contexts, with depth in some areas • Identify, analyse and evaluate information from a variety of sources • Take responsibility for own outputs in relation to specified quality standards • Take limited responsibility for the quantity and quality of the output of others • Maintain knowledge of industry products and services

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.

Problem may be in reference to:

- business
- system
- application
- network
- people in the organisation; there may be a business need or opportunity that must be addressed

RANGE STATEMENT	
System may include but is not limited to:	• network equipment • cabling infrastructure • application • software • business • computers • financial system • management system • information system
Information gathering method may include but is not limited to:	• interviews • questionnaires • surveys • focus groups or observation • physical site surveys • vendor offerings
Client may include but is not limited to:	• internal departments • external organisations • customers • individual people • employees
Documentation may include:	• ISO/IEC/IEEE/IETF/AS standards • audit trails • naming standards • version control • project management templates • report writing principles
Appropriate person may include:	• a supervisor • teacher • authorised business representative • client
System requirements may include but is not limited to:	• system functionality • geography • environment • client user • cost constraints

Unit Sector(s)

Unit sector	Analyse and Design

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAA4047B Determine project specifications and secure client agreement

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to develop agreed acceptance criteria for a particular project. The following unit is linked and forms an appropriate cluster: ICAB4059B Develop detailed technical design No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		
	ICAA4041C	Determine and confirm client business expectations and needs

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. Determine milestones and quality attributes with client	1.1. Interview <i>client</i> to determine <i>project</i> deliverables and <i>acceptance criteria</i> 1.2. Document <i>project</i> milestones and associated deliverables in specific measurable terms, taking into account <i>constraints</i> 1.3. Determine and document criteria to evaluate each deliverable 1.4. Negotiate quality standards with <i>client</i> and document 1.5. Confirm <i>project</i> direction with <i>appropriate person</i>
2. Formulate metrics and milestones	2.1. Define the units of measurement (metrics) that will be used in the <i>project</i> including consideration of project milestones, timeframe and costs 2.2. Schedule the measurement of <i>project</i> milestones and associated deliverables 2.3. Document the process for analysing variances and their impact on the <i>project</i> 2.4. Schedule quality reviews into <i>project</i> plan

ELEMENT	PERFORMANCE CRITERIA
3. Obtain client agreement to acceptance criteria	3.1. Obtain client agreement for project delivery dates 3.2. Communicate acceptance criteria clearly and coherently to the client 3.3. Obtain client agreement to acceptance criteria and anticipated timeframes for the project

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Problem solving skills for a defined range of unpredictable problems involving participation in the development of strategic initiatives
- Plain English literacy and communication skills in relation to dealing with clients and team members (e.g. when conveying acceptance criteria to the client)
- Group facilitation and presentation skills in relation to transferring and collecting information and gaining consensus
- Questioning and active listening skills (e.g. when gaining client user's assistance in specifying milestones and associated deliverables in measurable terms)
- Project planning skills in relation to scope, time, cost, quality, communications and risk management
- Research skills for specifying, analysing and evaluating broad features of a particular business domain and best practice in system development methodologies
- Estimating skills for use across a range of predictable project contexts in relation to either varied or highly specific functions (e.g. when communicating timeframe, cost implications, and technical and logistical considerations to the client)
- Function point analysis skills for use across a range of predictable project contexts in relation to either varied or highly specific functions (e.g. when determining the metrics process in line with client requirements)

Required knowledge

- Project planning methodologies and tools (e.g. when determining milestones and quality attributes with client)
- Detailed knowledge of tools and their use relating to task list (e.g. when formulating metrics and milestones)
- Quality processes
- Detailed knowledge of how to formulate system development plans
- Detailed knowledge of theory and purpose of metrics

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	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: - Assessment must confirm the ability to formulate and deliver agreed specifications for the project. To demonstrate competency in this unit the learner will require access to: - Client requirements - Technical specifications - Organisational and process goals - Critical business requirements - Predefined high-level acceptance criteria - Project deliverables - Future organisational business processes - Test plan - Project budget timeframe
Context of and specific resources for assessment	The breadth, depth and complexity of knowledge and skills in this competency would cover a broad range of varied activities or application in a wider variety of contexts most of which are complex and non-routine. Leadership and guidance would be involved when organising activities of self and others as well as contributing to technical solutions of a non-routine or contingency nature. Assessment must ensure: Performance of a broad range of skilled applications including the requirement to evaluate and analyse current practices, develop new criteria and procedures for performing current practices and

EVIDENCE GUIDE	
	provision of some leadership and guidance to others in the application and planning of the skills would be characteristic. • Applications may involve responsibility for, and limited organisation of, others.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. The following assessment method is appropriate for this unit: • Competency in this unit should to be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • ICAB4059B Develop detailed technical design An individual demonstrating this competency would be able to: • Demonstrate understanding of a broad knowledge

EVIDENCE GUIDE

	base incorporating some theoretical concepts • Apply solutions to a defined range of unpredictable problems • Identify and apply skill and knowledge areas to a wide variety of contexts, with depth in some areas • Identify, analyse and evaluate information from a variety of sources • Take responsibility for own outputs in relation to specified quality standards • Take limited responsibility for the quantity and quality of the output of others • Maintain knowledge of industry products and services

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.

<i>Client</i> may include but is not limited to:	• internal departments • external organisations • individual people • employees
<i>Project</i> may include:	• a total organisational change • a systems-only change • a business improvement process • an e-business solution involving the total organisation or part of the organisation
<i>Appropriate person</i> may include:	• supervisor • teacher • authorised business representative • client
<i>Acceptance criteria</i> may include:	• timeframe • cost implications

RANGE STATEMENT	
	• technical • logistical considerations
Constraints may include but is not limited to:	• time • budget • resource • hardware • software • policy • legal constraints

Unit Sector(s)

Unit sector	Analyse and Design

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAA4051B Develop client user interface

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to design and document a client user interface that integrates with front end applications. The following units are linked and form an appropriate cluster: • ICAA4041C Determine and confirm client business expectations and needs • ICAA4047B Determine project specifications and secure client agreement No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

Prerequisite units		

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. Prepare design for interface	1.1. Review <i>requirements</i> and other <i>documentation</i> to determine <i>user</i> needs 1.2. Investigate <i>system environment</i> to determine the impact of user interface design 1.3. Review <i>organisational goals</i> to ensure consistency with organisational styles 1.4. Define data query and report formats for the user interface design where appropriate 1.5. Document needs and findings and obtain approval for the proposed interface from the <i>appropriate person</i>
2. Design and document user interface	2.1. Design menu structures according to <i>requirements</i> and <i>acceptance criteria</i> and following <i>design principles</i> 2.2. Design screen dialogues according to <i>requirements</i>

ELEMENT	PERFORMANCE CRITERIA
	and <i>acceptance criteria</i> and following <i>design principles</i> 2.3. Design batch procedures where appropriate to technical specifications and <i>acceptance criteria</i> 2.4. Design on-line help and tutorials for the prototype following <i>design principles</i> 2.5. Document prototype according to <i>organisational goals</i> 2.6. Submit prototype to <i>appropriate person</i> for sign-off

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Problem solving skills for a defined range of predictable problems (e.g. when considering the environment and the impact that may place on user interface design for Windows-based, web-based, specialised equipment like automatic teller machines)
- Plain English literacy and communication skills in relation to analysis, evaluation and presentation of information (e.g. when approval for the proposed interfaces to be used is obtained from the client)
- Report writing skills for business requiring depth in analysis and evaluation of information in a defined range of areas (e.g. when approval for the proposed interfaces to be used is obtained from the client)

Required knowledge

- Current industry-accepted hardware and software products, including broad knowledge of general features and capabilities (e.g. when preparing design)
- Current industry-accepted user interfaces, including broad knowledge of general features and capabilities
- Current industry design principles
- Front-end systems (e.g. when designing and documenting the user interface)

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	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: - Assessment must confirm the ability to design a client user interface that integrates with front-end applications. To demonstrate competency in this unit the learner will need access to: - Design specifications - Organisational standards for documentation and version control - Project management process and hierarchy - Usability test plan - Agreed usability metrics
Context of and specific resources for assessment	The breadth, depth and complexity of knowledge and skills in this competency would cover a broad range of varied activities or application in a wider variety of contexts most of which are complex and non-routine. Leadership and guidance would be involved when organising activities of self and others as well as contributing to technical solutions of a non-routine or contingency nature. Assessment must ensure: - Performance of a broad range of skilled applications including the requirement to evaluate and analyse current practices, develop new criteria and procedures for performing current practices and provision of some leadership and guidance to others in the application and planning of the skills would be characteristic. - Applications may involve responsibility for, and limited organisation of, others.
Method of assessment	The purpose of this unit is to define the standard of

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	performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should to be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • ICAA4041C Determine and confirm client business expectations and needs • ICAA4047B Determine project specifications and secure client agreement An individual demonstrating this competency would be able to: • Demonstrate understanding of a broad knowledge base incorporating some theoretical concepts • Apply solutions to a defined range of unpredictable problems • Identify and apply skill and knowledge areas to a

EVIDENCE GUIDE

	wide variety of contexts, with depth in some areas • Identify, analyse and evaluate information from a variety of sources • Take responsibility for own outputs in relation to specified quality standards • Take limited responsibility for the quantity and quality of the output of others • Maintain knowledge of industry products and services

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.

Requirements may be in reference to:	• business • system • application • network • people in the organisation
Documentation may involve:	• change management plans • project management plans • current systems design plans • business strategic plans • business policies customer feedback • business performance data
User may include:	• a person within a department • a department within the organisation • a third party
System environment may include but is not limited to:	• network • application • software • business

RANGE STATEMENT	
	• computers • financial system • management system • information system
Organisational goals may include but is not limited to how and what the organisation wants to achieve in:	• work environment • problem solution processes • preventative maintenance and diagnostic policy • roles and technical responsibilities in the IT department • vendor and product service-level support agreements
Appropriate person may include:	• supervisor • teacher • authorised business representative • client
Acceptance criteria may include:	• timeframe • cost implications • technical • logistical considerations
Design principles may include but is not limited to:	• user compatibility • product compatibility • task compatibility • workflow compatibility • consistency • familiarity • simplicity • flexibility • responsiveness • invisible technology • robustness • protection • ease of learning

Unit Sector(s)

Unit sector	Analyse and Design

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAA4058B Apply skills in object-oriented design

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to apply the cyclic process of iteration from identification of class, instance, role and type to the final complete object oriented model of the application. The following unit is linked and forms an appropriate cluster: • ICAA4233B Determine and apply appropriate development methodologies No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

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. Derive the high level design from specification	1.1. Develop a static class diagram from a given a set of <i>specifications</i> 1.2. Develop either a collaboration diagram or a sequence diagram from a given a set of <i>specifications</i> 1.3. Develop either an activity diagram or a state diagram from a given a set of <i>specifications</i>
2. Refine the design	2.1. Investigate and refine behaviour, state of classes and the collaboration between classes 2.2. Validate the correct visibility of class services and state data 2.3. Identify generalisations within classes 2.4. Identify specialisations within classes 2.5. Apply the principles of aggregation and composition to refine class design
3. Document the design	3.1. Create detailed uniform modelling language (<i>UML</i>) static class diagrams 3.2. Create detailed <i>UML</i> collaboration or sequence

ELEMENT	PERFORMANCE CRITERIA
	diagrams 3.3.Create detailed <i>UML</i> activity or state diagrams

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Domain analysis in relation to successfully producing the required design
- Completion of abstractions in relation to successfully producing the required design
- Refinement of inheritance hierarchies in relation to successfully producing the required design
- Class naming in relation to successfully producing the required design
- Abstract classes in relation to successfully producing the required design

Required knowledge

- Design refinement techniques
- Implementation of design principles
- Various life cycle options
- Methodological philosophy
- Design quality metrics (e.g. coupling and cohesion)

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

Critical aspects for assessment and evidence required to demonstrate

Evidence of the following is essential:

EVIDENCE GUIDE	
competency in this unit	• Assessment must confirm sufficient knowledge of object-oriented techniques and analysis skills. • Assessment must confirm the ability to meet technical requirements by successfully producing the required design. To demonstrate competency in this unit the learner will need access to: • Design specifications • Detailed design
Context of and specific resources for assessment	Object-oriented languages are an important feature of software development processes world-wide. Evaluating development methodologies to a project or scenario clarifies the scope and tasks involved in a object-oriented design processes. The stages of the development methodology should be followed within the scope of a project or scenario, and the relevant supporting documentation produced. The breadth, depth and complexity of knowledge and skills in this competency would cover a broad range of varied activities or application in a wider variety of contexts most of which are complex and non-routine. Leadership and guidance would be involved when organising activities of self and others as well as contributing to technical solutions of a non-routine or contingency nature. Assessment must ensure: • Performance of a broad range of skilled applications including the requirement to evaluate and analyse current practices, develop new criteria and procedures for performing current practices and provision of some leadership and guidance to others in the application and planning of the skills would be characteristic. • Applications may involve responsibility for, and limited organisation of, others.

EVIDENCE GUIDE**Method of assessment**

The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1.

The following assessment method is appropriate for this unit:

- Competency in this unit should to be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency.
- Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.

Guidance information for assessment

Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example:

- ICAA4233B Determine and apply appropriate development methodologies

An individual demonstrating this competency would be able to:

- Understand a range of development object-oriented methodologies and their application
- Demonstrate theoretical knowledge of object-oriented language development

EVIDENCE GUIDE

	• Apply a methodology to a project or scenario • Produce documentation required by the chosen methodology • An individual demonstrating this competency would be able to: • Demonstrate understanding of a broad knowledge base incorporating some theoretical concepts • Apply solutions to a defined range of unpredictable problems • Identify and apply skill and knowledge areas to a wide variety of contexts, with depth in some areas • Identify, analyse and evaluate information from a variety of sources • Take responsibility for own outputs in relation to specified quality standards • Take limited responsibility for the quantity and quality of the output of others • Maintain knowledge of industry products and services

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.

<i>Specifications</i>	• High-level specifications of a system or process application that includes use-case diagrams
<i>UML</i>	• Uniform Modelling Language according to the ISO standard or an appropriate super set

Unit Sector(s)

Unit sector	Analyse and Design

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAA4142C Design a website to meet technical requirements

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to design a website to specifications within a particular technical and human interface environment. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		
	ICAB4135B	Create a simple mark-up language document to specification
	ICAB4137B	Produce basic client side script for dynamic web pages
	CUFMEM07B	Apply principles of visual design and communication to the development of a multimedia product

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. Define the technical environment	1.1. Identify <i>business requirements, hardware and software requirements</i> 1.2. Define <i>software</i> and <i>hardware</i> types to ensure that site is designed to meet <i>business requirements</i> 1.3. Identify appropriate <i>standards, software and hardware</i> required to develop the site
2. Define the human computer interface	2.1. Conduct <i>user</i> analysis to determine a user profile and user needs 2.2. Determine <i>user</i> content and requirements 2.3. Determine appropriate <i>design principles</i> for the site 2.4. Identify appropriate <i>operating system</i>
3. Determine site hierarchy	3.1. Identify the hierarchy of pages 3.2. Ensure content is logical and accessible to <i>user</i> 3.3. Ensure that navigation between pages is consistent and clear
4. Integrate design components	4.1. Apply appropriate <i>information hierarchy</i> to site design 4.2. Ensure <i>design principles</i> are appropriate to business

ELEMENT	PERFORMANCE CRITERIA
	and user 4.3.Ensure process flow is developed in a logical and simple manner 4.4.Test site search engine, site map, frequently asked questions and news sections against user needs 4.5.Complete and document the design

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Website analysis
- Use of site design software
- User analysis

Required knowledge

- Website architecture
- Business process design
- Customer and business liaison
- E-business sites and corporate strategy
- Implications of technology connectivity
- Documenting technical specifications
- Copyright and intellectual property
- Basic information architecture

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.

EVIDENCE GUIDE	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: • Assessment must confirm the ability to identify and select appropriate tools and procedures in order to develop an effective website for a business. To demonstrate competency in this unit the learner will need access to: • Web servers • E-business website • Site server • Site servers software • Analysis software • Requirements documentation • Customer relationship model
Context of and specific resources for assessment	Breadth, depth and complexity involving analysis, documentation and design across a broad range of technical and managerial functions, including identifying the technical and human computer interface requirements that drive design. The breadth, depth and complexity of knowledge and skills in this competency would cover a broad range of varied activities or application in a wider variety of contexts most of which are complex and non-routine. Leadership and guidance would be involved when organising activities of self and others as well as contributing to technical solutions of a non-routine or contingency nature. Assessment must ensure: • Performance of a broad range of skilled applications including the requirement to evaluate and analyse current practices, develop new criteria and procedures for performing current practices and provision of some leadership and guidance to others in the application and planning of the skills would be characteristic. • Applications may involve responsibility for, and

EVIDENCE GUIDE	
	limited organisation of, others.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. - Competency in this unit should to be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. - Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: An individual demonstrating this competency would be able to: - Demonstrate understanding of a broad knowledge base incorporating some theoretical concepts - Apply solutions to a defined range of unpredictable problems - Identify and apply skill and knowledge areas to a wide variety of contexts, with depth in some areas - Identify, analyse and evaluate information from a variety of sources - Take responsibility for own outputs in relation to

EVIDENCE GUIDE

	specified quality standards • Take limited responsibility for the quantity and quality of the output of others • Maintain knowledge of industry products and services

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.

Business requirements may include:

- meeting customer needs
- organisational goals
- remote access
- external interfacing to the organisation

Hardware may include but is not limited to:

- workstations
- personal computers
- modems and other connectivity devices
- networks
- DSL modems
- remote sites
- servers

Operating system may include:

- Win 98/NT/2000/XP
- Sun Solaris/SunOS
- HP-UX
- AIX
- Digital Unix
- Silicon Graphics IRIX
- DEC
- VMS
- Mac OSX
- Linux
- Netware

RANGE STATEMENT	
Standards may include XML standards:	• Organisation for the Advancement of Structured Information Standards, • ISO and IEEE to web-oriented groups like IETF and W3C • IEEE Std
Information hierarchy may include:	• page layout • technical specifications • content structure • secure access provisions • locations and links to other internet resources where appropriate
Design principles may include but is not limited to:	• user compatibility • product compatibility • task compatibility • workflow compatibility • consistency • familiarity • simplicity • WYSIWYG • flexibility • responsiveness • invisible technology • robustness • protection • ease of learning
User may include:	• a person within a department • a department within the organisation • a third party
Search engine	• A website that allows the entry of a search parameter and based on the request, searches through its list of websites for the best match. It then displays the results for selection • A wide variety of search tools may be used, including Snap, Questfinder, Ask Jeeves, Google, metacrawler, Alta Vista, Excite, infoseek, Findlink, Northern Light, AOL Netfind, Hotbot, LookSmart, Yahoo, Netscape, Lycos, Open Text, WebCrawler, Go To Dot Com, Beaucoup, Meta Search, Search.com, Go2Network, Savvy Search, Profusion, Dogpile and Metagopher

Unit Sector(s)

Unit sector	Analyse and Design

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAA4233B Determine and apply appropriate development methodologies

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to apply traditional and non-traditional systems development methodologies. The following units are linked and form an appropriate cluster: • ICAA4041C Determine and confirm client business expectations and needs • ICAA4047B Determine project specifications and secure client agreement No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units	

Prerequisite units		

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. Determine and select appropriate methodology for a given activity	1.1.Determine and define subject activity 1.2.Define criteria for selection of development methodology 1.3.Review and evaluate a range of <i>traditional and non-traditional system development methodologies</i> 1.4.Select appropriate <i>system development methodology</i> to suit the activity
2. Apply the selected development methodology	2.1.Create an initial project plan to guide developmental processes 2.2.Identify appropriate <i>task types</i> according to <i>development methodology</i> 2.3.Clearly describe and articulate <i>tasks types</i> 2.4.Define appropriate <i>control structures</i> that need to be

ELEMENT	PERFORMANCE CRITERIA
	created during task type execution 2.5. Associate each task type with a set of input/output parameters 2.6. Identify resources to support methodology selection 2.7. Apply appropriate methodology to solve tasks 2.8. Monitor project flow and record effectiveness against project plan 2.9. Review and document opportunities for improvement, lessons learned and recommendations for future projects 2.10. Submit results to appropriate person for approval

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Planning skills in relation to system development
- Communication skills in relation to evaluation
- Presentation skills in relation to information and gaining consensus on concepts (e.g. when planning the application of the methodology to the project or scenario)
- Problem solving skills for a defined range of predictable problems (e.g. when applying the development methodology to a given scenario or project)
- Report writing skills for business requiring depth in analysis and evaluation of information in a defined range of areas (e.g. when determining the suitability of development methodologies)

Required knowledge

- Broad knowledge of the client business domain (e.g. when determining suitable methodologies)
- Role of stakeholders and the degree of stakeholder involvement in the development process
- Two or more current industry development methodologies
- Suitability of a given methodology to a client business context

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

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

Evidence of the following is essential:

- Assessment must confirm the ability to understand a variety of system development methodologies and apply this knowledge to a systems project or scenario.

To demonstrate competency in this unit the learner will need access to:

- Design specifications and current methodologies
- Organisational standards for documentation and version control

Context of and specific resources for assessment

Detailed user requirements document, including model and scope

Evaluating systems development methodologies to a project or scenario clarifies the scope and tasks involved in a systems project.

This should enable several development methodologies to be evaluated in order to make a decision of the suitability of the model to a project.

The stages of the development methodology should be followed within the scope of a project or scenario and the relevant supporting documentation produced.

The breadth, depth and complexity of knowledge and skills in this competency would cover a broad range of varied activities or application in a wider variety of contexts most of which are complex and non-routine. Leadership and guidance would be involved when organising activities of self and others as well as contributing to technical solutions of a non-routine or

EVIDENCE GUIDE	
	contingency nature. Assessment must ensure: • Performance of a broad range of skilled applications including the requirement to evaluate and analyse current practices, develop new criteria and procedures for performing current practices and provision of some leadership and guidance to others in the application and planning of the skills would be characteristic. • Applications may involve responsibility for, and limited organisation of, others.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should to be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • ICAA4041C Determine and confirm client business

EVIDENCE GUIDE

	expectations and needs • ICAA4047B Determine project specifications and secure client agreement An individual demonstrating this competency would be able to: • Understand a range of development methodologies and their application to a project or scenario • Demonstrate theoretical knowledge of the methodologies investigated • Apply a methodology to a project or scenario • Produce documentation required by the chosen methodology • Demonstrate understanding of a broad knowledge base incorporating some theoretical concepts • Apply solutions to a defined range of unpredictable problems • Identify and apply skill and knowledge areas to a wide variety of contexts, with depth in some areas • Identify, analyse and evaluate information from a variety of sources • Take responsibility for own outputs in relation to specified quality standards • Take limited responsibility for the quantity and quality of the output of others • Maintain knowledge of industry products and services

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.

<i>Traditional system development</i>	• system development life cycle

RANGE STATEMENT	
methodologies may include but are not limited to:	• structured systems analysis • design methodology
Non-traditional system development methodologies may include but are not limited to:	• multi-view • prototyping • object-oriented analysis and design • soft system methodology
Methodology may include:	• traditional and non-traditional methodologies
Task types may include but are not limited to:	• cultural • organisational • procedural • developmental or processes • activities of the development process
Input/output	• Inputs and outputs for a task may include pre-conditional and post-conditional options. For example, pre-conditions may be a check that inputs fulfil specific requirements. Post-conditions may check if the outputs have met quality requirements
Project may include:	• a total organisational change • a systems-only change • a business improvement process • an e-business solution involving the total organisation or part of the organisation
Control Structures may include but are not limited to:	• acceptance criteria • a review process • inspection • test plans
Appropriate person may include:	• supervisor • teacher • authorised business representative • client

Unit Sector(s)

Unit sector	Analyse and Design

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAA5035C Research and review hardware technology options for organisations

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to apply research skills in conjunction with reviewing hardware solutions, as part of an analysis of emerging technology. The following unit is linked and forms an appropriate cluster: ICAA5044C Develop system infrastructure design plan No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units	

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. Determine organisational needs	1.1. Establish organisational needs and selection criteria 1.2. Determine future requirements in accordance with strategic goals 1.3. Assess physical infrastructure and financial parameters
2. Evaluate and report on options	2.1. Review and test hardware against organisational requirements 2.2. Report findings to appropriate person according to their suitability for organisational requirements 2.3. Document information in a report and submit to appropriate person

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Solving unknown problems in a range of contexts, particularly in developing new approaches with new technology (this includes problem solving skills for resolving unpredictable problems, with reference to the new technology)
- Basic planning skills in relation to scope, time, cost, quality, communications and risk management
- Participating in the development of reports and summary findings
- Plain English literacy and communication skills in relation to analysis, evaluation and presentation of information, such as when presenting the results of testing new technology and proposing new potential directions as a result of this
- Teamwork skills, involving the contribution to solutions and goals of a non-routine or developmental process, such as investigating new technology for new roles in the workplace
- Group facilitation and presentation skills in relation to transferring and collecting information and gaining consensus on concepts and new proposals
- Communication skills to convey complex and abstract concepts and information

Required knowledge

- Current industry and technology information sources (e.g. vendor seminars, expert email groups)
- Current business practices in relation to preparing reports
- Components of the business planning process relevant to the development of data and voice integration and remote access business solutions
- Current industry-accepted hardware, cabling and software products, including broad knowledge of general features and capabilities, with particular reference to emerging trends and product design
- Broad knowledge of vendor product directions such as self-configuring ADSL or cable modem-router-switch for the Small Office Home Office (SOHO) market, next generation networks, wireless standards, access and security products
- High level knowledge of the client business needs, with a view to expanding into new possibilities, as presented by new technology
- Basic knowledge of quality assurance practices, to promote reliable investigation processes
- Basic knowledge of information gathering techniques
- Industry networks
- Key individuals and organisations within the IT industry

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	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: - Assessment must confirm the ability to apply technical knowledge in the preliminary analysis of emerging technology according to organisational requirements or practices - Assessment also must confirm the ability to convey and access conceptual information regarding emerging technology in relation to organisational needs To demonstrate competency in this unit the learner will require access to: - Internet - Journals of industry/professional associations
Context of and specific resources for assessment	The ICT industry is constantly changing with technologies being developed and introduced with increasing rapidity. It is essential that ICT professionals constantly review emerging trends and technologies in the context of current processes and designs, with an eye to improving or synthesising better ways of completing tasks. Businesses are reliant on ICT expertise to apply world-class standards which will underpin the achievement of organisational goals. The breadth, depth and complexity covering planning and initiation of alternative approaches to skills or knowledge applications across a broad range of technical and/or management requirements, evaluation and coordination would be characteristic. The demonstration of competency may also require self-directed application of knowledge and skills, with substantial depth in some areas where judgement is required in planning and selecting appropriate

EVIDENCE GUIDE	
	equipment, services and techniques for self and others. Assessment must ensure: • Applications involve participation in development of strategic initiatives as well as personal responsibility and autonomy in performing complex technical operations or organising others. It may include participation in teams including teams concerned with planning and evaluation functions. Group or team coordination may also be involved.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should to be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. In the case of this unit, it could be assessed in a holistic manner with:

EVIDENCE GUIDE

	- ICAA5044C Develop system infrastructure design plan An individual demonstrating this competency would be able to: - Demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas - Analyse and plan approaches to technical problems or management requirements - Transfer and apply theoretical concepts and/or technical or creative skills to a range of situations - Evaluate information, using it to forecast for planning or research purposes - Take responsibility for own outputs in relation to broad quantity and quality parameters - Take some responsibility for the achievement of group outcomes - Maintain knowledge of industry products and services

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.

Hardware may include but is not limited to:

- workstations,
- personal computers,
- modems and other connectivity devices,
- networks,
- cabling infrastructure,
- Internet access,
- wireless networks,
- remote sites

RANGE STATEMENT	
	• servers
Appropriate person may include:	• a supervisor, • teacher, • authorised business representative • client

Unit Sector(s)

Unit sector	Analyse and Design

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAA5044C Develop system infrastructure design plan

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to specify the hardware, network, software and infrastructure required to support the system. The following units are linked to form an appropriate cluster: • ICAS5123C Manage network security • ICAA5054C Validate quality and completeness of design specifications • ICAA5056B Prepare disaster recovery and contingency plans • ICAT5083B Develop and conduct client acceptance test • ICAI5100C Build an internet infrastructure • ICAA5045C Produce network architecture design No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		
	ICAA4041C	Determine and confirm client business expectations and needs
	ICAA5144B	Determine best-fit topology for a local network
	ICAA5145B	Identify best-fit topology for a wide area network
	ICAD4217B	Create technical documentation

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. Specify architecture requirements	1.1. Identify the critical principles, functions and framework for the <i>system</i> to operate across business units, taking into account the project deliverables, <i>acceptance criteria</i> and current data and voice blueprint including forecast system demand 1.2. Organise the functions into layers or wrappings and

ELEMENT	PERFORMANCE CRITERIA
	components to meet business requirements 1.3. Identify the processing environment, the hardware, network, cabling infrastructure and software required to support the operational environments 1.4. Refine the system topology model, templates and standards to guide development 1.5. Utilise the project guidelines, standards, models, acceptance criteria and general framework to develop the architecture
2. Specify hardware and software	2.1. Evaluate various products and vendors against the requirements of the architecture to determine the best data and voice solution 2.2. Estimate and evaluate current and future capacity requirements against client future requirements 2.3. Identify the requirements for upgrade or change through analysis of software versions and interoperability status of existing system and applications
3. Conduct walkthrough and compare/contrast expected performance criteria against vendor proposed offerings	3.1. Compare the requirements model against technical specifications and acceptance criteria 3.2. Benchmark the requirements model against current industry standards and IT blueprint for performance, interoperability and expected future organisational requirements
4. Document and report on findings	4.1. Prepare the system infrastructure design plan, including hardware, network, cabling infrastructure, wireless access, software and general infrastructure aspects 4.2. Document recommendations for improvement and refer to the appropriate person

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Problem solving skills for a broad range of unpredictable problems involving

REQUIRED SKILLS AND KNOWLEDGE

analysis, diagnosis and evaluation (e.g. when specifying the critical principles, functions and framework for the system to operate across the enterprise or business units, taking into consideration the project deliverables, acceptance criteria and current IT blueprint)

- Plain English literacy and communication skills in relation to analysis, evaluation and presentation of information (e.g. when the initial statement of hardware needs is written)
- Group facilitation and presentation skills in relation to transferring and collecting information (e.g. when estimating current and future capacity requirements and evaluating against client's future requirements, and for documenting recommendations for improvement and referring them to appropriate technical specialists)
- Questioning and active listening skills (e.g. when specifying the critical principles, functions and framework for the system to operate across the enterprise or business units, taking into consideration the project deliverables, acceptance criteria and current IT blueprint)
- Technological capability assessment skills involving analysis, diagnosis and evaluation (e.g. when evaluating various products against architecture requirements to determine the best IT solution, and for estimating current and future capacity requirements and evaluating against client's future requirements)
- Research skills for specifying, analysing and evaluating broad features of a particular business domain and best practice in system development (e.g. when evaluating various products against architecture requirements to determine the best IT solution, and for benchmarking requirements model against current industry standards and IT blueprint for performance, interoperability and expected future organisational needs)
- Project planning skills in relation to set benchmarks and identified scope (e.g. when specifying the critical principles, functions and framework for the system to operate across the enterprise or business units, taking into consideration the project deliverables, acceptance criteria and current IT blueprint)
- Report writing skills for business requiring depth in some areas, analysis and evaluation of information in a defined range of areas (e.g. when documenting recommendations for improvement and referring them to appropriate technical specialists)

Required knowledge

- Current industry-accepted hardware and software products
- Broad general knowledge of the client business domain, particularly the business function and organisation (e.g. when specifying architecture requirements)
- Basic knowledge of cabling and telecommunications technologies (e.g. when specifying architecture requirements)
- Broad knowledge of vendor product directions and technology directions (e.g. when specifying hardware and software)
- Networking technologies, including broad knowledge of general features and

REQUIRED SKILLS AND KNOWLEDGE

capabilities incorporating substantial depth in some areas (e.g. when specifying architecture requirements)

- Broad knowledge of systems architectural design principles and methodologies (e.g. when specifying architecture requirements)
- Broad knowledge of modelling techniques and methodologies (e.g. when specifying architecture requirements, and for comparing and contrasting after walk-through of expected performance criteria against vendor proposed offerings)

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

Evidence of the following is essential:

- Assessment must confirm sufficient knowledge of communications technology, hardware, software and data modelling. Assessment must confirm the ability to translate business processes into technical processes
- Assessment must confirm the ability to plan and develop a model for a physical system from the requirements

To demonstrate competency in this unit the learner will need access to:

- Client requirements
- The project deliverables
- The acceptance criteria
- Current IT blueprint
- Information on a range of IT business solutions and vendor offerings
- Future organisational business process requirements
- Technical specifications

Context of and specific resources for

The breadth, depth and complexity covering planning

EVIDENCE GUIDE**assessment**

and initiation of alternative approaches to skills or knowledge applications across a broad range of technical and/or management requirements, evaluation and coordination would be characteristic.

The demonstration of competency may also require self-directed application of knowledge and skills, with substantial depth in some areas where judgement is required in planning and selecting appropriate equipment, services and techniques for self and others.

Assessment must ensure:

- Applications involve participation in development of strategic initiatives as well as personal responsibility and autonomy in performing complex technical operations or organising others. It may include participation in teams including teams concerned with planning and evaluation functions. Group or team coordination may also be involved.

Method of assessment

The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1.

- Competency in this unit should to be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency.
- Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate

EVIDENCE GUIDE	
	may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. In the case of this unit, it could be assessed in a holistic manner with: • ICAA5054C Validate quality and completeness of system design specifications • ICAA5056B Prepare disaster recovery and contingency plans • ICAT5083B Develop and conduct client acceptance test • ICAI5100C Build an internet infrastructure • ICAA5045C Produce network architecture design An individual demonstrating this competency would be able to: • Demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas • Analyse and plan approaches to technical problems or management requirements • Transfer and apply theoretical concepts and/or technical or creative skills to a range of situations • Evaluate information, using it to forecast for planning or research purposes • Take responsibility for own outputs in relation to broad quantity and quality parameters • Take some responsibility for the achievement of group outcomes • Maintain knowledge of industry products and services

Range Statement

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.

System	• Databases, • applications, • servers, • cabling, • wireless, • operating systems, • gateways, • ASP • ISP
Acceptance criteria may include:	• timeframe, • cost implications, • technical and logistical considerations
Business requirements may be in reference to:	• business, • system, • application, • network • people in the organisation
Hardware may include but is not limited to:	• workstations, • personal computers, • modems and other connectivity devices, • networks, • communication connections, • remote sites • servers
Network may include but is not limited to:	• large and small LANs, • WANs, • the internet, • PSTN for dial-up modems, • DSL lines, • private lines, • VPNs, • data and voice, • policing and shaping

RANGE STATEMENT	
Software may include but is not limited to:	• commercial, • in-house, • packaged • customised software
Standards may include:	• ISO/IEC/IEEE/IETF/ITUAS standards, • organisational standards, • project standards
Project may include:	• a total organisational change, • a systems-only change, • a business improvement process, • data and voice integration • an e-business solution involving the total organisation or part of the organisation
Architecture may include but is not limited to:	• Operating system: Novell NetWare 5 or above or any operating system that has multi-user ability, Linux, Mac OS, Windows 2000 or above • Database software: Oracle, Sybase, Microsoft SQL server, Ingres, DB2, Informix, mSQL, MySQL, SQL server • Configuration: small memory model, large memory model, requests per second
Requirements may be in reference to:	• business, • system, • application, • network • people in the organisation
Solution may include but is not limited to:	• new hardware, • hardware upgrades, • new software, • software upgrades, • user training • implementing a new system
Client may include but is not limited to:	• internal departments, • external organisations, • customers, • individual people • employees
Applications may include but is	• commercial software applications; • organisation-specific software;

RANGE STATEMENT	
not limited to:	• word processing, • spreadsheet, • database, • graphic and communication packages • may include presentation applications contained in: Microsoft Office, Lotus Suite, Claris Works and Star Office
Specifications may include but is not limited to:	• technical requirements, • user problem statement, • current system functionality
Documentation may follow:	• ISO/IEC/IEEE/IETF/ITU/AS standards, • audit trails, • naming standards, • version control, • project management and report writing conventions, • maintaining equipment inventory, • client training and satisfaction reports
Appropriate person may include:	• a supervisor, • teacher, • authorised business representative • client
Organisational requirements may be in reference to:	• business, • system, • application, • network, • cabling • others specified by the organisation

Unit Sector(s)

Unit sector	Analyse and Design

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAA5045C Produce network architecture design

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to specify the design of the required network architecture. The following units are linked to form an appropriate cluster: • ICAA5044C Develop system infrastructure design plan • ICAI5098C Install and manage complex networks • ICAS5123C Manage network security • ICAS5122C Identify and resolve network problems • ICAA5056B Prepare disaster recovery and contingency plans No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units	

Prerequisite units		
	ICAD4217B	Create technical documentation

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. Design network	1.1. Review <i>specifications</i> and identify <i>requirements</i> of the <i>network</i> 1.2. Develop physical <i>network</i> diagrams as a preface or adjunct to <i>architecture</i> blueprint 1.3. Establish the location of and types of terminals, processors and required protocols and <i>architecture</i> based on technical <i>specifications</i> and <i>requirements</i>
2. Evaluate design and likely performance using expected traffic volumes	2.1. Predict line traffic, policing and shaping protocols and the impact on <i>input/output devices</i> and processors from current and future demand <i>requirements</i> 2.2. Benchmark the design using expected volumes of traffic as a basis 2.3. Identify the likely performance profile (best/worst)

ELEMENT	PERFORMANCE CRITERIA
	and review the effect on other <i>systems</i>
3. Finalise network design and plan for implementation	3.1. Review the benchmarks and <i>requirements</i> and final design proposed 3.2. Determine the support and training <i>requirements</i> needed 3.3. Obtain the latest technical <i>specifications</i> and pricing by contacting possible vendors 3.4. Document the <i>network</i> design and present <i>documentation</i> to <i>appropriate person</i> for approval

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Project planning skills in relation to scope, time, cost, quality, communications and risk management (e.g. when reviewing client user requirements and network requirements, and for documenting network design and presenting it to senior managers, client users and sponsors for approval)
- Research skills for specifying, analysing and evaluating broad features of current security issues and best practice in security devices, products and procedures (e.g. when obtaining latest technical specifications and pricing by contacting possible vendors, and for specifying the likely performance profile (best/worst) and for reviewing its effect on other systems)
- Financial modelling skills for specifying, analysing and evaluating a range of different solutions (e.g. when documenting network design and presenting it to senior managers, client users and sponsor for approval)
- Plain English literacy and communication skills in relation to analysis, evaluation and presentation of information (e.g. when documenting network design and presenting it to senior managers, client users and sponsor for approval)
- Problem solving skills for a defined range of unpredictable problems (e.g. when predicting line traffic and the impact on input/output devices and processors from current and future demand requirements)
- Group facilitation and presentation skills in relation to transferring and collecting information and gaining consensus on concepts (e.g. when documenting network design and presenting it to senior managers, client users and sponsor for approval)

Required knowledge

REQUIRED SKILLS AND KNOWLEDGE

- Detailed knowledge of current industry-accepted network protocols for data and voice (e.g. when designing a network)
- Broad knowledge of current industry-accepted network hardware and software products, including broad knowledge of general features and capabilities and detailed knowledge in some areas (e.g. when evaluating network traffic and policing and shaping)
- Broad knowledge of current industry security products, devices and procedures, including broad knowledge of general features and capabilities and detailed knowledge in some areas (e.g. when finalising network design)
- Broad knowledge of three or more current industry network development and design methodologies (e.g. when designing a network)
- Detailed knowledge of the operating systems (e.g. when evaluating network traffic)
- Broad knowledge of the client business domain (e.g. when designing a network)
- Detailed knowledge of remote user issues (e.g. when establishing the location and types of terminals, voice communications and processors, required protocols and network architecture based on technical specifications and user requirements, and for predicting line traffic and the impact on input/output devices and processors from current and future demand requirements)

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

Evidence of the following is essential:

- Assessment must confirm sufficient knowledge of communication hardware, protocols and legacy systems
- Assessment must confirm the ability to design viable network solutions and to assess network performance

To demonstrate competency in this unit the learner will need access to:

- Client requirements

EVIDENCE GUIDE	
	• Technical specifications • Expected traffic volume • Vendors and vendor offerings/pricing • Information on a range of IT business solutions • Future organisational business processes • Budget for the scenarios
Context of and specific resources for assessment	An individual who has this competency should display self-directed application of knowledge and skills, with substantial depth in network design and operations where judgement is required in planning and selecting appropriate equipment, services and techniques for self and others. The breadth, depth and complexity covering planning and initiation of alternative approaches to skills or knowledge applications across a broad range of technical and/or management requirements, evaluation and coordination would be characteristic. The demonstration of competency may also require self-directed application of knowledge and skills, with substantial depth in some areas where judgement is required in planning and selecting appropriate equipment, services and techniques for self and others. Assessment must ensure: • Applications involve participation in development of strategic initiatives as well as personal responsibility and autonomy in performing complex technical operations or organising others. It may include participation in teams including teams concerned with planning and evaluation functions. Group or team coordination may also be involved.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1.

EVIDENCE GUIDE

	- Competency in this unit should to be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. - Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. In the case of this unit, it could be assessed in a holistic manner with: - ICAA5044C Develop system infrastructure design plan - ICAI5098C Install and manage complex networks - ICAS5122C Identify and resolve network problems - ICAS5123C Manage network security - ICAA5056B Prepare disaster recovery and contingency plans An individual demonstrating this competency would be able to: - Demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas - Analyse and plan approaches to technical problems or management requirements - Transfer and apply theoretical concepts and/or technical or creative skills to a range of situations - Evaluate information, using it to forecast for planning

EVIDENCE GUIDE

	or research purposes • Take responsibility for own outputs in relation to broad quantity and quality parameters • Take some responsibility for the achievement of group outcomes • Maintain knowledge of industry products and services

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.

Specifications may include but is not limited to:	• technical requirements, • user problem statement • current system functionality
Requirements may be in reference to:	• business, • system, • application, • network • people in the organisation
Network may include but is not limited to:	• large and small LANs, • WANs, • the internet, • the use of the PSTN for dial-up modems only, • DSL lines, • VPNs, • private lines, • data and voice
Architecture may include but is not limited to:	• Operating system: Novell NetWare 5 or above or any operating system that has multi-user ability, Linux, Mac OS, Windows 2000 or above • Database software: Oracle, Sybase, Microsoft

RANGE STATEMENT	
	SQL server, Ingres, DB2, Informix, mSQL, MySQL, SQL server • Configuration: small memory model, large memory model, requests per second
Input/output devices may include but is not limited to:	• keyboard, • mouse, • printer, • scanner, • monitor • internet connections
Systems may include but is not limited to:	• hardware and software components that run a computer
Appropriate person may include:	• a supervisor, • teacher, • authorised business representative • client
Documentation may follow:	• ISO/IEC/IEEE/IETF/ITU/AS standards, • audit trails, • naming standards, • version control, • project management templates and report writing, • maintaining equipment inventory, • client training and satisfaction reports

Unit Sector(s)

Unit sector	Analyse and Design

Co-requisite units

Co-requisite units		

Co-requisite units		

Competency field

Competency field	

ICAA5046B Model preferred system solutions

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to fit a physical model into the design phase of the methodology. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

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. Review and confirm requirements information and existing models	1.1. Review <i>requirements</i> information and clarify areas that are not understood 1.2. Identify organisational <i>standards</i> for developing models, and check the model development method for consistency with organisational goals 1.3. Identify assumptions and incorporate into modelling process 1.4. Identify goals and resolve into tasks required to be performed to obtain the goals 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 2.2. Identify bottlenecks, overlooked functionalities and other issues and resolve with <i>client</i> input as required
3. Build and test model	3.1. Develop model based on <i>existing architecture</i> 3.2. Document details of model according to agreed project or organisational standards 3.3. Develop model according to <i>project</i> deliverables and acceptance criteria and within a determined timeframe and project constraints 3.4. Test model against the test plan 3.5. Document test data to ensure test procedures accurately and thoroughly validate performance of model

ELEMENT	PERFORMANCE CRITERIA
4. Ensure that the model represents a workable solution	4.1. Ensure a consensus view of key IT stakeholders is represented in the model 4.2. Ensure the model is checked by key IT stakeholders to confirm common understanding of the model and the proposed solution 4.3. Submit the model to appropriate person for sign-off

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Problem solving skills for a defined range of unpredictable problems (e.g. when resolving conflicts and inconsistencies)
- Plain English literacy and communication skills in relation to dealing with clients and team members (e.g. when documenting details of system model)
- Negotiation skills in relation to other team members and applied to a defined range of predictable problems (e.g. when representing a consensus view of key IT stakeholders in the model)
- Questioning and active listening skills (e.g. when reviewing requirements information gathered to date and clarifying areas that are not understood)
- Research skills for specifying, analysing and evaluating broad features of a particular business domain and best practice in system development (e.g. when specifying latent assumptions and incorporating them into modelling process, and for considering missed opportunities in the model development)
- Project planning skills in relation to set benchmarks and identified scope (e.g. when developing model according to project deliverables and acceptance criteria, and within a determined timeframe and project cost constraints)

Required knowledge

- Broad knowledge of modelling techniques and methodologies for evolving requirements information and existing models
- Broad knowledge of systems development methodologies (e.g. when evolving requirements information and existing models, and for resolving conflicts and inconsistencies)
- Broad general knowledge of the client business domain, particularly the business function and organisation (e.g. when ensuring model represents a workable solution)

REQUIRED SKILLS AND KNOWLEDGE

- Current industry-accepted hardware and software products, including broad knowledge of general features and capabilities (e.g. when building and testing model)
- Detailed knowledge of a range of development tools (e.g. when building and testing model)

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

Evidence of the following is essential:

- Assessment must confirm sufficient knowledge and use of two or more development tools.
- Assessment must confirm the ability to meet client requirements by developing specific areas of the system for further information or to confirm a software/hardware direction.

To demonstrate competency in this unit the learner will require access to:

- Client requirements
- Technical specifications
- Organisational and process goals
- Standards for model development
- Acceptance criteria
- Project deliverables
- Future organisational business processes
- Test plan
- Project budget

Context of and specific resources for assessment

The breadth, depth and complexity covering planning and initiation of alternative approaches to skills or knowledge applications across a broad range of technical and/or management requirements, evaluation and

EVIDENCE GUIDE	
	coordination would be characteristic. Assessment must ensure: • self-directed application of knowledge and skills, with substantial depth in some areas where judgement is required in planning and selecting appropriate equipment, services and techniques for self and others. • Applications involve participation in development of strategic initiatives as well as personal responsibility and autonomy in performing complex technical operations or organising others. It may include participation in teams including teams concerned with planning and evaluation functions. Group or team coordination may also be involved.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should to be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment

EVIDENCE GUIDE	
	purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: An individual demonstrating this competency would be able to: • Demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas • Analyse and plan approaches to technical problems or management requirements • Transfer and apply theoretical concepts and/or technical or creative skills to a range of situations • Evaluate information, using it to forecast for planning or research purposes • Take responsibility for own outputs in relation to broad quantity and quality parameters • Take some responsibility for the achievement of group outcomes • Maintain knowledge of industry products and services

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.	
<i>Requirements</i> may be in reference to:	• business • system • application • network • people in the organisation

RANGE STATEMENT	
Standards may include:	• ISO/IEC/AS standards • organisational standards • project standards (for further information refer to the Standards Australia website at: www.standards.com.au)
Client may include but is not limited to:	• internal departments • external organisations • individual people • employees
Existing architecture may vary from:	• systems based around mainframes to networks of mid-range machines and desktop computers. Networks may be local, intranet, virtual private network, wide or based on the internet, with vendor products and network protocols
Documentation may follow:	• ISO/IEC/AS standards • audit trails • naming standards • version control • project management templates • report writing principles
Project may include:	• a total organisational change • a systems-only change • a business improvement process • an e-business solution involving the total organisation or part of the organisation
Stakeholders may include:	• May include sponsor, user, development team and project team
Constraints may include but is not limited to:	• May include but are not limited to time, budget, resource, hardware, software, policy and legal constraints
Solution may include but is not limited to:	• new hardware • hardware upgrades • new software • software upgrades • user training • implementing a new system
Appropriate person may include:	• supervisor • teacher • authorised business representative • client

Unit Sector(s)

Unit sector	Analyse and Design

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAA5048B Develop configuration management protocols

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to develop administrative and technical procedures throughout the life cycle of a system, network, software and documentation project. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		
	ICAB4076B	Implement configuration management

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. Establish configuration management requirements	1.1. Establish identification <i>standards</i> for naming and version control of system, <i>network</i>, <i>software</i> and <i>documentation</i> to align with organisational needs 1.2. Establish tools and procedures for the required level of integration into the programming, <i>system</i> or <i>network</i> environment 1.3. Determine responsibilities for configuration management within the <i>project</i> and for ongoing support, including approval of changes 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 <i>organisational guidelines</i> 2.2. Establish <i>acceptance criteria</i>, <i>test and acceptance</i> processes and processes for approval of change requests in line with <i>organisational guidelines</i> 2.3. Establish security, access and management control criteria, and <i>quality benchmarks</i> 2.4. Determine necessary audit trails and alerts for variations or non-conformance
3. Establish monitoring	3.1. Establish mechanisms to identify <i>software</i> status throughout the <i>software</i> life cycle, or the status of the

ELEMENT	PERFORMANCE CRITERIA
mechanisms	system or network during upgrading or reconfiguration 3.2. Determine management of records and status reports, including the history of baselines and their links to back-ups 3.3. Define target audiences and determine the level of detail required in the status reports 3.4. Integrate configuration management into general project management processes for monitoring and control purposes
4. Manage the release of the product to clients	4.1. Determine physical and functional completeness of items prior to release 4.2. Determine requirements for formal control of software products and documentation 4.3. Determine policies for retention of baseline/master copies in line with safety, security and legislative requirements and organisational guidelines

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Problem solving skills for a defined range of unpredictable problems involving participation in the development of strategic initiatives (e.g. when determining tools and procedures for the required level of integration into the programming environment)
- Plain English literacy and communication skills in relation to developing technical and business reports (e.g. when determining the level of detail required in the status reports and when defining target audiences)
- Group facilitation and presentation skills in relation to transferring and collecting information and gaining consensus on concepts (e.g. when determining responsibilities for configuration management within the project, and for ongoing support, including approval of changes)
- Project planning skills in relation to scope, time, cost, quality, communications and risk management (e.g. when integrating configuration management into general project management processes for monitoring and control purposes)
- Research skills for specifying, analysing and evaluating broad features of a

REQUIRED SKILLS AND KNOWLEDGE

particular business domain and best practice in software development methodologies (e.g. when determining tools and procedures for the required level of integration into the programming environment)

- Estimating function point analysis and other skills for use across a range of predictable project contexts in relation to either varied or highly specific functions (e.g. when determining the point at which items are subjected to configuration control)

Required knowledge

- Detailed knowledge of software development methodologies (e.g. when developing configuration management requirements)
- Detailed knowledge of quality assurance and quality processes (e.g. when developing configuration management requirements)
- Broad knowledge of project planning methodologies and tools (e.g. when establishing control and monitoring mechanisms)
- Detailed knowledge of benchmarking methodologies (e.g. when developing administrative and technical procedures throughout the software and documentation life cycle)

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

Evidence of the following is essential:

- Assessment must confirm knowledge of quality processes, audit trails and version control.
- Assessment must confirm the ability to develop reliable and valid configuration management procedures for technical and administrative procedures for use during the software life cycle, system or network reconfiguration or the upgrade process.

To demonstrate competency in this unit the learner will

EVIDENCE GUIDE	
	require access to: • Technical specifications • Organisational standards for documentation and version control • Project management process and hierarchy • CASE tools • Future organisational business processes • Test plan Project budget and timeframe
Context of and specific resources for assessment	The breadth, depth and complexity covering planning and initiation of alternative approaches to skills or knowledge applications across a broad range of technical and/or management requirements, evaluation and coordination would be characteristic. Assessment must ensure: • self-directed application of knowledge and skills, with substantial depth in some areas where judgement is required in planning and selecting appropriate equipment, services and techniques for self and others. • Applications involve participation in development of strategic initiatives as well as personal responsibility and autonomy in performing complex technical operations or organising others. It may include participation in teams including teams concerned with planning and evaluation functions. Group or team coordination may also be involved.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should to be assessed using summative assessment to ensure consistency of

EVIDENCE GUIDE

	performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. • The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended An individual demonstrating this competency would be able to: • Demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas • Analyse and plan approaches to technical problems or management requirements • Transfer and apply theoretical concepts and/or technical or creative skills to a range of situations • Evaluate information, using it to forecast for planning or research purposes • Take responsibility for own outputs in relation to broad quantity and quality parameters • Take some responsibility for the achievement of group outcomes • Maintain knowledge of industry products and services

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.

<i>Standards</i> may include:	• ISO/IEC/AS standards • organisational standards • project standards (for further information refer to the Standards Australia website at: www.standards.com.au)
<i>System</i> may include but is not limited to:	• databases • applications • servers • operating systems • gateways • application service provider • ISP
<i>Software</i> may include but is not limited to:	• Commercial • in-house • packaged • customised software
<i>Network</i> may include but is not limited to:	• large and small LANs • WANs • the internet • the use of the PSTN for dial-up modems only • VPNs • private lines • data • voice
<i>Documentation</i> may follow:	• ISO/IEC/AS standards • audit trails • naming standards • version control • project management templates and report writing • maintaining equipment inventory • client training and satisfaction reports

RANGE STATEMENT	
<i>Project</i> may include:	• a total organisational change • a systems-only change • a business improvement process • an e-business solution involving the total organisation or part of the organisation
<i>Organisational guidelines</i> may include but is not limited to:	• personal use of emails and internet access • content of emails • downloading information and accessing particular websites • opening mail with attachments • virus risk • dispute resolution • document procedures and templates • communication methods • financial control mechanisms
<i>Acceptance criteria</i> may include:	• timeframe • cost implications • technical and logistical considerations
<i>Test and acceptance processes</i>	• May vary according to size and type and scope of the project • AS 4006-1992 Software test documentation may be relevant to this unit • ISO/IEC/AS standards are updated and changed on a regular basis; it is therefore important to check the Standards Australia website: (www.standards.com.au) on a regular basis for new standards
<i>Quality benchmarks</i> relevant quality standards include:	• AS 4043-1992 Software configuration management • AS 4042-1992 Software configuration management plans • AS 3925.1-1994 Software quality assurance - plans • AS/NZS 4258:1994 Software user documentation process • AS/NZS ISO/IEC 12207:1997 Information technology - software life cycle processes • AS/NZS 14102:1998 Information technology - guideline for evaluation and selection of computer-aided software engineering (CASE) tools

RANGE STATEMENT

	International and Australian Standards are updated and changed on a regular basis, it is therefore important to check the Standards Australia website (www.standards.com.au) on a regular basis for new standards. May vary according to the type of organisation, and the benchmarks will cover technical, cost savings, performance and quality. Some organisations may be quality-certified and have well-documented standards for addressing quality while others will not; in a simulated environment, best practice workplace examples will be used.

Unit Sector(s)

Unit sector	Analyse and Design

Co-requisite units

Co-requisite units	

Competency field

Competency field	

ICAA5049B Develop high-level object-oriented class specifications

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to analyse requirements and produce a set of high level object-oriented class specifications. There may be benefit in concurrent learning with the following units: • ICAA5050B Develop detailed component specifications from project specifications No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		
	ICAA4233B	Determine and apply appropriate development methodologies

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. Analyse behaviour of objects	1.1. Analyse behaviour scenarios and prepare <i>documentation</i> according to <i>standards</i> 1.2. Identify classes, objects and abstract data types according to <i>requirements</i> 1.3. Prepare class, object, module and process diagrams according to <i>specifications</i>
2. Prepare state model	2.1. Analyse data <i>requirements</i> and iterate data flows 2.2. Prepare state transition diagrams according to <i>standards</i> 2.3. Improve abstract data types and <i>specifications</i>
3. Describe roles and responsibilities of classes	3.1. Review functional <i>requirements</i> , assign responsibilities and update class structures 3.2. Specify interface and class communication <i>requirements</i> 3.3. Prepare interaction diagrams according to <i>standards</i>
4. Iterate and review the object model	4.1. Review current object model, class functionality and data transformation 4.2. Identify and develop class relationships, priorities

ELEMENT	PERFORMANCE CRITERIA
	and inheritance hierarchy 4.3. Review class service requirements and initial test criteria 4.4. Identify object processes and reuse classes 4.5. Document model and forward to appropriate person

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Problem solving skills for a defined range of unpredictable problems (e.g. when specifying and developing classes, objects and system abstract data types)
- Plain English literacy and communication skills in relation to analysis, evaluation and presentation of information (e.g. when documenting behaviour scenarios according to documentation standards)
- Research skills for specifying, analysing and evaluating broad features of a particular business domain and best practice in program development (e.g. when classes, objects and system abstract data types are identified and developed according to requirements)

Required knowledge

- Detailed knowledge of object-oriented analysis tools and their use (e.g. when analysing object behaviour)
- Detailed knowledge of current industry-accepted object-oriented methodologies, including broad knowledge of general features and capabilities (e.g. when preparing state model)
- Broad knowledge of current program development methodologies (e.g. when iterating and reviewing)
- Detailed knowledge of configuration management (e.g. when iterating and reviewing)
- Detailed knowledge of data modelling techniques (e.g. when preparing state model)
- Broad knowledge of quality assurance practices (e.g. when iterating and reviewing)

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	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: - Assessment must confirm sufficient knowledge of object-oriented techniques. - Assessment must confirm the ability to specify and model abstract data types. Specifications need to be deliverable. Assessment must confirm the interface between classes and objects. To demonstrate competency in this unit the learner will require access to: - Simulated case study - UML modelling tool
Context of and specific resources for assessment	The breadth, depth and complexity covering planning and initiation of alternative approaches to skills or knowledge applications across a broad range of technical and/or management requirements, evaluation and coordination would be characteristic. Assessment must ensure: - The demonstration of competency may also require self-directed application of knowledge and skills, with substantial depth in some areas where judgement is required in planning and selecting appropriate equipment, services and techniques for self and others. - Applications involve participation in development of strategic initiatives as well as personal responsibility and autonomy in performing complex technical operations or organising others. It may include participation in teams including teams concerned with planning and evaluation functions. Group or team coordination may also be involved.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In

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	undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should to be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. • The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • ICAA5050B Develop detailed component specifications from project specifications An individual demonstrating this competency would be able to: • Demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas • Analyse and plan approaches to technical problems or management requirements • Transfer and apply theoretical concepts and/or technical or creative skills to a range of situations • Evaluate information, using it to forecast for planning or research purposes • Take responsibility for own outputs in relation to

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	broad quantity and quality parameters • Take some responsibility for the achievement of group outcomes • Maintain knowledge of industry products and services

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.

Documentation may follow:

- ISO/IEC/AS standards
- audit trails
- naming standards
- version control
- project management templates and report writing
- maintaining equipment inventory
- client training
- satisfaction reports

Standards may include:

- ISO/IEC/AS standards
- organisational standards
- project standards (for further information refer to the Standards Australia website at: www.standards.com.au)

Requirements may be in reference to:

- business
- system
- application
- network
- people in the organisation

Specifications may include but are not limited to:

- technical requirements
- user problem statement
- current system functionality

RANGE STATEMENT

<i>Appropriate person</i> may include:	• supervisor • teacher • authorised business representative • client

Unit Sector(s)

Unit sector	Analyse and Design

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAA5050B Develop detailed component specifications from project specifications

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to analyse requirements of the project specifications in order to produce a set of high-level component specifications. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

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. Develop components	1.1.Document behaviour scenarios according to <i>documentation standards</i> 1.2.Identify or develop components within <i>project specifications</i> 1.3.Prepare diagrams according to <i>standards</i>
2. Prepare schema	2.1.Analyse and document component connectivity 2.2.Iterate data flows 2.3.Prepare component action diagrams according to <i>standards</i>
3. Prepare component model	3.1.Describe roles and responsibilities 3.2.Review and update functional <i>requirements</i> 3.3.Specify interface components and component relationships 3.4.Prepare interaction diagrams according to <i>standards</i>
4. Iterate and review model	4.1.Conduct walk-through of current model and review functionality 4.2.Identify relationships to ensure integration of model 4.3.Review class service <i>requirements</i> 4.4.Prepare initial test criteria 4.5.Implement process for incremental testing

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Problem solving skills for a defined range of unpredictable problems (e.g. when components are identified or developed within project specifications)
- Project planning skills in relation to scope, time, cost, quality, communications and risk management (e.g. when components are identified or developed within project specifications, and when interaction diagrams are prepared according to project standards)
- Research skills for specifying, analysing and evaluating broad features of a particular business domain and best practice in program development (e.g. when component connectivity is analysed and data flows iterated)

Required knowledge

- Detailed knowledge of tools and their use (e.g. when analysing components)
- Detailed knowledge of current industry-accepted design methodologies (e.g. when analysing components and preparing schema)
- Current industry-accepted hardware and software products, including broad knowledge of general features and capabilities (e.g. when preparing schema)
- Broad knowledge of quality assurance practices, for preparing component model
- Basic knowledge of cost-benefit analysis and ability to identify information sources for a cost-benefit analysis (e.g. when analysing components)
- Detailed knowledge of the system's current functionality, for analysing components
- Detailed knowledge of program development methodologies (e.g. when analysing the requirements to produce a set of high-level component specifications from project specifications)
- Detailed knowledge of configuration management (e.g. when preparing component model)
- Detailed knowledge of data modelling techniques (e.g. when preparing component model and iterating and reviewing)

Evidence Guide

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

Evidence of the following is essential:

- Assessment must confirm the ability to identify and model components relevant to the project requirements. Specifications need to be deliverable. Assessment must confirm the interoperability between components.

To demonstrate competency in this unit the learner will require access to:

- Technical specifications
- Organisational and process goals
- Standards for model development
- Computer-aided software engineering (CASE) tools
- Project deliverables
- Test plan
- Project budget

Context of and specific resources for assessment

The learner will need access to the outcomes of the business analysis process

The breadth, depth and complexity covering planning and initiation of alternative approaches to skills or knowledge applications across a broad range of technical and/or management requirements, evaluation and coordination would be characteristic.

Assessment must ensure:

- The demonstration of competency may also require self-directed application of knowledge and skills, with substantial depth in some areas where judgement is required in planning and selecting appropriate equipment, services and techniques for self and others.
- Applications involve participation in development of

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	strategic initiatives as well as personal responsibility and autonomy in performing complex technical operations or organising others. It may include participation in teams including teams concerned with planning and evaluation functions. Group or team coordination may also be involved.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1 - Competency in this unit should to be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. - Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario. Assessment for this unit could be across both software and hardware.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. An individual demonstrating this competency would be able to:

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	• Demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas • Analyse and plan approaches to technical problems or management requirements • Transfer and apply theoretical concepts and/or technical or creative skills to a range of situations • Evaluate information, using it to forecast for planning or research purposes • Take responsibility for own outputs in relation to broad quantity and quality parameters • Take some responsibility for the achievement of group outcomes • Maintain knowledge of industry products and services

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.

<i>Documentation standards</i>	• May include but are not restricted to policy relating to sign-off, storage, distribution and revision • Standards may include ISO/IEC/AS standards, organisational standards, project standards (for further information refer to the Standards Australia website at: www.standards.com.au) • May include tools for documenting (e.g. word processing packages, desktop publishing packages)
<i>Project specifications</i> may include but are not limited to:	• technical requirements • user problem statement • current system functionality

RANGE STATEMENT	
Standards may include:	• ISO/IEC/AS standards • organisational standards • project standards (for further information refer to the Standards Australia website at: www.standards.com.au)
Requirements may be in reference to:	• business • system • application • network • people in the organisation

Unit Sector(s)

Unit sector	Analyse and Design

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAA5054C Validate quality and completeness of system design specifications

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to check the system specifications against outcomes and quality standards. System quality may refer to the network system, a program or a project. The following units are linked to form an appropriate cluster: • ICAB5071B Review developed software • ICAB5074B Monitor the system pilot No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

Prerequisite units		

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. Determine audit criteria	1.1. Investigate the <i>system</i> or product for which the quality audit is being performed, to understand its functionality 1.2. Determine the objectives to be achieved by the quality audit 1.3. Determine the scope of the quality audit 1.4. Develop a list of audit criteria and <i>quality benchmarks</i> 1.5. Develop a <i>metric</i> to classify the audit criteria 1.6. Determine the audit technique or methodology that will be followed 1.7. Examine and detail the resources available to carry out the audit 1.8. Document the objectives, scope, criteria, technique and resources in an audit plan

ELEMENT	PERFORMANCE CRITERIA
2. Audit all 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 2.2. Use a checklist to monitor audit progress 2.3. Document audit outcomes as the audit progresses
3. Review and confirm with contract and specifications	3.1. Review system contract against audit outcomes 3.2. Compare system functionality against audit outcomes and system contract 3.3. Identify items of non-compliance where audit outcomes do not meet performance targets or fall short of contract requirements 3.4. Review system procedures for corrective action 3.5. Document items of non-compliance and proposed corrective action to be taken

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Problem solving skills for a range of unpredictable problems (e.g. when drafting acceptance criteria)
- Plain English literacy and communication skills in relation to analysis, evaluation and presentation of information (e.g. when documentation procedures have been followed)
- Ability to conduct quality audit to review system against contract areas, and when identifying areas of non-compliance

Required knowledge

- Broad knowledge of detailed design principles and specification standards (e.g. when reviewing all aspects of the system design and quality)
- Broad knowledge of fault tolerance technologies (e.g. when reviewing all aspects of system design and quality)
- Detailed knowledge of acceptance criteria (e.g. when reworking and confirming quality of high-level design)

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	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: • Assessment must confirm preset system goals or objectives have been achieved and that quality standards have been met To demonstrate competency in this unit the learner will require access to: • Technical specifications • Acceptance criteria • Live system, including database, system files, designed interface • Service-level agreement • Archive policy • Documentation guidelines • IT security specifications
Context of and specific resources for assessment	The breadth, depth and complexity covering planning and initiation of alternative approaches to skills or knowledge applications across a broad range of technical and/or management requirements, evaluation and coordination would be characteristic. The demonstration of competency may also require self-directed application of knowledge and skills, with substantial depth in some areas where judgment is required in planning and selecting appropriate equipment, services and techniques for self and others. Assessment must ensure: • Applications involve participation in development of strategic initiatives as well as personal responsibility

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	and autonomy in performing complex technical operations or organising others. It may include participation in teams including teams concerned with planning and evaluation functions. Group or team coordination may also be involved.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. - Competency in this unit should to be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. - Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. In the case of this unit, it could be assessed in a holistic manner with: - ICAB5071B Review developed software - ICAB5074B Monitor the system pilot An individual demonstrating this competency would be able to:

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	• Demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas • Analyse and plan approaches to technical problems or management requirements • Transfer and apply theoretical concepts and/or technical or creative skills to a range of situations • Evaluate information, using it to forecast for planning or research purposes • Take responsibility for own outputs in relation to broad quantity and quality parameters • Take some responsibility for the achievement of group outcomes

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.

Metric may include but is not limited to:

- input,
- output,
- capacity,
- performance,
- quality
- value metrics

Documentation may follow:

- ISO/IEC/AS standards,
- audit trails,
- naming standards,
- version control,
- project management templates
- report writing principles

System may include but is not limited to:

- databases,
- applications,
- servers,

RANGE STATEMENT	
	• operating systems, • gateways, • ASP • ISP
Requirements may be in reference to:	• business, • system, • application, • network • people in the organisation
Quality benchmarks relevant quality standards include:	• AS 3925.1-1994 Software quality assurance - plans • AS/NZS 4258:1994 Software user documentation process • AS/NZS ISO/IEC 12207:1997 Information technology - software life cycle processes • AS/NZS 14102:1998 Information technology - guideline for evaluation and selection of CASE tools May vary according to the type of organisation and may cover technical, cost savings, performance and quality. Some organisations may be quality certified and have well-documented standards for addressing quality, while others will not. In a simulated environment best practice workplace examples must be used

Unit Sector(s)

Unit sector	Analyse and Design

Co-requisite units

Co-requisite units	

Co-requisite units		

Competency field

Competency field	

ICAA5055B Confirm transition strategy

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to confirm the transition strategy produced in the light of additional knowledge of the system design and evolution of a change management plan. The following unit is linked to forms an appropriate cluster: • ICAT5083B Develop and conduct client acceptance test No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		
	ICAT5077B	Develop detailed test plan

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. Confirm delivery and acceptance plan	1.1. Confirm phased delivery with the <i>client</i> and <i>project team</i> 1.2. Confirm method of acceptance, <i>acceptance criteria</i> and that acceptance test plan is in place and agreed
2. Confirm data take up plan	2.1. Identify the data source for each <i>database</i> 2.2. Analyse possible integrity <i>constraints</i> 2.3. Design the data conversion workflow, taking into consideration data validation, data clean-up and data loading 2.4. Identify interface <i>requirements</i> , data take-up method, complexity and effort required 2.5. Develop required data conversion contingencies and confirm with <i>appropriate person</i>
3. Confirm cutover plan	3.1. Agree on the conversion window in operational timescale with <i>appropriate person</i> 3.2. Plan and confirm parallel running with <i>appropriate person</i> 3.3. Confirm approval of dependencies with <i>appropriate</i>

ELEMENT	PERFORMANCE CRITERIA
	person 3.4. Confirm approval of fall-back options with appropriate person 3.5. Confirm approval of checkpoints, tests and responsibilities with appropriate person 3.6. Confirm approval of resources, tasks and timescales with appropriate person

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Problem solving skills for a defined range of predictable problems (e.g. when data conversion contingencies are developed and agreed, and when data source for each database is identified, and when data conversion workflow is designed, taking into consideration data validation, data clean-up and data loading)
- Data management skills in relation to data transition and data storage (e.g. when data source for each database is identified, and when data conversion workflow is designed, taking into consideration data validation, data clean-up and data loading)
- Research skills for specifying, analysing and evaluating broad features of a particular business domain and best practice in data transition (e.g. when phased delivery (function content, location considerations, temporary interfaces) is confirmed with client and project team)
- Project planning skills in relation to scope, time, cost, quality, communications and risk management (e.g. when phased delivery (function content, location considerations, temporary interfaces) is confirmed with client and project team)
- Plain English literacy and communication skills in relation to analysis, evaluation and presentation of information (e.g. when resources, tasks and timescales are agreed to by higher authorities)

Required knowledge

- Broad knowledge of cut-over strategies (e.g. when confirming delivery and acceptance plan)
- Broad knowledge of data analysis (e.g. when confirming data take-up plan)
- Broad knowledge of post converging strategies (e.g. when confirming data take-up plan and confirming cut-over plan)
- Broad knowledge of conversion strategies (e.g. when confirming data take-up plan)

REQUIRED SKILLS AND KNOWLEDGE

- and confirming cut-over plan)
- Current business practices in relation to transition strategies (e.g. when confirming delivery and acceptance plan)

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

Evidence of the following is essential:

- Assessment must confirm sufficient knowledge of interpreting software specifications.
- Assessment must confirm the ability to refine the transition strategy in the light of further technical information and change management plans.

To demonstrate competency in this unit the learner will require access to:

- IT specifications
- Change management plan
- Acceptance test plan
- IT security assurance specifications

Context of and specific resources for assessment

The breadth, depth and complexity covering planning and initiation of alternative approaches to skills or knowledge applications across a broad range of technical and/or management requirements, evaluation and coordination would be characteristic.

Assessment must ensure:

- self-directed application of knowledge and skills, with substantial depth in some areas where judgement is required in planning and selecting appropriate equipment, services and techniques for

EVIDENCE GUIDE	
	self and others. Applications involve participation in development of strategic initiatives as well as personal responsibility and autonomy in performing complex technical operations or organising others. It may include participation in teams including teams concerned with planning and evaluation functions. Group or team coordination may also be involved.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. - Competency in this unit should to be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. - Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: ICAT5083B Develop and conduct client acceptance test

EVIDENCE GUIDE

	An individual demonstrating this competency would be able to: • Demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas • Analyse and plan approaches to technical problems or management requirements • Transfer and apply theoretical concepts and/or technical or creative skills to a range of situations • Evaluate information, using it to forecast for planning or research purposes • Take responsibility for own outputs in relation to broad quantity and quality parameters • Take some responsibility for the achievement of group outcomes • Maintain knowledge of industry products and services

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.

<i>Client</i> may include but is not limited to:	• internal departments • external organisations • individual people • employees
<i>Project team</i> - teams may include:	• solution developers and business clients working together • individual business analysts • a number of third-party solution developers working together • a number of different businesses working in

RANGE STATEMENT	
	partnership
Acceptance criteria may include:	• timeframe • cost implications • technical • logistical considerations
Database may include but is not limited to:	• relational databases • object-relational databases • proprietary databases and commercial off the shelf (COTS) database packages
Constraints may include but is not limited to:	• time • budget • resource • hardware • software • policy • legal constraints
Requirements may be in reference to:	• business • system • application • network • people in the organisation
Appropriate person may include:	• supervisor • teacher • authorised business representative • client

Unit Sector(s)

Unit sector	Analyse and Design

Co-requisite units

Co-requisite units	

Co-requisite units		

Competency field

Competency field	

ICAA5056B Prepare disaster recovery and contingency plans

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to analyse the impact of the system on the organisation and carry out risk analysis, disaster recovery and contingency planning for the project. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

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. Evaluate impact of system on business continuity	1.1. Identify <i>business-critical functions</i> and the security environment from <i>documentation</i> and from discussion with business area and <i>project team</i> 1.2. Identify critical data and <i>software</i> from <i>documentation</i> 1.3. Assess potential impact of business risk and <i>threats</i> on IT <i>systems</i> 1.4. Identify and evaluate <i>statutory requirements</i>, <i>commercial requirements</i> and contingency possibilities according to specifications and cost <i>constraints</i>
2. Evaluate threats to system	2.1. Identify <i>threats</i> to the <i>system</i>, with consideration of security analysis and internal and external business environment 2.2. Evaluate risk minimisation alternatives against <i>specifications</i> and cost <i>constraints</i>
3. Formulate prevention and recovery strategy	3.1. Evaluate prevention and recovery options to support critical business functions against business <i>specifications</i> and cost <i>constraints</i> 3.2. Review current operational procedures to ensure adequate risk safeguards and <i>contingency plans</i> are in place 3.3. Submit disaster recovery and prevention strategy to

ELEMENT	PERFORMANCE CRITERIA
	<i>appropriate person</i> for approval
4. Develop disaster recovery plan to support strategy	4.1. Identify and document <i>resources</i> required for disaster recovery according to <i>specifications</i> and cost <i>constraints</i> 4.2. Identify and document processes required for disaster strategy according to project <i>standards</i> 4.3. Identify <i>cut-over criteria</i> before initiating disaster plan 4.4. Document disaster recovery plan and submit to <i>appropriate person</i> for review and sign-off

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Logistic management skills for identified resources and procedures skills (e.g. when IT hardware, software and resources required for disaster recovery are identified and documented according to project specifications and cost constraints)
- Negotiation skills in relation to self and other team members and applied to a defined range of predictable problems (e.g. when business-critical functions are identified from project documentation and discussion with client business area and project team)
- Project planning skills in relation to scope, time, cost, quality, communications, risk analysis and management (e.g. when business-critical functions are identified from project documentation and discussion with client business area and project team, and when contingency possibilities are identified and evaluated according to project specifications and cost constraints)
- Research skills for specifying, analysing and evaluating broad features of a particular business domain and best practice in system development (e.g. when threats to the system are identified, taking into consideration security analysis and internal and external business environment)
- Facilitation and presentation skills in relation to transferring and collecting information and gaining consensus on concepts (e.g. when business-critical functions are identified from project documentation and discussion with client business area and project team, and when disaster recovery plan is documented and submitted to higher authorities for review and sign-off)

REQUIRED SKILLS AND KNOWLEDGE

Required knowledge

- Broad knowledge of basic engineering (e.g. when evaluating threats)
- Broad knowledge of fire/safety knowledge (e.g. when formulating prevention and recovery strategy)
- Detailed knowledge of back-up methodologies (e.g. when formulating prevention and recovery strategy)
- Broad knowledge of systems engineering (e.g. when evaluating threats)
- Specific components of the business planning process relevant to the development of IT business solutions (e.g. when evaluating impact of system on business continuity)
- Broad knowledge of the client business domain (e.g. when evaluating impact of system on business continuity)
- Detailed knowledge of the system's current functionality (e.g. when evaluating impact of system on business continuity)

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

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

Evidence of the following is essential:

- Assessment must confirm the ability to specify contingencies that minimise down time for business-critical functions.
- Assessment must confirm the ability to clearly specify directions on how to handle serious down time.
- Assessment must confirm the ability to coordinate, plan and articulate flexible logistics requirements.

To demonstrate competency in this unit the learner will require access to:

- A vulnerability assessment and general definition of

EVIDENCE GUIDE	
	requirements • Business impact analysis • Acceptance test plan • Information technology security assurance specifications
Context of and specific resources for assessment	Assessment of this unit of competency could include review of the disaster recovery/contingency plan developed by the learner to ensure the following is covered: • Defined recovery requirements from the perspective of business functions • The impact of an extended loss on operations and key business functions • The contingency plan is understandable, easy to use and easy to maintain • Contingency planning considerations may be integrated into ongoing business planning and system development processes • The disaster recovery plan is not a one-off activity, but rather an ongoing process The plan should cover: • Physical security • System failure, accident, sabotage (hackers) • Denial of service • Virus attack • Telecommunications failure Disaster recover plans are critical for organisations that rely on IT for business operations. The breadth, depth and complexity covering planning and initiation of alternative approaches to skills or knowledge applications across a broad range of technical and/or management requirements, evaluation and coordination would be characteristic. Assessment must ensure: • The demonstration of competency may also require

EVIDENCE GUIDE	
	self-directed application of knowledge and skills, with substantial depth in some areas where judgement is required in planning and selecting appropriate equipment, services and techniques for self and others. • Applications involve participation in development of strategic initiatives as well as personal responsibility and autonomy in performing complex technical operations or organising others. It may include participation in teams including teams concerned with planning and evaluation functions. Group or team coordination may also be involved.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should to be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.

EVIDENCE GUIDE

	An individual demonstrating this competency would be able to: • Demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas • Analyse and plan approaches to technical problems or management requirements • Transfer and apply theoretical concepts and/or technical or creative skills to a range of situations • Evaluate information, using it to forecast for planning or research purposes • Take responsibility for own outputs in relation to broad quantity and quality parameters • Take some responsibility for the achievement of group outcomes • Maintain knowledge of industry products and services

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.

<i>Business-critical functions</i> may include but are not limited to:	• financial systems • customer service functions • payroll
<i>Documentation</i> may follow:	• ISO/IEC/AS standards • audit trails • naming standards • version control • project management templates and report writing • maintaining equipment inventory

RANGE STATEMENT	
	• client training • satisfaction reports
Project team may include:	• solution developers and business clients working together • individual business analysts • a number of third-party solution developers working together • a number of different businesses working in partnership
Software may include but are not limited to:	• commercial • in-house • packaged or customised software
Specifications may include but are not limited to:	• technical requirements • user problem statement • current system functionality
Constraints may include but are not limited to:	• time • budget • resource • hardware • software • policy • legal constraints
System may include but are not limited to:	• databases • applications • servers • operating systems • gateways • application service provider • ISP
Appropriate person may include:	• supervisor • teacher • authorised business representative • client
Threats may include:	• Weather (storms, earthquake) • Security • Information technology failure (hardware, software) • Accident • Espionage • Sabotage (hackers)

RANGE STATEMENT	
	• Telecommunications network failure • Denial of service • Virus attack Supplementary questioning of the client may be used during the assessment phase, where necessary, to ensure that all issues relating to threats to the system are considered and appropriate choices made given the need to prevent, limit, recover, respond and recover from disasters
Back-up strategy may include:	• hot standby site • warm standby site • cold standby site • mobile van • supplier • bureau • contacts through user group • third parties
Contingency plans will vary in format and content detail, but will typically:	• identify weaknesses and provide for the implementation of a disaster prevention program • minimise disruption to business operations • provide a coordinated approach to the disaster recovery process
Cut-over criteria may include:	• estimate of time before system is operational • estimate of business impact • authorisations to cut-over • actual system down time • refresher of cut-over plan
Security environment	• Includes legislation, organisational security policies, customs, expertise and knowledge that are, or may be, relevant. The security environment also includes the threats to security that are, or are held to be, present in the environment
Statutory requirements	• May include legislation (e.g. Privacy Act), industry-imposed controls and standards. In certain organisations (e.g. health and banking), there may be strict laws regarding confidentiality and reporting of data

RANGE STATEMENT	
Commercial requirements	• Back-up • Storage and recovery of data • Access to internal network • Passwords/logons • Encryption • Firewalls • Hacking • Confidentiality • Integrity • Availability
Standards may include:	• ISO/IEC/AS standards • organisational standards • project standards (for further information refer to the Standards Australia website at: www.standards.com.au)

Unit Sector(s)

Unit sector	Analyse and Design

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAA5138B Determine acceptable developers for projects

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to ensure that development projects are contracted to developers who are credible and able to accomplish the task within the confines of the mutually agreed parameters of the project. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

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. Specify development requirements	1.1. Prepare and document clear <i>specifications</i> for the project 1.2. Submit <i>specifications</i> to <i>appropriate person</i> for sign-off and authority to contract <i>developers</i> 1.3. Prepare request for tender document if appropriate, using <i>specifications</i> 1.4. Prepare and document agreed selection guidelines
2. Identify potential developers	2.1. Investigate potential <i>developers</i> in line with <i>organisational guidelines</i> 2.2. Request development quotes from potential <i>developers</i> 2.3. Assess submitted quotes against selection guidelines and make a shortlist of potential <i>developers</i> , where appropriate
3. Select a potential developer	3.1. Assess the capability of <i>developers</i> to do the project work 3.2. Confirm that potential <i>developers</i> understand the scope of the work to be undertaken 3.3. Conduct a <i>due diligence</i> check where appropriate and assess the quality of <i>developers</i> 3.4. Select appropriate <i>developers</i> using <i>selection criteria</i>

ELEMENT	PERFORMANCE CRITERIA
	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 4.2. Sign contract and prepare developers to commence work according to contract

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Preparing contracts
- Preparing tender documentation
- Assessing learners
- Applying selection guidelines to determine the successful developer

Required knowledge

- Writing technical specifications and requirements
- Business liaison
- Business negotiation
- Industry standards
- Website navigation
- E-commerce standards
- Australian Computer Society Code of Ethics

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.

EVIDENCE GUIDE	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: - Assessment must confirm that learners can systematically select professional and skilled providers/developers who can successfully complete the required development project. To demonstrate competency in this unit the learner will require access to: - Selection policies - Procurement policies - E-business plan
Context of and specific resources for assessment	Selection and assessment of solution providers is essential for maintaining organisational systems. Special care should be exercised to ensure appropriate solutions providers have the skills, depth of capability and support. Identifying appropriate organisation to meet these needs involves analysis and recording of objective evidence across a broad range of technical and/or managerial operations. The breadth, depth and complexity covering planning and initiation of alternative approaches to skills or knowledge applications across a broad range of technical and/or management requirements, evaluation and coordination would be characteristic. Assessment must ensure: - self-directed application of knowledge and skills, with substantial depth in some areas where judgement is required in planning and selecting appropriate equipment, services and techniques for self and others. - Applications involve participation in development of strategic initiatives as well as personal responsibility and autonomy in performing complex technical

EVIDENCE GUIDE	
	operations or organising others. It may include participation in teams including teams concerned with planning and evaluation functions. Group or team coordination may also be involved.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. - Competency in this unit should to be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. - Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended An individual demonstrating this competency would be able to: - Demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas - Analyse and plan approaches to technical problems or management requirements - Transfer and apply theoretical concepts and/or technical or creative skills to a range of situations

EVIDENCE GUIDE

	• Evaluate information, using it to forecast for planning or research purposes • Take responsibility for own outputs in relation to broad quantity and quality parameters • Take some responsibility for the achievement of group outcomes • Maintain knowledge of industry products and services

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.

Project may include:

- a total organisational change
- a systems-only change
- a business improvement process
- an e-business solution involving the total organisation or part of the organisation

Appropriate person may include:

- supervisor
- teacher
- authorised business representative
- client

Organisational guidelines may include but not limited to:

- personal use of emails and internet access
- content of emails
- downloading information and accessing particular websites
- opening mail with attachments
- virus risk
- dispute resolution
- document procedures and templates,
- communication methods
- financial control mechanisms

RANGE STATEMENT	
<i>Developers</i> may include:	• internal or external sources of expertise, including solution providers, contractors, consultants, analyst/programmer or employees
<i>Due diligence</i>	Depends on the importance of the development; the greater the importance the more detailed the due diligence check. Items covered include: • Obtaining referees of previous clients • Identifying the work of the developer to be employed • Conducting a check of reputation in the industry • Checking with appropriate quality and industry bodies • Checking for vendor certification • Checking membership of professional bodies • Checking the developer's website and checking their 'seal of trust' credentials
<i>Selection criteria</i>	In government organisations there may be well-defined tender processes that have to be followed. In other organisations there may be no procedure, with tender handled differently. Different methods may include one or several of the following: • Registration of interest (ROI) • Request for information (RFI) • Request for proposal (RFP) The above approaches could involve advertising to the open market, existing relationships or preferred supplier lists. This may also be done by advertising, cold calling, responding to advertisements, on-line searching, getting recommendation from someone trusted, extending an existing relationship or identifying a well-designed e-business site and

RANGE STATEMENT

	finding the developers

Unit Sector(s)

Unit sector	Analyse and Design

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAA5139B Design a database

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to establish client needs and technical requirements and to design a database that meets those requirements. The following units are linked and form an appropriate cluster: • ICAB4170B Build a database • ICAA5153B Model data objects • ICAA5154B Model data processes No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

Prerequisite units		

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. Determine database requirements	1.1.Meet with <i>client</i> and conduct a user needs analysis to determine <i>database</i> functionality 1.2.Analyse results of user needs analysis to identify <i>technical requirements</i> 1.3.Develop a conceptual model of the <i>database</i> 1.4.Submit conceptual model to <i>client</i> for review 1.5.Evaluate <i>client</i> feedback and make changes as required
2. Develop logical data model	2.1.Identify attributes and determine data types 2.2.Undertake normalisation of attributes 2.3.Develop entity relationship diagram to clarify cardinality of relationships 2.4.Document attributes, normalised data and entity relationship diagram

ELEMENT	PERFORMANCE CRITERIA
	2.5. Forward documentation to client for confirmation
3. Design data structures	3.1. Confirm primary and foreign keys for tables 3.2. Review client business rules 3.3. Identify referential integrity constraints 3.4. Establish relevant database management system constraints and incorporate into database design 3.5. Develop validation rules for data 3.6. Design indexes and develop data dictionary 3.7. Document the database design
4. Design queries, screens and reports	4.1. Design user interface for database , including menus, input screens and outputs 4.2. Design queries based on requirements 4.3. Design output reports based on requirements 4.4. Compare physical design with conceptual model/user needs analysis 4.5. Incorporate changes as required
5. Design access and security systems	5.1. Review business security plan as basis for commencing access and security design 5.2. Design password and access system for database 5.3. Identify multiple-user requirements 5.4. Develop client access profiles using client business model
6. Confirm database design	6.1. Identify database back-up and recovery requirements 6.2. Develop and document the database back-up and recovery procedures 6.3. Submit database and documentation to client for final approval

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Techniques to elicit information from users, particularly during the design and

REQUIRED SKILLS AND KNOWLEDGE

prototype phases

- Analysis skills to determine data objects required, data structures and business requirements
- Data modelling skills
- Business analysis skills
- SQL programming skills
- Communicating with clients

Required knowledge

- Function and features of databases
- Logical design concepts, particularly in relation to designing data structures, queries screens and reports
- Data modelling in relation to developing the conceptual data model
- Object model design concepts, particularly in relation to designing data structures, queries, screens and reports
- Data analysis, particularly in determining data types and data structures and query and report design
- DBMS fundamentals, particularly during the design phase
- Function and features of data types and data structures
- Data redundancy
- Encryption and authentication as they apply to database security features
- Scalability of databases

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

Evidence of the following is essential:

- Assessment must confirm the ability to design a well-structured database that represents the client's business reality and provides the user with a productive business tool.

EVIDENCE GUIDE	
	To demonstrate competency in this unit the learner will require access to: • Current industry-accepted database software, network or other system for remote or multi-user access • Business requirements
Context of and specific resources for assessment	The breadth, depth and complexity covering planning and initiation of alternative approaches to skills or knowledge applications across a broad range of technical and/or management requirements, evaluation and coordination would be characteristic. Assessment must ensure: • self-directed application of knowledge and skills, with substantial depth in some areas where judgement is required in planning and selecting appropriate equipment, services and techniques for self and others. • Applications involve participation in development of strategic initiatives as well as personal responsibility and autonomy in performing complex technical operations or organising others. It may include participation in teams including teams concerned with planning and evaluation functions. Group or team coordination may also be involved.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should to be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency.

EVIDENCE GUIDE

	Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: - ICAB4170B Build a database - ICAA5153B Model data objects - ICAA5154B Model data processes An individual demonstrating this competency would be able to: - Demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas - Analyse and plan approaches to technical problems or management requirements - Transfer and apply theoretical concepts and/or technical or creative skills to a range of situations - Evaluate information, using it to forecast for planning or research purposes - Take responsibility for own outputs in relation to broad quantity and quality parameters - Take some responsibility for the achievement of group outcomes - Maintain knowledge of industry products and services

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.	
<i>Client</i> may include but is not limited to:	• internal departments • external organisations • individual people • employees
<i>Database</i> may include but is not limited to:	• relational databases • object-relational databases • proprietary databases • commercial off the shelf (COTS) database packages
<i>Technical requirements</i> may be in reference to:	• business • system • platform • application • database • network • people in the organisation
<i>Documentation</i> may follow:	• ISO/IEC/AS standards • audit trails • naming standards • version control • project management templates • report writing principles
<i>Database management system</i> may include:	• distributed or centralised • on-line • partitioned geographically or thematically distributed
<i>Security plan</i> may include:	• privacy • authentication • authorisation and integrity • usually relates directly to the security objectives of the organisation
<i>Requirements</i> may be in reference	• business

RANGE STATEMENT

to:

- system
- platform
- application
- database
- network
- people in the organisation

Unit Sector(s)**Unit sector**

Analyse and Design

Co-requisite units

Co-requisite units		

Competency field**Competency field**

ICAA5140C Design a server

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to choose appropriate hardware and software and to design a server. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		
	ICAA4041C	Determine and confirm client business expectations and needs
	ICAI4029C	Install network hardware to a network
	ICAS3120C	Configure and administer a network operating system

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. Choose server application	1.1. Determine and analyse requirements and collect possible server designs 1.2. Analyse client needs to determine specifications of server 1.3. Identify and research available applications 1.4. Identify server applications and features 1.5. Analyse server applications with reference to identified requirements 1.6. Provide alternative solutions , including system requirements and make options available to client 1.7. Select and source server application
2. Choose network operating system	2.1. Identify the network operating system features with reference to required server solution 2.2. Research available network operating system based on technical specification and capability and requirements 2.3. Analyse the most suitable network operating system with reference to identified requirements and current and projected needs 2.4. Choose the most suitable network operating system

ELEMENT	PERFORMANCE CRITERIA
	based on technical and business requirements
3. Select server components	3.1. Identify server components with reference to required server application and server features 3.2. Identify product specifications and limitations 3.3. Identify and analyse system interdependencies, including hardware prior to selection 3.4. Provide alternative solutions with reference to required server application and server features
4. Design server	4.1. Review vendor design and specified server for design applicability 4.2. Document server design and specifications 4.3. Analyse server design against requirements of the client 4.4. Test server for benchmarking against client specification and requirements 4.5. Make required changes to the design from the outcomes of the design testing

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Planning and designing servers
- Performance analysis at the system and component level
- Basic cost-benefit comparisons (including return on investment (ROI) and total cost of ownership (TCO) in relation to applications, NOSs and overall server design
- Product analysis
- The use of tools for measuring (e.g. generic benchmarks, software sizing models, workload testing, performance monitoring)

Required knowledge

- Features of current server applications depending on requirements, (e.g. Lotus Notes/Novell GroupWise for messaging)
- Apache/MS IIS for web services

REQUIRED SKILLS AND KNOWLEDGE

- Novel Border Manager/MS Proxy server for network services
- Oracle/MS SQL server/IBM DB2 for databases and data warehousing, Novell Directory Services/iPlanet for directory services
- HP Openview/Intel LAN Desk Server Manager/CA UniCenter for management
- SAP/PeopleSoft/Baan for line of business applications
- MS Terminal server/Citrix MetaFrame for terminal services
- Linux Terminal Services
- SMB servers (Linux, BSD-based)

Features of a range of hardware components, including:

- Single and multiple processors
- Memory (SD and RD RAM, memory leads, bandwidth)
- Chassis (size, thermals, EMI specifications, security, drive bays, cable management, ease of maintenance, LED/LCD panels, aesthetics)
- Disk drives and internal/external storage devices (RAID solutions and functionality, drive formats, back-up systems - DAT/DLT/AIT, storage area networks (SANs))
- Load balancers
- Power (supply requirements and management; protection: back-up/line-conditioning/surge suppression, power budgeting)
- Hot plug peripherals (PCI expansion cards, power supplies, hard drives, fans)
- Ancillaries (racks, keyboard, monitor, cabinets, air flow)
- Scaling up and scaling out
- Fault tolerant failover clusters
- The data bus (SA bus, PCI bus)
- Memory cache and storage cache in relation to server performance and scalability
- Current storage interfaces (IDE, SCSI, SSA and Fibre Channel) in relation to storage selection
- Australian Computer Society Code of Ethics

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.

EVIDENCE GUIDE	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: - Assessment must confirm the ability to select the required hardware and software and design the server based on business and technical requirements. To demonstrate competency in this unit the learner will require access to: - Server hardware - Requirements documentation - Business planning documentation - Network operating software
Context of and specific resources for assessment	The breadth, depth and complexity covering planning and initiation of alternative approaches to skills or knowledge applications across a broad range of technical and/or management requirements, evaluation and coordination would be characteristic. The demonstration of competency may also require self-directed application of knowledge and skills, with substantial depth in some areas where judgement is required in planning and selecting appropriate equipment, services and techniques for self and others. Assessment must ensure: Applications involve participation in development of strategic initiatives as well as personal responsibility and autonomy in performing complex technical operations or organising others. It may include participation in teams including teams concerned with planning and evaluation functions. Group or team coordination may also be involved.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related

EVIDENCE GUIDE	
	matters is provided in ICA05 Section 1. - Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. - Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. An individual demonstrating this competency would be able to: - Demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas - Analyse and plan approaches to technical problems or management requirements - Transfer and apply theoretical concepts and/or technical or creative skills to a range of situations - Evaluate information, using it to forecast for planning or research purposes - Take responsibility for own outputs in relation to broad quantity and quality parameters - Take some responsibility for the achievement of group outcomes - Maintain knowledge of industry products and services

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.	
Client may include but is not limited to:	• internal departments, • external organisations, • individual people • employees
Requirements may be in reference to:	• business, • system, • application, • network • people in the organisation
Server -one or more servers depending on size and functionality of website and may include:	• Apache HTTP • IBM VisualAge and WebSphere • Microsoft-Internet-Information-Server, Microsoft-IIS, Microsoft-IIS-W • Windows Server Family Products • NetDynamics • Lotus Domino • Netscape Enterprise server, Netscape-FastTrack, Netscape-Commerce • Sun Microsystems iPlanet web server • iPlanet-Enterprise • Sun Microsystems Java web server • Email servers • File and print servers • FTP servers • Proxy servers
Server application	• File sharing, • printer sharing, • messaging, • web services, • network and remote access,

RANGE STATEMENT	
	• database and data warehousing, • directory services, • management, • line of business applications, • terminal services, • virtual private networks, • web-DAV directory sharing
Network operating system may include features relating to:	• architecture, • scalability, • availability and reliability, • client support, • functionality (both features and limitations), • server management, • security, • application development tools, • middleware, • maintenance • cost
Business requirements may include:	• customer, • supplier, • payroll, • inventory • tax requirements of the organisation
System may include but is not limited to:	• hardware and software components that run a computer
Hardware may include but is not limited to:	• workstations, • personal computers, • modems and other connectivity devices, • networks, • DSL modems, • remote sites • servers
Solution may include but is not limited to:	• new hardware, • hardware upgrades, • new software, • software upgrades, • user training • implementing a new system

Unit Sector(s)

Unit sector	Analyse and Design

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAA5141C Design and develop dynamic websites to meet technical requirements

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to produce a plan that analyses specified technical requirements and then designs, builds and tests a dynamic website so that it meets those technical requirements. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		
	ICAA4142C	Design a website to meet technical requirements

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 the design process	1.1. Produce a plan to analyse the <i>technical requirements</i> 1.2. Plan and document a process to design, build and test the dynamic website so that it meets those <i>technical requirements</i> , and <i>web development standards</i> which allow for iterative development
2. Analyse the technical requirements	2.1. Determine and document the purpose, expectations and functionality of the website 2.2. Determine and document appropriate dynamic methodologies 2.3. Determine and document the <i>architecture requirements</i> for the website 2.4. Determine and document the <i>hardware</i> and <i>software</i> required to design the website 2.5. Determine the <i>requirements</i> for <i>documentation</i> 2.6. Determine and document appropriate design methodologies, such as utilising software engineering life cycle models
3. Design the website	3.1. Produce a hierarchy of the website showing how it will be navigated 3.2. Design the <i>client</i> side, with consideration to appropriate design concepts and specific

ELEMENT	PERFORMANCE CRITERIA
	requirements of dynamic methodologies 3.3. Design the server side, considering the specific requirements of the dynamic methodologies, such as scripting and database selection 3.4. Design approved associated script program 3.5. Document the design process
4. Develop the website to the specified design	4.1. Produce the client and server sides 4.2. Produce the graphics and associated sound, animation or video 4.3. Produce associated script program
5. Test the website	5.1. Test the website against the technical requirements and record results 5.2. Test the website on-line against technical requirements and with representative user and record results 5.3. Complete the technical documentation

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Website analysis
- HTML
- Scripting
- Information architecture
- Use of site design software and hardware
- User analysis
- Integrating on-line processes
- Ensuring site usability
- Confirming accessibility of website design

Required knowledge

- Website architecture
- Business process design
- Linkage between processes

REQUIRED SKILLS AND KNOWLEDGE

- Customer and business liaison
- E-business sites and corporate strategy
- Implications of technology connectivity
- Stateless programming
- Copyright and intellectual property
- National Privacy Principle Guidelines
- The Commonwealth Privacy Act 1988 as amended by the Privacy Amendment (Private Sector) Act 2000
- National Privacy Principles
- Documenting technical specifications
- Electronic Commerce Modelling Language
- Australian Computer Society Code of Ethics

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

Evidence of the following is essential:

- Assessment must confirm the ability to identify the technical environment and human computer interface and select appropriate tools and procedures in order to develop an effective dynamic website. An effective site takes into account current and future technical needs.

To demonstrate competency in this unit the following resources will be needed:

- Web servers
- E-business website
- Site server
- Site server software
- Analysis software

EVIDENCE GUIDE	
	• Requirements documentation • Customer relationship model
Context of and specific resources for assessment	The breadth, depth and complexity covering planning and initiation of alternative approaches to skills or knowledge applications across a broad range of technical and/or management requirements, evaluation and coordination would be characteristic. The demonstration of competency may also require self-directed application of knowledge and skills, with substantial depth in some areas where judgement is required in planning and selecting appropriate equipment, services and techniques for self and others. Assessment must ensure: • Applications involve participation in development of strategic initiatives as well as personal responsibility and autonomy in performing complex technical operations or organising others. It may include participation in teams including teams concerned with planning and evaluation functions. Group or team coordination may also be involved.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should to be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Assessment will usually include observation of real or simulated work processes and procedures and/or

EVIDENCE GUIDE	
	performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process.
Guidance information for assessment	The interdependence of units for assessment purposes may vary with the particular project or scenario. Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended An individual demonstrating this competency would be able to: • Demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas • Analyse and plan approaches to technical problems or management requirements • Transfer and apply theoretical concepts and/or technical or creative skills to a range of situations • Evaluate information, using it to forecast for planning or research purposes • Take responsibility for own outputs in relation to broad quantity and quality parameters • Take some responsibility for the achievement of group outcomes • Maintain knowledge of industry products and services

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.

RANGE STATEMENT	
Technical requirements may be in reference to:	• business • system • platform • application • database • network • people in the organisation
Architecture requirements may include but are not limited to:	• Operating system: Novell NetWare 5 or above or any operating system that has multi-user ability, Linux, Mac OS, Windows 2000 or above • Database software: Oracle, Sybase, Microsoft SQL server, Ingres, DB2, Informix, mSQL, MySQL, SQL server • Configuration: small memory model, large memory model, requests per second
Hardware may include but is not limited to:	• workstations • personal computers • modems and other connectivity devices • networks • DSL modems • remote sites • servers
Software may include but is not limited to:	• commercial, in-house, packaged or customised software
Requirements may be in reference to:	• business • system • platform • application • network • people in the organisation
Documentation may follow:	• ISO/IEC/AS standards • audit trails • naming standards • version control • project management templates • report writing principles
Client may include but is not limited to:	• internal departments • external organisations

RANGE STATEMENT	
	- individual people - employees
Server may include:	- Application/web servers - BEA Weblogic servers - IBM VisualAge and WebSphere - Novell NDS servers - Email servers - File and print servers - FTP servers - Firewall servers - Proxy/cache servers
Database may include but is not limited to:	relational databases, object-relational databases, proprietary databases and commercial off the shelf (COTS) database packages
User may include:	- a person within a department - a department within the organisation - a third party
Web development standards	- Web Content Accessibility Guidelines 1.0 (WCAG) - Authoring Tool Accessibility Guidelines 1.0 (ATAG) - User Agent Accessibility Guidelines 1.0 (UAAG)

Unit Sector(s)

Unit sector	Analyse and Design

Co-requisite units

Co-requisite units	

Co-requisite units		

Competency field

Competency field	

ICAA5143C Implement process re-engineering strategies in an organisation

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to consider a variety of potential process reengineering strategies and to make appropriate selections for implementation in an organisation. There may be benefit in concurrent learning with the following unit: • ICAP5155B Plan process re engineering strategies for business No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

Prerequisite units		

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. Develop reengineering strategies	1.1. Research and determine target process for re-engineering action 1.2. Develop process re-engineering plan 1.3. Determine and document strategic importance of process 1.4. Establish and document performance standards and benchmarks for new process 1.5. Seek feedback and suggestions from client on proposed process re-engineering
2. Implement process reengineering strategies	2.1. Compare suggestions with process re-engineering plan to determine suitability for business requirements 2.2. Incorporate suggestions where appropriate 2.3. Implement new process into business structure and leave sufficient scope for changing capacity or

ELEMENT	PERFORMANCE CRITERIA
	upgrades
3. Monitor organisational context	3.1. Monitor new process to measure performance levels 3.2. Determine and document the benefits of the new process to the business 3.3. Identify and document training needs for staff 3.4. Analyse the cultural and political impact of the new process 3.5. Document the new process and disseminate information to <i>appropriate person</i>

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Environment scanning
- Risk analysis
- Market research, testing and using focus groups
- Communications

Required knowledge

- Organisational strategy
- Impact of technology
- Business case preparation
- Consulting internally and externally
- Copyright and intellectual property

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

EVIDENCE GUIDE	
Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: - Assessment must confirm the ability to implement a re-engineering process that supports organisational objectives while remaining sensitive to internal and external stakeholder needs. In particular the learner will need to identify the complex interdependencies between organisational and external components. To demonstrate competency in this unit the following resources will be needed: - Organisational structure and culture - Organisational strategy - Stakeholder analysis - E-business models - Personal computer - Analysis software - Modelling software
Context of and specific resources for assessment	The breadth, depth and complexity covering planning and initiation of alternative approaches to skills or knowledge applications across a broad range of technical and/or management requirements, evaluation and coordination would be characteristic. The demonstration of competency may also require self-directed application of knowledge and skills, with substantial depth in some areas where judgement is required in planning and selecting appropriate equipment, services and techniques for self and others. Assessment must ensure: Applications involve participation in development of strategic initiatives as well as personal responsibility and autonomy in performing complex technical operations or organising others. It may include participation in teams including teams concerned with planning and evaluation functions. Group or team coordination may also be involved.

EVIDENCE GUIDE**Method of assessment**

The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1.

- Competency in this unit should to be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency.
- Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process.

Guidance information for assessment

The interdependence of units for assessment purposes may vary with the particular project or scenario. Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example:

- ICAP5155B Plan process re engineering strategies for business

An individual demonstrating this competency would be able to:

- Demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas
- Analyse and plan approaches to technical problems or management requirements
- Transfer and apply theoretical concepts and/or

EVIDENCE GUIDE

	technical or creative skills to a range of situations • Evaluate information, using it to forecast for planning or research purposes • Take responsibility for own outputs in relation to broad quantity and quality parameters • Take some responsibility for the achievement of group outcomes • Maintain knowledge of industry products and services

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.

<i>Client</i> may include but is not limited to:	• internal departments • external organisations • individual people • employees
<i>Business requirements</i> may be in reference to:	• business • system • application • network • people in the organisation
<i>Documentation</i> may follow:	• ISO/IEC/AS standards • audit trails • naming standards • version control • project management templates and report writing • maintaining equipment inventory • client training • satisfaction reports

RANGE STATEMENT

<i>Appropriate person</i> may include:	• supervisor • teacher • authorised business representative • client

Unit Sector(s)

Unit sector	Analyse and Design

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAA5144B Determine best-fit topology for a local network

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to determine the most appropriate way of networking computers to meet user needs and business requirements. The following units are linked and form an appropriate cluster: • ICAA5140C Design a server • ICAA5145B Identify best fit topology for a wide area network • ICAI5172B Implement backbone technologies in a local area network • ICAI5174B Install high end switches in multi switched local area networks • ICAI5176C Install and configure router • ICAS5192B Configure an internet gateway Network topologies include large and small local area networks (LANs), wide area networks (WANs), virtual private networks (VPNs), virtual local area networks (VLANs) and wireless local area networks (WLANs). No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

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. Determine user needs	1.1. Identify the different segments of the proposed network based on business requirements 1.2. Determine segment needs, using network functional analysis 1.3. Estimate traffic content and volumes based on business requirements 1.4. Develop a prioritised organisational network functional matrix

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 2.2. Analyse features of the physical environment for the effect on network design 2.3. Conduct a costing process for possible topology options 2.4. Consider topology options with reference to available resources and network functional matrix 2.5. Select and document appropriate network topology based on business requirements and functional analysis

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Use of LAN functional matrices
- Use of traffic simulation tools
- Basic traffic analysis
- Use of network protocols
- Basic skills in connecting networks and keeping cables tidy

Required knowledge

- Characteristics and relative strengths and weaknesses of LAN network topologies
- Line sharing protocols
- Scope of operation, redundancy paths, high/low-speed links, protocols, security, traffic flow patterns, traffic load, response time and reliability requirements, types of user/applications, growth projections and capacity planning, constraints (costs, queuing)
- Detailed knowledge of bridges, routers, gateways, TCP/IP, Ethernet, hubs, adaptor cards
- Basic knowledge of cabling, particularly UTP (unshielded twisted pair), STP (shielded twisted pair) or optic fibre
- Current industry-accepted hardware and software products, including broad knowledge of general features and capabilities

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	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: - Assessment must confirm the ability to clearly identify the best LAN, VPN or WLAN topology based on business or organisational needs. To demonstrate competency in this unit the learner will need access to: - Business requirements - Equipment specifications
Context of and specific resources for assessment	The breadth, depth and complexity covering planning and initiation of alternative approaches to skills or knowledge applications across a broad range of technical and/or management requirements, evaluation and coordination would be characteristic. Assessment must ensure: - self-directed application of knowledge and skills, with substantial depth in some areas where judgement is required in planning and selecting appropriate equipment, services and techniques for self and others. - Applications involve participation in development of strategic initiatives as well as personal responsibility and autonomy in performing complex technical operations or organising others. It may include participation in teams including teams concerned with planning and evaluation functions. Group or team coordination may also be involved.
Method of assessment	The purpose of this unit is to define the standard of

EVIDENCE GUIDE

	performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should to be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. • The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • ICAA5140C Design a server • ICAA5145B Identify best-fit topology for a wide area network • ICAI5172B Implement backbone technologies in a local area network • ICAI5174B Install high-end switches in multi-switched, local area networks • ICAI5176C Install and configure router • ICAS5192B Configure an internet gateway An individual demonstrating this competency would be able to:

EVIDENCE GUIDE

	• Demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas • Analyse and plan approaches to technical problems or management requirements • Transfer and apply theoretical concepts and/or technical or creative skills to a range of situations • Evaluate information, using it to forecast for planning or research purposes • Take responsibility for own outputs in relation to broad quantity and quality parameters • Take some responsibility for the achievement of group outcomes • Maintain knowledge of industry products and services

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.

<i>Traffic</i> may include:	• data • voice • video
<i>Network</i> may include but is not limited to:	• large and small local area networks (LANs) • wide area networks (WANs) • virtual private networks (VPNs) • virtual local area networks (VLANs) • wireless local area networks (WLANs) • as well as the use of the public standard telephone network (PSTN) for dial-up modems only • private lines • data

RANGE STATEMENT	
	• voice
Requirements may be in reference to:	• business • system • application • network • people in the organisation

Unit Sector(s)

Unit sector	Analyse and Design

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAA5145B Identify best-fit topology for a wide area network

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to identify the best way computers and local area networks (LANs) can be connected to make a wide area network (WAN). Options may involve the purchase of a WAN connection or service from a telecommunications provider. The following units are linked and form an appropriate cluster: • ICAA5144B Determine best fit topology for a local network • ICAA5151B Gather data to identify business requirements No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

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 WAN needs	1.1. Identify the different local area network (LAN)/wireless local area network (WLAN) or virtual private network (VPN) segments of the proposed wide area network (WAN) 1.2. Determine segment needs using functional analysis 1.3. Estimate traffic content and volumes according to expected organisational usage, by examining telecommunications infrastructure 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

ELEMENT	PERFORMANCE CRITERIA
	2.2. Consider and report how features of the physical environment affect WAN design 2.3. Choose a WAN service appropriate to the amount and type of traffic expected to access the WAN 2.4. Include redundant links in the proposed WAN connectivity for link back-up purposes, in case the main link is disrupted

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Use of functional matrices
- Use of LAN functional matrices
- Use of traffic simulation tools
- Basic traffic analysis
- Use of network protocols

Required knowledge

- Telecommunications infrastructure, including the difference between digital and analogue networks
- Modems: concepts and types
- Asynchronous and synchronous communication
- Use of microwave and satellite communication in networking
- Packet switching
- Router operations (e.g. DDR)
- TCP/IP protocols
- IP addressing
- Routing protocols (e.g. RIP, EIGRP, OSPF)
- Routed (routable) protocols (e.g. IP, IPX, AppleTalk)

General knowledge so that the learner can define the requirements covering areas such as:

- Scope of operation, redundancy paths, high/low-speed links, protocols, security, traffic flow patterns, traffic load, response time and reliability requirements, types

REQUIRED SKILLS AND KNOWLEDGE

of users/applications, growth projections and capacity planning, constraints and costs

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

Evidence of the following is essential:

- Assessment must confirm the ability to clearly identify the configuration for connecting a LAN/WLAN or VPN into a WAN, given budget constraints and business needs.

To demonstrate competency in this unit the learner will need access to:

- Design documents relating to LANs to be incorporated in the WAN
- Equipment specifications

Context of and specific resources for assessment

The breadth, depth and complexity covering planning and initiation of alternative approaches to skills or knowledge applications across a broad range of technical and/or management requirements, evaluation and coordination would be characteristic.

Assessment must ensure:

- self-directed application of knowledge and skills, with substantial depth in some areas where judgement is required in planning and selecting appropriate equipment, services and techniques for self and others.
- Applications involve participation in development of

EVIDENCE GUIDE	
	strategic initiatives as well as personal responsibility and autonomy in performing complex technical operations or organising others. It may include participation in teams including teams concerned with planning and evaluation functions. Group or team coordination may also be involved.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. - Competency in this unit should to be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. - Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: - ICAA5144B Determine best-fit topology for a local network - ICAA5151B Gather data to identify business requirements

EVIDENCE GUIDE

	An individual demonstrating this competency would be able to: • Demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas • Analyse and plan approaches to technical problems or management requirements • Transfer and apply theoretical concepts and/or technical or creative skills to a range of situations • Evaluate information, using it to forecast for planning or research purposes • Take responsibility for own outputs in relation to broad quantity and quality parameters • Take some responsibility for the achievement of group outcomes • Maintain knowledge of industry products and services

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.

<i>Resource requirements</i> includes:	• number of users • average transaction and file transfer size • type of applications using the link • nature of WAN traffic (i.e. constant, steady, flows or communication in bursts) • telecommunications links
<i>WAN service</i> may include:	• bandwidth • reliability • cost structure

RANGE STATEMENT	
<i>Telecommunications infrastructure</i>	- switched circuits (permanent virtual circuits (PVCs) and switched virtual circuits (SVCs) - leased lines - T-carriers, synchronous optical network (SONET) technologies - asymmetrical digital subscriber line (ADSL) - integrated services digital network (ISDN) - symmetrical digital subscriber line (SDSL) - high speed digital subscriber line (HDSL)
<i>Traffic</i> may include:	- data - voice - video

Unit Sector(s)

Unit sector	Analyse and Design

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAA5146B Develop website information architecture

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to develop information architecture for a complex website that meets current and future business requirements. The following unit is linked and forms an appropriate cluster: • ICAA5144B Determine best fit topology for a local network No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

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 content needs	1.1. Identify strategic intent of website from business requirements and client expectations 1.2. Develop information requirements based on the website intent, intended audiences, types of client interactions, and long- and short-term goals for the site 1.3. Identify required information and group into business schemes related to the business structure 1.4. Determine content requirements for each process
2. Plan content structure	2.1. Cluster and document information in related topics 2.2. Develop a hierarchy of information and check data to confirm sequence of hierarchy 2.3. Ensure that labels are clear, consistent, coherent and relatively intuitive for client to access
3. Develop navigation system	3.1. Build navigation system for overall website based on business requirements 3.2. Ensure ease of navigation on the site and provide different ways of searching, while providing feedback to client.

ELEMENT	PERFORMANCE CRITERIA
	3.3.Ensure the navigation system gives users the flexibility to find the information and products they want 3.4.Develop a consistent and logical labelling system, taking into account client demographics
4. Test and sign off	4.1.Construct prototype of information architecture design 4.2.Arrange for a subset of the client to test the prototype for usability to determine if architecture meets client expectations 4.3.Ensure site content will format correctly in the business and client technical environment 4.4.Adjust architecture based on client feedback 4.5.Sign off prototype to confirm current and future business requirements are met

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Website analysis
- Use of site design software and hardware
- User analysis
- Integrating on-line processes

Required knowledge

- Website architecture and business process design and linkages between processes
- Client and business liaison and understanding how e-business sites fit into corporate strategy
- Implications of technology connectivity and documentation of technical specifications

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

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

Evidence of the following is essential:

- Assessment must confirm the ability to develop the information architecture of a complex website that meets current and future business requirements.
- Assessment should confirm that users can confidently and readily access the information they require.

To demonstrate competency in this unit, the learner will need access to:

- E-business website
- Business strategy
- Client demographics documentation

Context of and specific resources for assessment

Website information forms an important function for organisations dealing with electronic transactions.

Breadth, depth and complexity involving information architecture, including identifying the technical and human computer interface aspects are important for all aspects of modern business.

The breadth, depth and complexity covering planning and initiation of alternative approaches to skills or knowledge applications across a broad range of technical and/or management requirements, evaluation and coordination would be characteristic.

Assessment must ensure:

- self-directed application of knowledge and skills, with substantial depth in some areas where judgement is required in planning and selecting appropriate equipment, services and techniques for self and others.

EVIDENCE GUIDE	
	Applications involve participation in development of strategic initiatives as well as personal responsibility and autonomy in performing complex technical operations or organising others. It may include participation in teams including teams concerned with planning and evaluation functions. Group or team coordination may also be involved.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. - Competency in this unit should to be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. - Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: ICAA5144B Determine best-fit topology for a local network

EVIDENCE GUIDE

	An individual demonstrating this competency would be able to: • Demonstrate understanding website information structures, with depth in some areas • Design across a broad range of technical functions • Generate ideas through the analysis of information • Manage website information architecture • Demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas • Analyse and plan approaches to technical problems or management requirements • Transfer and apply theoretical concepts and/or technical or creative skills to a range of situations • Evaluate information, using it to forecast for planning or research purposes • Take responsibility for own outputs in relation to broad quantity and quality parameters • Take some responsibility for the achievement of group outcomes • Maintain knowledge of industry products and services

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.

Requirements may be in reference to:

- business
- system
- application
- network
- people in the organisation

Client may include but is not

- internal departments

RANGE STATEMENT	
limited to:	• external organisations • individual people • employees
Content may include:	• information and interactive features such as product information • organisational information • copyright and disclaimer notices • site map • frequently asked questions • what's new • customer-specific information • customer-only information • error messages • instructions • feedback mechanisms • reference pages • forms • background articles • ratings/rankings/testimonials/quotes from reviews • hyperlink titles

Unit Sector(s)

Unit sector	Analyse and Design

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAA5147B Determine suitability of database functionality and scalability

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to identify current and future business requirements for a database. The following unit is linked and forms an appropriate cluster: ICAA5139B Design a database No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		
	ICAA4041C	Determine and confirm client business expectations and needs

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. Determine database functionality	1.1. Define business requirements 1.2. Confirm database objectives 1.3. Analyse database to identify the business rules, entities and relationships 1.4. Identify existing and proposed business models 1.5. Document existing database and environment 1.6. Confirm database functionality with client
2. Identify scalability and functionality requirements	2.1. Identify the reserve and long-term capacity of the database 2.2. Identify the implications for the system architecture , data models, data structures, hardware and software 2.3. Identify requirements for scalability 2.4. Compare functionality and scalability features of the database 2.5. Determine and document whether a gap between the features exists
3. Prepare database functionality and	3.1. Document functionality and scalability of database 3.2. Submit report to client for review

ELEMENT	PERFORMANCE CRITERIA
scalability report	

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Techniques to elicit information from users, particularly during the design and prototype phases
- Short- and long-term capacity planning
- Business analysis skills
- Communicating with clients
- Modelling of data processes
- Report writing

Required knowledge

- OH&S principles and responsibilities in regard to self and others
- Function and features of databases
- Data modelling
- Network architecture
- Common system hardware in relation to client/server/database architecture
- Australian Computer Society Code of Ethics

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

Critical aspects for assessment and evidence required to demonstrate

Evidence of the following is essential:

EVIDENCE GUIDE	
competency in this unit	- Assessment must confirm the ability to develop a well-structured report that represents the client's business reality and provides advice in relation to the scalability requirements and functionality of planned database. To demonstrate competency in this unit the learner will need access to: - Business requirements documentation - Business planning documentation - Documentation relating to the technical architecture
Context of and specific resources for assessment	Many applications are dependent on specific database functionality. This unit uses application of knowledge and skills, with substantial depth in some areas where judgement is required in planning and selecting appropriate equipment, services and techniques for self and others. Database applications involve participation in development of strategic initiatives, as well as personal responsibility and autonomy in performing complex technical operations or organising others. The breadth, depth and complexity covering planning and initiation of alternative approaches to skills or knowledge applications across a broad range of technical and/or management requirements, evaluation and coordination would be characteristic. Assessment must ensure: - self-directed application of knowledge and skills, with substantial depth in some areas where judgement is required in planning and selecting appropriate equipment, services and techniques for self and others. - Applications involve participation in development of strategic initiatives as well as personal responsibility and autonomy in performing complex technical operations or organising others. It may include

EVIDENCE GUIDE	
	participation in teams including teams concerned with planning and evaluation functions. Group or team coordination may also be involved.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. - Competency in this unit should to be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. - Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: - ICAA5139B Design a database An individual demonstrating this competency would be able to: - Demonstrate broad knowledge of theoretical concepts, with substantial depth in some areas - Analyse and plan approaches to technical problems

EVIDENCE GUIDE

	• Transfer and apply theoretical concepts and technical or creative skills to a range of situations • Evaluate information to plan or research database usage • Demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas • Analyse and plan approaches to technical problems or management requirements • Transfer and apply theoretical concepts and/or technical or creative skills to a range of situations • Evaluate information, using it to forecast for planning or research purposes • Take responsibility for own outputs in relation to broad quantity and quality parameters • Take some responsibility for the achievement of group outcomes • Maintain knowledge of industry products and services

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.

Objectives may include but are not limited to how and what the organisation wants to achieve in:

- work environment
- problem solution processes
- preventative maintenance and diagnostic policy
- roles and technical responsibilities in the IT department
- vendor and product service-level support agreements

Database may include but are not

- relational databases
- object-relational databases

RANGE STATEMENT	
limited to:	• proprietary databases • commercial off the shelf (COTS) database packages
Documentation may follow:	• ISO/IEC/AS standards • audit trails • naming standards • version control • project management templates • report writing principles
Client may include but are not limited to:	• internal departments • external organisations • individual people • employees
System architecture may include but is not limited to:	• Operating system: Novell NetWare 5 or above or any operating system that has multi-user ability, Linux, Mac OS, Windows 2000 or above • Database software: Oracle, Sybase, Microsoft SQL server, Ingres, DB2, Informix, mSQL, MySQL, SQL server • Configuration: small memory model, large memory model, requests per second
Hardware may include but are not limited to:	• Workstations • personal computers • modems and other connectivity devices • networks • DSL modems • remote sites • servers
Software may include but are not limited to:	• commercial • in-house • packaged or customised software
Requirements may be in reference to:	• business • system • platform • application • database • network • people in the organisation

RANGE STATEMENT***Scalability***

- May include reserve capacity and long-term capacity. In relation to databases, scalability relates to multi-tier architecture, scalable workflow architecture, database replication, distributed databases, server clustering

Unit Sector(s)**Unit sector**

Analyse and Design

Co-requisite units

Co-requisite units		

Competency field**Competency field**

ICAA5148B Select new technology models for business

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to identify opportunities for using new technology to support and enable efficient models of business. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

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 processes to be improved by the application of a new business model	1.1. Map existing process flow against relevant performance <i>standards</i> , in order to identify areas that may need improvement 1.2. Outline emerging models and processes 1.3. Identify changes in the technological, <i>client</i> and supply chain environment 1.4. Document changes identified and submit to <i>appropriate person</i> for review
2. Appraise existing models	2.1. Analyse existing business models in use by the business 2.2. Investigate business models in use in other similar businesses 2.3. Identify and determine relevance of business models in use and under development in other industry sectors 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 3.2. Evaluate opportunities against <i>business requirements</i> 3.3. Prioritise and document identified opportunities

ELEMENT	PERFORMANCE CRITERIA
4. Select the appropriate model	4.1. Select a business model that improves the business processes 4.2. Develop performance benchmarks to measure the effectiveness of the chosen business model 4.3. Model new business process or model, including collaboration with other businesses 4.4. Document the proposed business model according to business procedures 4.5. Forward appropriate document to appropriate person for sign-off

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Technical model design
- Prototyping
- Model evaluation
- Documenting benchmarking standards
- Using data obtained from modelling to support decision making
- Data gathering and analysis techniques

Required knowledge

- Website architecture
- Technical environment characteristics
- Reading and interpreting design specifications
- Environmental scanning
- Determining the impact of technological change
- Business process design
- Benchmark selection and development
- Modelling
- Value and supply chain management
- Business to business and business to customer interface and liaison
- Copyright and intellectual property
- Electronic Commerce Modelling Language

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

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

Evidence of the following is essential:

- Assessment must confirm the ability to identify new approaches to using technology or new technology to enable efficient models of business.
- Learners must be able to determine the appropriate focus of the selected business model in order to achieve the desired performance improvement.

To demonstrate competency in this unit the learner will need access to:

- Business websites
- Analysis software
- Modelling software
- Business requirements
- Current industry news, forums, lists, chat rooms, etc.
- User analysis
- Supply and value chain analysis

Context of and specific resources for assessment

The breadth, depth and complexity covering planning and initiation of alternative approaches to skills or knowledge applications across a broad range of technical and/or management requirements, evaluation and coordination would be characteristic.

Assessment must ensure:

- self-directed application of knowledge and skills, with substantial depth in some areas where judgement is required in planning and selecting appropriate equipment, services and techniques for self and others.

EVIDENCE GUIDE	
	Applications involve participation in development of strategic initiatives as well as personal responsibility and autonomy in performing complex technical operations or organising others. It may include participation in teams including teams concerned with planning and evaluation functions. Group or team coordination may also be involved.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. - Competency in this unit should to be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. - Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended An individual demonstrating this competency would be able to: Demonstrate understanding of a broad knowledge

EVIDENCE GUIDE

	base incorporating theoretical concepts, with substantial depth in some areas • Analyse and plan approaches to technical problems or management requirements • Transfer and apply theoretical concepts and/or technical or creative skills to a range of situations • Evaluate information, using it to forecast for planning or research purposes • Take responsibility for own outputs in relation to broad quantity and quality parameters • Take some responsibility for the achievement of group outcomes • Maintain knowledge of industry products and services

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.

<i>Appropriate person</i> may include:	• supervisor • teacher • authorised business representative • client
<i>Client</i> may include but is not limited to:	• internal departments • external organisations • individual people • employees
<i>Business requirements</i> may include:	• customer • supplier • payroll • inventory • tax requirements of the organisation

RANGE STATEMENT**Standards** may include:

- ISO/IEC/AS standards
- organisational standards
- project standards (for further information refer to the Standards Australia website at: www.standards.com.au)

Unit Sector(s)**Unit sector**

Analyse and Design

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAA5150C Evaluate vendor products and equipment

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to evaluate a range of vendor products and equipment against a client's business requirements. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

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. Establish business requirements	1.1. Identify and prioritise <i>business requirements</i> 1.2. Identify conflicting or overlapping <i>business requirements</i> 1.3. Specify budget and available resources 1.4. Validate <i>business requirements</i> , budget and resource needs with <i>client</i>
2. Identify vendor products and equipment	2.1. Investigate a representative range of vendor products and equipment 2.2. Identify and document interdependencies 2.3. Specify and document technical alternatives available to the business 2.4. Determine and document availability of products and equipment
3. Evaluate vendor products, services and equipment	3.1. <i>Rate</i> vendor products for quality and support 3.2. <i>Rate</i> vendor products for fit with <i>client</i> needs 3.3. Establish product limitations, performance, integration capabilities and costs 3.4. Prepare cost-benefit analysis
4. Prepare evaluation report	4.1. Document product information in order of preference 4.2. Recommend preferred product, including the

ELEMENT	PERFORMANCE CRITERIA
	reasoning behind recommendations 4.3. Prepare a report containing solution details 4.4. Submit report to client for approval

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Identification of key sources of information
- Understanding specification sheets
- Accurately summarising and documenting information
- Understanding conflicts and integration capabilities between diverse equipment
- Understanding importance and relevance of product information
- Communicating with vendors effectively
- Organising performance deviations

Required knowledge

- Relevant knowledge of current and future technical systems
- Features and function of relevant hardware components
- Features and function of relevant software products
- Interaction between relevant hardware and software products
- Broad knowledge of the client business domain (e.g. when confirming system components to acquire and agreeing on methods for acquiring components)
- Current industry-accepted hardware and software products with knowledge of general features and capabilities and detailed knowledge in some areas
- Broad knowledge of vendor product and international standards
- Copyright and intellectual property
- Australian Computer Society Code of Ethics

Evidence Guide

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

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

Evidence of the following is essential:

- Assessment must confirm the ability to evaluate a range of vendor products and equipment against a client's functional requirements.

To demonstrate competency in this unit the following resources will be needed:

- Client functional requirements
- Hardware and software specifications from vendors

Context of and specific resources for assessment

Evaluation of vendor products is critical for reducing costs, improving quality and ensuring better internal processes.

Planning and evaluation of vendor products uses skills and knowledge applications across a broad range of technical and management requirements, evaluation and coordination.

Vendor product evaluation may include participation in teams, including those concerned with planning and evaluation functions.

The breadth, depth and complexity covering planning and initiation of alternative approaches to skills or knowledge applications across a broad range of technical and/or management requirements, evaluation and coordination would be characteristic.

The demonstration of competency may also require self-directed application of knowledge and skills, with substantial depth in some areas where judgement is required in planning and selecting appropriate equipment, services and techniques for self and others.

EVIDENCE GUIDE	
	Assessment must ensure: Applications involve participation in development of strategic initiatives as well as personal responsibility and autonomy in performing complex technical operations or organising others. It may include participation in teams including teams concerned with planning and evaluation functions. Group or team coordination may also be involved.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. - Competency in this unit should to be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. - Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process.
Guidance information for assessment	The interdependence of units for assessment purposes may vary with the particular project or scenario. Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. An individual demonstrating this competency would be able to:

EVIDENCE GUIDE

	• Demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas • Analyse and plan approaches to technical problems or management requirements • Transfer and apply theoretical concepts and/or technical or creative skills to a range of situations • Evaluate information, using it to forecast for planning or research purposes • Take responsibility for own outputs in relation to broad quantity and quality parameters • Take some responsibility for the achievement of group outcomes • Maintain knowledge of industry products and services

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.

Business requirements may be in reference to:	• business • system • application • network • people in the organisation
Client may include but is not limited to:	• internal departments • external organisations • individual people • employees
Rate - this process may include:	• evaluation of customer testimonies and support documents
Solution may include but is not limited to:	• new hardware • hardware upgrades

RANGE STATEMENT	
	• new software • software upgrades • user training • implementing a new system
Standards may include:	• ISO/IEC/IEEE/IETF/ITU/AS standards • organisational standards • project standards

Unit Sector(s)

Unit sector	Analyse and Design

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAA5151B Gather data to identify business requirements

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to identify, analyse and document business requirements. The following units are linked and form an appropriate cluster: • ICAA5050B Develop detailed component specifications from project specifications • ICAA5139B Design a database • ICAA5140C Design a server No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		
	ICAA4041C	Determine and confirm client business expectations and needs

Prerequisite units		
	ICAA4233B	Determine and apply appropriate development methodologies

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 key information sources	1.1. Identify information repositories across the business 1.2. Review current organisational documentation 1.3. Develop critical questions to elicit information from key stakeholders using a mixture of open and closed questions 1.4. Ensure information gathering techniques use a quality assurance methodology and meet budgetary constraints
2. Gather data through formal processes	2.1. Conduct information gathering workshops and interviews to gather data 2.2. Review reports and other data sources for relevant business information 2.3. Confirm business-critical factors relating to current and future directions of the organisation with

ELEMENT	PERFORMANCE CRITERIA
	<i>stakeholders</i> 2.4. Analyse group and individual responses to clearly define business priorities
3. Ensure analysis is accurate and complete	3.1. Analyse and evaluate information gathered for accuracy and consistency 3.2. Document conflicts in information gathered 3.3. Resolve conflicts in information or points of view with <i>stakeholders</i>
4. Submit analysis and gain agreement	4.1. Prepare detailed document according to <i>documentation standards</i> and organisational templates 4.2. Write document in a style that is succinct and appropriate to the audience 4.3. Communicate data gathered to <i>client</i> to gain consensus and agreement on business requirements

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Problem solving skills for a defined range of unpredictable problems involving participation in the development of strategic initiatives (e.g. when conflicting information is investigated and a single position is developed)
- Group facilitation and presentation skills in relation to transferring and collecting information and gaining consensus on concepts (e.g. when consensus is gained with key client users subject to project brief and cost constraints)
- Project planning skills in relation to scope, time, cost, quality, communications and risk management (e.g. when system boundaries, scope and methodologies to be used are determined and all functional areas included by the project brief are covered in the analysis and meet the client's stated business expectations)
- Research skills for specifying, analysing and evaluating broad features of a particular business domain and best practice in system development (e.g. when specifying the context of the business need or problem)

Required knowledge

- Broad knowledge of the client business domain, so that the business need is

REQUIRED SKILLS AND KNOWLEDGE

- understood by project team and client
- Broad knowledge of three or more current industry systems development methodologies
 - Current industry-accepted hardware and software products, including broad knowledge of general features and capabilities
 - Broad knowledge of the role of stakeholders and the degree of stakeholder involvement (e.g. when specifying people (especially the owner, sponsor and those that will contribute to defining the requirements and using the system), and roles of client users are identified)
 - Detailed knowledge of the system's current functionality (e.g. when specifying physical requirements of the system are identified taking into account current system functionality, geography, environment, client user and cost constraints)
 - Broad knowledge of quality assurance practices (e.g. when planning the requirements phase)

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

Evidence of the following is essential:

- Assessment must confirm the ability to accurately and clearly document business requirements based on business strategy current and future directions. A consensus position needs to be facilitated amongst client stakeholders where different points of view exist.

To demonstrate competency in this unit the learner will need access to:

- Project brief
- Business documentation

Context of and specific resources for assessment

The breadth, depth and complexity covering planning and initiation of alternative approaches to skills or

EVIDENCE GUIDE	
	knowledge applications across a broad range of technical and/or management requirements, evaluation and coordination would be characteristic. Assessment must ensure: • self-directed application of knowledge and skills, with substantial depth in some areas where judgement is required in planning and selecting appropriate equipment, services and techniques for self and others. • Applications involve participation in development of strategic initiatives as well as personal responsibility and autonomy in performing complex technical operations or organising others. It may include participation in teams including teams concerned with planning and evaluation functions. Group or team coordination may also be involved.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment

EVIDENCE GUIDE	
	purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended for example: • ICAA5050B Develop detailed component specifications from project specifications • ICAA5139B Design a database • ICAA5140C Design a server An individual demonstrating this competency would be able to: • Demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas • Analyse and plan approaches to technical problems or management requirements • Transfer and apply theoretical concepts and/or technical or creative skills to a range of situations • Evaluate information, using it to forecast for planning or research purposes • Take responsibility for own outputs in relation to broad quantity and quality parameters • Take some responsibility for the achievement of group outcomes • Maintain knowledge of industry products and services

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.

RANGE STATEMENT	
Organisational documentation may include:	• business forms • policy documents • financial statements • performance reports • annual reports
Information gathering techniques may include but are not limited to:	• interviews • questionnaires • surveys • observation
Stakeholders may include:	• sponsor • user • development team • project team
Client may include but are not limited to:	• internal departments • external organisations • individual people • employees
Documentation standards	• May include but are not restricted to policy relating to sign-off, storage, distribution, revision • Standards may include ISO/IEC/AS standards, organisational standards, project standards (for further information refer to the Standards Australia website at: www.standards.com.au) • May include tools for documenting (e.g. word processing packages, desktop publishing packages)
Business-critical factors may include:	• response times • scalability • traffic • data knowledge and management • security • customer demographics • customer confidence • expectations

Unit Sector(s)

Unit sector	Analyse and Design

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAA5153B Model data objects

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to understand business operations, identify entities and data, diagrammatically represent their relationships and prepare a data model. The following unit is linked and forms an appropriate cluster: ICAA5154B Model data processes No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

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 entities and relationships	1.1. Analyse business data to understand operations 1.2. Identify boundaries of the <i>system</i> 1.3. Identify <i>entities</i> , attributes, <i>data types</i> and <i>relationships</i> of data 1.4. Review business rules to determine impact 1.5. Document relationships in an entity relationship diagram
2. Develop normalisation	2.1. Identify suitable business data 2.2. Undertake normalisation of business data and document results 2.3. Compare normalisation results with entity relationship diagram 2.4. Reconcile differences between data, if any
3. Validate model	3.1. Validate data model with <i>client</i> 3.2. Resolve issues or recommendations arising 3.3. Document completed data model 3.4. Submit to <i>client</i> for final approval

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Data modelling
- Transferring customer requirements into data model
- Developing entity-relationship models in tables
- Relating identifier selection to business domain
- Relating user specifications to data model

Required knowledge

- Particular business or domain
- Validation procedures and processes
- Function and features of an approach to data modelling (e.g. the entity-relationship model)
- Database identifiers and their impact on database usability
- Function and features of user-defined types, structured types, reference types and user-defined functions
- Type hierarchies (e.g. sub types, super types, root types with reference to the development of structured data types)
- Features and function of keys (e.g. unique keys, composite keys, primary keys and primary index)
- Features and function of time stamps in relation to the use of keys
- Normalisation rules and processes

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

EVIDENCE GUIDE	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: - Assessment must confirm the ability to model valid data objects and normalise the model. To demonstrate competency in this unit the learner will need access to: - Client business requirements - Database software
Context of and specific resources for assessment	The breadth, depth and complexity covering planning and initiation of alternative approaches to skills or knowledge applications across a broad range of technical and/or management requirements, evaluation and coordination would be characteristic. Assessment must ensure: - self-directed application of knowledge and skills, with substantial depth in some areas where judgement is required in planning and selecting appropriate equipment, services and techniques for self and others. - Applications involve participation in development of strategic initiatives as well as personal responsibility and autonomy in performing complex technical operations or organising others. It may include participation in teams including teams concerned with planning and evaluation functions. Group or team coordination may also be involved.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. Competency in this unit should to be assessed using summative assessment to ensure consistency of

EVIDENCE GUIDE	
	performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: - ICAA5154B Model data processes An individual demonstrating this competency would be able to: - Demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas - Analyse and plan approaches to technical problems or management requirements - Transfer and apply theoretical concepts and/or technical or creative skills to a range of situations - Evaluate information, using it to forecast for planning or research purposes - Take responsibility for own outputs in relation to broad quantity and quality parameters - Take some responsibility for the achievement of group outcomes - Maintain knowledge of industry products and services

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.	
<i>System</i> may include but is not limited to:	• databases • applications • servers • operating systems • gateways • application service provider • ISP
<i>Entities</i> may include:	• person • object • concept
<i>Relationships</i> may include:	• one-to-many • many-to-one • many-to-many • one-to-one
<i>Data types</i> may include the following categories:	• numeric • character string • double-byte (or graphic) character string • date-time and binary string • large Object (LOB), binary large object (BLOB) • character large object (CLOB), double-byte character large object (DBCLOB) • user-defined type (UDT) • structured types and reference types

Unit Sector(s)

Unit sector	Analyse and Design

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAA5154B Model data processes

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to gather process data and business information in order to model data processes within an organisation. The following unit is linked and forms an appropriate cluster: • ICAA5153B Model data objects No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

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. Develop scope of model	1.1. Identify relevant data processes and sources of information 1.2. Identify information gathering method and modelling methodology to be used 1.3. Document the modelling information gathered 1.4. Validate modelling information with client
2. Gather process data	2.1. Identify business functions and collect process data using chosen method 2.2. Identify external events, procedures and results 2.3. Identify processes and decomposition required
3. Develop and validate data model	3.1. Model process data according to agreed modelling methodology 3.2. Validate process model with client to determine inaccuracies 3.3. Incorporate identified changes, as required 3.4. Review business rules to determine impact on process models, and change as required 3.5. Validate completed data models with client

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Analysis skills to determine business requirements
- Techniques to elicit information from users
- Skills in process modelling using relevant methodologies, including object-oriented cooperative process modelling, OIKOS, SOCCA

Required knowledge

- Logical design concepts, particularly in relation to designing process models
- Data analysis, particularly in determining process flows
- Features and functions of process mappers (e.g. IEF, Isee, ProcessWise Workbench, ARIS, PROTOS)
- Modelling rules and conventions with reference to naming processes and events

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

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

Evidence of the following is essential:

- Assessment must confirm the ability to identify and model data processes that represent the client's business reality and provide the user with a productive business tool.

To demonstrate competency in this unit the learner will need access to:

- Client business requirements
- Database software

EVIDENCE GUIDE**Context of and specific resources for assessment**

The breadth, depth and complexity covering planning and initiation of alternative approaches to skills or knowledge applications across a broad range of technical and/or management requirements, evaluation and coordination would be characteristic.

Assessment must ensure:

- self-directed application of knowledge and skills, with substantial depth in some areas where judgement is required in planning and selecting appropriate equipment, services and techniques for self and others.
- Applications involve participation in development of strategic initiatives as well as personal responsibility and autonomy in performing complex technical operations or organising others. It may include participation in teams including teams concerned with planning and evaluation functions. Group or team coordination may also be involved.

Method of assessment

The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1.

- Competency in this unit should to be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency.
- Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate

EVIDENCE GUIDE	
	may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: - ICAA5153B Model data objects An individual demonstrating this competency would be able to: - Demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas - Analyse and plan approaches to technical problems or management requirements - Transfer and apply theoretical concepts and/or technical or creative skills to a range of situations - Evaluate information, using it to forecast for planning or research purposes - Take responsibility for own outputs in relation to broad quantity and quality parameters - Take some responsibility for the achievement of group outcomes - Maintain knowledge of industry products and services

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.	
<i>Information gathering method</i>	- interviews - questionnaires

RANGE STATEMENT	
may include but is not limited to:	• surveys • observation
Modelling may include:	• activity hierarchy diagrams (process diagrams) • activity definition report (process definition) • activity dependency diagram • use case diagrams • data flow diagrams
Client may include but is not limited to:	• internal departments • external organisations • individual people • employees

Unit Sector(s)

Unit sector	Analyse and Design

Co-requisite units

Co-requisite units	

Competency field

Competency field	

ICAA5156B Review and plan to minimise risk to business solutions

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to identify and plan to minimise the financial and technological risks facing business solutions utilising new technologies. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

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. Establish the risk context	1.1. Review organisational and technical environment and proposed business <i>solution</i> 1.2. Identify scale, importance and complexity of project risks 1.3. Establish acceptable and unacceptable levels of risk and consequences for the <i>solution</i> 1.4. Identify the impact of risks against the business environment 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 2.2. Rank risk factors according to the impact and likelihood of occurrence 2.3. Develop <i>contingency plans</i> to mitigate identified risks 2.4. Document risk analysis and contingencies in a <i>risk management plan</i> 2.5. Implement <i>risk management plans</i> and undertake awareness training to inform relevant <i>stakeholders</i>
3. Monitor risks	3.1. Establish feedback channels to warn of unforeseen and identified risks

ELEMENT	PERFORMANCE CRITERIA
	3.2. Conduct regular reviews to identify new risks and update established risks 3.3. Document changes to <i>risk management plans</i> as appropriate

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- File transfer
- Technology transfer
- Information architecture
- Use of site design software and hardware
- Project management

Required knowledge

- Technology updating guidelines
- Business process design; maintaining and administering a site; understanding how business sites fit into corporate strategy
- Policy writing and dissemination
- Documenting technical specifications
- Business supply chain
- User analysis and the CRM
- Copyright and intellectual property

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.

EVIDENCE GUIDE	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: - Assessment must confirm the ability to develop procedures that identify where risk occurs and what measures need to be taken to treat the risk, and may include managing those factors that may have an adverse effect on an external party such as a business website user or supplier. To demonstrate competency in this unit the learner will need access to: - Web servers - Business website - Site server - Site servers software - Analysis software - Requirements documentation - Customer relationship model (CRM) - User analysis - Updated or new technology
Context of and specific resources for assessment	The breadth, depth and complexity covering planning and initiation of alternative approaches to skills or knowledge applications across a broad range of technical and/or management requirements, evaluation and coordination would be characteristic. Assessment must ensure: - self-directed application of knowledge and skills, with substantial depth in some areas where judgement is required in planning and selecting appropriate equipment, services and techniques for self and others. - Applications involve participation in development of strategic initiatives as well as personal responsibility and autonomy in performing complex technical operations or organising others. It may include participation in teams including teams concerned with planning and evaluation functions. Group or

EVIDENCE GUIDE	
	team coordination may also be involved.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. - Competency in this unit should to be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. - Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended An individual demonstrating this competency would be able to: - Demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas - Analyse and plan approaches to technical problems or management requirements - Transfer and apply theoretical concepts and/or technical or creative skills to a range of situations - Evaluate information, using it to forecast for planning

EVIDENCE GUIDE

	or research purposes • Take responsibility for own outputs in relation to broad quantity and quality parameters • Take some responsibility for the achievement of group outcomes • Maintain knowledge of industry products and services

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.

<i>Solution</i> may include but is not limited to:	• new hardware • hardware upgrades • new software • software upgrades • user training • implementing a new system
<i>Stakeholders</i> may include:	• sponsor • user • development team • project team
<i>Contingency plans</i> may vary in format and content detail, but will typically:	• Identify weaknesses and provide for the implementation of a disaster prevention program • Minimise disruption to business operations • Provide a coordinated approach to the disaster recovery process
<i>Risk management plans</i>	• May include potential risk events, preferred and alternative risk management strategies and actions, formal arrangements, responsibility assignment, contingency plans and assigned risk responsibilities

RANGE STATEMENT	
	Insuring against risk may include transferring risk to external technicians or ensuring that indemnity insurance is valid and appropriate to the situation

Unit Sector(s)

Unit sector	Analyse and Design

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAA5158B Translate business needs into technical requirements

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to identify the needs of a business or business process and quantify those needs into technical requirements that will enable the business or process to meet expectation. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		
	ICAA4233B	Determine and apply appropriate development methodologies

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. Compile business needs	1.1. Clarify the business <i>problem</i> and confirm information with <i>stakeholders</i> 1.2. Identify the vision, strategic mission and objectives of the business or business process 1.3. Identify key <i>stakeholders</i> and their <i>requirements</i> 1.4. Document business objectives and <i>problem</i> and confirm details with <i>appropriate person</i>
2. Determine technical requirements	2.1. Review and assess business <i>problems</i>, opportunities and objectives 2.2. Identify <i>technical requirements</i> in respect of input/output, interface, process flow or quality requirements 2.3. Develop business <i>solutions</i> in response to <i>problems</i> and <i>technical requirements</i> as identified 2.4. Investigate a range of supplier products to determine which one best meets <i>technical requirements</i> 2.5. Document results and make recommendations against business <i>requirements</i>
3. Secure signoff for technical requirements and solutions	3.1. Forward <i>technical requirements</i> and <i>solution</i> overview to <i>appropriate person</i> for feedback 3.2. Analyse feedback and incorporate change as required

ELEMENT	PERFORMANCE CRITERIA
	3.3.Document changes and distribute to <i>appropriate person</i>

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Website analysis
- Information architecture
- Use of site design software and hardware
- User and supplier analysis
- Organisational analysis

Required knowledge

- Website architecture
- Business process design
- Customer and business liaison
- E-business solutions and corporate strategy
- Implications of technology connectivity
- Documenting technical specifications
- Benchmarking
- Electronic Commerce Modelling Language

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

EVIDENCE GUIDE	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: • Assessment must confirm the ability to understand a business 's needs and categorise them as input, output, interfaces, flow and measurement technical requirements that enable the technology to be further developed into a business solution. • An effective set of requirements takes into account current and future technical needs where change is foreseeable. To demonstrate competency in this unit the learner will need access to: • Business current needs • Project requirements • A client expectations brief • Business objectives • Information on a range of IT business solutions • E-business model • Customer relationship model (CRM)
Context of and specific resources for assessment	The breadth, depth and complexity covering planning and initiation of alternative approaches to skills or knowledge applications across a broad range of technical and/or management requirements, evaluation and coordination would be characteristic. Assessment must ensure: • self-directed application of knowledge and skills, with substantial depth in some areas where judgement is required in planning and selecting appropriate equipment, services and techniques for self and others. • Applications involve participation in development of strategic initiatives as well as personal responsibility and autonomy in performing complex technical operations or organising others. It may include participation in teams including teams concerned with planning and evaluation functions. Group or team coordination may also be involved

EVIDENCE GUIDE	
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should to be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended An individual demonstrating this competency would be able to: • Demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas • Analyse and plan approaches to technical problems or management requirements • Transfer and apply theoretical concepts and/or technical or creative skills to a range of situations • Evaluate information, using it to forecast for planning or research purposes

EVIDENCE GUIDE

	• Take responsibility for own outputs in relation to broad quantity and quality parameters • Take some responsibility for the achievement of group outcomes • Maintain knowledge of industry products and services

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.

Stakeholders may include:	• sponsor • user • development team • project team
Requirements may be in reference to:	• business • system • platform • application • database • network • people in the organisation
Problem may be in reference to:	• business • system • application • network or people in the organisation; there may be a business need or opportunity that needs to be addressed
Technical requirements may be in reference to:	• business • system • platform • application

RANGE STATEMENT	
	• database • network • people in the organisation
<i>Solution</i> may include but is not limited to:	• new hardware • hardware upgrades • new software • software upgrades • user training • implementing a new system • changes to network infrastructure • changes to security or privacy provisions • quality requirements • OH&S requirements • audit requirements • inventory management • an e-business/e-commerce solution
<i>Appropriate person</i> may include:	• supervisor • teacher • authorised business representative • client

Unit Sector(s)

Unit sector	Analyse and Design

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAA5241C Design an enterprise wireless local area network

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to conduct a site survey and design a complex wireless local area network (LAN). No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

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. Document current network configuration	1.1. Obtain details of current network layout and parameters 1.2. Hold consultations with key stakeholders 1.3. Document the current network
2. Research client needs	2.1. Identify the client's current needs 2.2. Determine future needs 2.3. Document current and future needs
3. Implement site survey	3.1. Select the appropriate diagnostic tools 3.2. Undertake site survey with minimum disruption to client 3.3. Record physical and other issues that will impact on future network performance
4. Develop specifications for upgrade of wireless network	4.1. Document the current network performance equipment and capacity for the expanded network 4.2. Assess interference issues relating to existing radio frequency, topographic barriers, climate, obstacles, transmission distances and construction materials 4.3. Assess optimum location and position of access points, repeaters, routers and other equipment 4.4. Develop cabling plans and repeater links including power requirements

ELEMENT	PERFORMANCE CRITERIA
	4.5.Determine frequency to be used based upon <i>client</i> and <i>user</i> requirements

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- The design, development and implementation of various wireless network solutions
- Ability to implement wireless networking strategies and configure wireless network software and hardware
- Implementing LAN
- Cost-benefit comparison
- Analysing wireless network performance
- Producing wireless network designs

Required knowledge

- Security threats
- Network protocols and operating systems
- Security protocols, standards and data encryption
- Factor affecting signal quality
- Wireless topologies
- Wireless security strategies
- SOHO and enterprise LANs
- Layer 2 and layer 3 design issues
- Bandwidth and quality of service
- WLAN and WMAN solutions
- TCP/IP protocols and applications
- Auditing and penetration testing techniques
- Audit and intrusion detection systems

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	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: - Assessment must confirm the ability to assess wireless network performance and produce wireless network designs. To demonstrate competency in this unit the following resources will be needed: - Network technical requirements - Real or simulated wireless networks - Network infrastructure, including wireless hardware and software
Context of and specific resources for assessment	The breadth, depth and complexity covering planning and initiation of alternative approaches to skills or knowledge applications across a broad range of technical and/or management requirements, evaluation and coordination would be characteristic. The demonstration of competency may also require self-directed application of knowledge and skills, with substantial depth in some areas where judgement is required in planning and selecting appropriate equipment, services and techniques for self and others. Assessment must ensure: Applications involve participation in development of strategic initiatives as well as personal responsibility and autonomy in performing complex technical operations or organising others. It may include participation in teams including teams concerned with planning and evaluation functions. Group or team coordination may also be involved.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In

EVIDENCE GUIDE

	undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should to be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process.
Guidance information for assessment	The interdependence of units for assessment purposes may vary with the particular project or scenario. Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended An individual demonstrating this competency would be able to: • Demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas • Analyse and plan approaches to technical problems or management requirements • Transfer and apply theoretical concepts and/or technical or creative skills to a range of situations • Evaluate information, using it to forecast for planning or research purposes • Take responsibility for own outputs in relation to broad quantity and quality parameters • Take some responsibility for the achievement of

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	- group outcomes • Maintain knowledge of industry products and services

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.

Networks may include:

- domestic
- small
- medium
- large enterprise WLANs

Network layout and parameters may include:

- cabled connected single zone
- multiple zone
- stand-alone multi-zone wireless networks
- indoor and outdoor installations
- satellite connections
- carrier links
- LMDS
- MMDS
- Free Space Optics

Client may include but is not limited to:

- internal departments
- external organisations
- clubs
- communities
- individual people
- internal employees

Documentation may follow:

- ISO/IEC/AS standards
- audit trails
- naming standards
- version control
- project management templates and report

RANGE STATEMENT	
	- writing - maintaining equipment inventory - client training - satisfaction reports
Tools may include but are not limited to:	- modeling tools for network performance software - data and voice integration measurements - frequency and spectrum analysers - cable testing - equipment testing - carrier connection tests - power meters - radiation meter
Site survey may include but is not limited to:	- building plans - physical inspection - satellite mapping - indoor propagation analysis - path loss measurements - GPS measurements
Cabling may include but is not limited to:	Category 5e, 6, 7 coaxial and fibre
User may include:	- a person within a department - a department within the organisation - community members - a third party
Organisational requirements may include but is not limited to:	- how and what the organisation wants in regard to work environment - problem solution processes - preventative maintenance and diagnostic policy - roles and technical responsibilities in network management - vendor and product service-level support agreements
Security may include but is not limited to:	- IPSec - SSL - PKM - LEAP - WEP

RANGE STATEMENT

	• WPA • AAA • Diameter • tokens • smart cards

Unit Sector(s)

Unit sector	Analyse and Design

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAA5245A Evaluate RFID systems

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required for evaluating RFID systems against a client's business requirements. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		
	ICAA4041C	Determine and confirm client business expectations and needs
	ICAD4217B	Create technical documentation

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. Establish business requirements	1.1. Identify and prioritise business requirements 1.2. Identify conflicting or overlapping business requirements 1.3. Specify budget and available resources 1.4. Validate business requirements , budget and resource needs with client
2. Research RFID technology	2.1. Describe RFID technologies and its functionality 2.2. Identify market drivers for RFID 2.3. Describe typical RFID implementations
3. Evaluate the impact of RFID technology on the business	3.1. Investigate the benefits of RFID to the organisation and customers, including new business opportunities 3.2. Investigate the impact of RFID on business processes 3.3. Identify business functions that benefit from implementing RFID
4. Determine RFID industry compliance requirements	4.1. Research the roles of key stakeholders in developing industry standards 4.2. Describe the different implementations of RFID
5. Prepare evaluation report	5.1. Recommend preferred product, including the reasoning behind recommendations 5.2. Prepare a report containing solution details

ELEMENT	PERFORMANCE CRITERIA
	5.3. Submit report to client for approval

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Identification of key sources of information
- Understanding specification sheets
- Accurately summarising and documenting information
- Understanding conflicts and integration capabilities between diverse equipment
- Understanding importance and relevance of product information
- Communicating with vendors effectively
- Problem solving skills for a defined range of unpredictable problems involving participation in the development of strategic initiatives
- Plain English literacy and communication skills in relation to analysis, evaluation and presentation of information
- Teamwork skills involving the contribution to solutions and goals of a non-routine or contingency nature
- Negotiation skills in relation to other team members and applied to a defined range of predictable problems
- Report writing skills requiring depth in some areas
- Change management skills in relation to maintaining the continuity of IT operations and business functions
- Customer service skills in relation to reviewing change procedures
- Skills in handling difficult clients in relation to reviewing change procedures
- Conflict resolution skills in relation to reviewing change procedures
- Risk analysis skills in relation to reviewing change procedures

Required knowledge

- Knowledge of RFID hardware and software
- Network protocols and operating systems
- Security protocols, standards and data encryption
- Knowledge about the radio spectrum and RFID frequencies
- Vendor product knowledge
- Knowledge about RF interference
- Wireless topologies

REQUIRED SKILLS AND KNOWLEDGE

- Use of protocol and frequency analysers
- Relevant knowledge of current and future technical systems
- Features and function of relevant hardware components
- Features and function of relevant software products
- Interaction between relevant hardware and software products
- Broad knowledge of the client business domain (e.g. when confirming system components to acquire and agreeing on methods for acquiring components)
- Current industry-accepted hardware and software products with knowledge of general features and capabilities and detailed knowledge in some areas
- Broad knowledge of vendor product directions
- Broad knowledge of help desk and maintenance practices
- Current industry-accepted hardware and software products, with broad knowledge of general features and capabilities and detailed knowledge in some areas
- Broad understanding of the role and level of stakeholder involvement
- Broad general knowledge of the client business domain
- Detailed knowledge of the system's current functionality
- Broad knowledge of quality assurance practices
- One or more change management tools
- Broad knowledge of system testing
- Broad knowledge of change control procedures
- Detailed knowledge of the system under evaluation
- Broad knowledge of capacity planning.

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

Evidence of the following is essential:

- Assessment must confirm the ability to conduct research and discuss various RFID standards and their applications to various business processes.
- Assessment must confirm the ability to examine and discuss examples of different implementation

EVIDENCE GUIDE	
	strategies using case studies.
Context of and specific resources for assessment	Evaluation of vendor products is critical for reducing costs, improving quality and ensuring better internal processes. Planning and evaluation of vendor products uses skills and knowledge applications across a broad range of technical and management requirements, evaluation and coordination. Vendor product evaluation may include participation in teams, including those concerned with planning and evaluation functions. The breadth, depth and complexity covering planning and initiation of alternative approaches to skills or knowledge applications across a broad range of technical and/or management requirements, evaluation and coordination would be characteristic. Assessment must ensure: • self-directed application of knowledge and skills, with substantial depth in some areas where judgement is required in planning and selecting appropriate equipment, services and techniques for self and others. • Applications involve participation in development of strategic initiatives as well as personal responsibility and autonomy in performing complex technical operations or organising others. It may include participation in teams including teams concerned with planning and evaluation functions. Group or team coordination may also be involved. To demonstrate competency in this unit the person will require access to: • Client functional requirements • RFID equipment specifications • Conversion tools • Database software • Organisational guidelines

EVIDENCE GUIDE	
	• Networked computers •
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. The following assessment method is appropriate for this unit: • Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • The assessment of this unit of competency will usually include observation and research of existing RFID technologies and their impact on various business scenarios.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. An individual demonstrating this competency would be able to: • Demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas • Analyse and plan approaches to technical problems or management requirements • Transfer and apply theoretical concepts and/or technical or creative skills to a range of situations • Evaluate information, using it to forecast for planning or research purposes

EVIDENCE GUIDE

	• Take responsibility for own outputs in relation to broad quantity and quality parameters • Take some responsibility for the achievement of group outcomes • Maintain knowledge of industry products and services

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.

Business requirements may include:	• the business • system • application • network • people in the organisation
RFID technologies may include:	• RFID and networking tools and equipment • RFID interrogators/readers and tags • Servers and workstations
Key stakeholders may include:	• EPCGlobal • Auto-ID Center for industry standards • ISO
Industry standards may include:	• technical • vertical • regional
Solutions may include:	• new hardware • hardware upgrades • new software • software upgrades • user training • implementing a new system

Unit Sector(s)

Unit sector	Analysis and Design

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAA5246A Design an RFID implementation

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required for designing an RFID system implementation. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		
	ICAA4041C	Determine and confirm client business expectations and needs
	ICAD4217B	Create technical documentation

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. Analyse client requirements to produce a project specification	1.1. Identify business requirements , audit site and identify hardware and software requirements 1.2. Define software and hardware types to ensure that the proposed system is designed to meet business requirements 1.3. Produce a request for tender (RFT) document related to required RFID technologies
2. Select appropriate interrogators/readers	2.1. Conduct a survey of available interrogators/readers 2.2. Ensure compatibility with current network infrastructure 2.3. Select the most appropriate interrogator/readers for the given specification
3. Design appropriate interrogator/reader zones	3.1. Identify and minimise interrogator to interrogator interference 3.2. Select multiple interrogators/readers if appropriate to optimise system performance 3.3. Ensure antenna geometry and footprint are consistent with the chosen design 3.4. Identify and minimise sources of interference 3.5. Incorporate into the design the use of anti-collision protocols
4. Select an appropriate	4.1. Select and customise appropriate tag to client

ELEMENT	PERFORMANCE CRITERIA
tag	requirements, including memory size, security and encryption requirements 4.2. Predict the performance for read distance, write distance and tag response time to confirm that these conform with client requirements 4.3. Select the optimal locations for an RFID tag to be placed on an item
5. Document the design	5.1. Complete documentation according to client requirements 5.2. Ensure that client is informed about standards applying to the design

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Report writing skills
- Working in teams
- Business analysis
- Planning and designing RFID systems
- Performance analysis at the system and component level
- Basic cost-benefit comparisons (including return on investment (ROI) and total cost of ownership (TCO) in relation to applications, installation design
- Product analysis
- The use of tools for measuring (e.g. generic benchmarks, software sizing models, workload testing, performance monitoring)

Required knowledge

- Knowledge of radio spectrum and RFID frequencies
- Knowledge about RF interference
- RFID vendor product knowledge
- Business domain
- A knowledge of RFID hardware and software
- Network protocols and operating systems
- Security protocols, standards and data encryption
- RFID architecture

REQUIRED SKILLS AND KNOWLEDGE

- Business process design
- Linkage between processes
- Customer and business liaison
- RFID and corporate strategy
- Implications of technology connectivity

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

Evidence of the following is essential:

- Requirement analysis
- Preparation of a request for information from vendors
- Evaluation of vendor products
- Preparation of a tender final design
- Survey of vendor equipment with recommendations for requested application
- Diagram showing location, type and positioning of interrogators/readers
- Documentation on type of antenna and reason for choice

Context of and specific resources for assessment

The breadth, depth and complexity covering planning and initiation of alternative approaches to skills or knowledge applications across a broad range of technical and/or management requirements, evaluation and coordination would be characteristic.

The demonstration of competency may also require self-directed application of knowledge and skills, with substantial depth in some areas where judgement is required in planning and selecting appropriate equipment, services and techniques for self and others.

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	Applications involve participation in development of strategic initiatives as well as personal responsibility and autonomy in performing complex technical operations or organising others. It may include participation in teams including teams concerned with planning and evaluation functions. Group or team coordination may also be involved. To demonstrate competency in this unit the person will require access to: • client functional requirements • RFID equipment specifications • database software • organisational guidelines • network/computer layout documentation and premises plans
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. The following assessment method is appropriate for this unit: • Competency in this unit should to be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment

EVIDENCE GUIDE	
	process. The interdependence of units for assessment purposes may vary with the particular project or scenario. The assessment of this unit of competency will usually include observation and research of existing RFID technologies and their impact on various business scenarios.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. An individual demonstrating this competency would be able to: - Demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas - Analyse and plan approaches to technical problems or management requirements - Transfer and apply theoretical concepts and/or technical or creative skills to a range of situations - Evaluate information, using it to forecast for planning or research purposes - Take responsibility for own outputs in relation to broad quantity and quality parameters - Take some responsibility for the achievement of group outcomes - Maintain knowledge of industry products and services

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.	
Business requirements may	the business

RANGE STATEMENT	
include:	• system • application • network or people in the organisation
RFID technologies may include:	• RFID and networking tools and equipment • RFID interrogators/readers and tags • servers and workstations
Design may include:	• new hardware • hardware upgrades • new software • software upgrades • user training • implementing a new system
Tag to client requirements may include:	• memory size • security • encryption requirements
Optimal locations may include:	• media and adhesive selection for tags • tag orientation and location • tag stacking (shadowing) • package contents • packaging: • items • tags • labels • inserts • product to attach to: • liquids • metal • polarisation

Unit Sector(s)

Unit sector	Analyse and Design

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAA6052B Design an IT security framework

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to evaluate IT security requirements for a new system and to plan for controls and contingencies. The following unit is linked and forms an appropriate cluster: • ICAA6053B Design system security and controls No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		
	ICAA4041C	Determine and confirm client business expectations and needs

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. Research IT security requirements	1.1. Investigate and assemble relevant statutory, commercial and application <i>security requirements</i> 1.2. Assess impact on the existing IT system 1.3. Identify additional IT <i>security requirements</i> 1.4. Document <i>security requirements</i> and forward to <i>appropriate person</i> for approval
2. Conduct risk analysis	2.1. Identify <i>security threats</i> and determine security specifications, taking into consideration the internal and external business environment 2.2. Develop controls and contingencies to alleviate <i>security threats</i> 2.3. Identify the costs associated with contingencies 2.4. Document and forward recommendations to <i>appropriate person</i> for approval
3. Develop IT security policy and operational procedures	3.1. Review feedback from <i>appropriate person</i> to ascertain how to manage <i>security threats</i> 3.2. Develop <i>security policies</i> based on the <i>security strategy</i>

ELEMENT	PERFORMANCE CRITERIA
	3.3. Create and document work procedures based on the security policies 3.4. Document operating procedures and forward to appropriate person for approval 3.5. Take action to ensure confidentiality of client and/or user information 3.6. Apply statutory requirements to policy and procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Researching skills related to security
- Ability to articulate complex security scenarios in a clear concise manner relevant to all levels of the organisation
- Skills in relation to analysis, evaluation and presentation of information
- Group facilitation and presentation skills in relation to transferring and collecting information

Required knowledge

- Current industry-accepted hardware and software products, including broad knowledge of security features and capabilities
- Accurate and in-depth knowledge of the client business domain
- Broad general knowledge of privacy issues and legislation (e.g. when integrating legal requirements with IT security)
- Risk analysis relating to IT security, including broad knowledge of general security issues incorporating substantial depth in some areas
- Detailed knowledge of operating systems, including strengths and weaknesses over lifetime of product
- Awareness of legislation relating to IT security

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

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

Evidence of the following is essential:

- Assessment must confirm sufficient knowledge of the basic elements of legal obligations with respect to privacy and the specific application of security issues.
- Assessment must confirm the ability to incorporate common security products and procedures into a security design.

To demonstrate competency in this unit the following resources will be needed:

- IT business specifications
- Information on the security environment including relevant laws/legislation, existing organisational security policies, organisational expertise and knowledge
- Possible security environment also includes the threats to security that are, or are held to be, present in the environment
- Risk analysis tools/methodologies
- IT security assurance specifications

Context of and specific resources for assessment

The breadth, depth and complexity involving analysis, design, planning, execution and evaluation across a range of technical and/or management functions including development of new criteria or applications or knowledge or procedures would be characteristic.

Developing an IT security framework requires depth and complexity involving analysis, diagnosis, design, planning, execution and evaluation across a broad range of technical functions, including development of new criteria or applications or knowledge or procedures.

EVIDENCE GUIDE	
	Significant analysis of ISO/IEC/AS and other relevant standards is considered essential as a benchmark for establishing and maintaining a security framework. Significant contribution to the development of security policies, procedures and framework is involved. Assessment must ensure: • application of a significant range of fundamental principles and complex techniques across a wide and often unpredictable variety of contexts in relation to either varied or highly specific functions. Contribution to the development of a broad plan, budget or strategy may be involved and accountability and responsibility for self and others in achieving the outcomes may also be characteristic. • Applications involve significant judgement in planning, design, technical or leadership/guidance functions related to products, services, operations or procedures would be common.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should to be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate

EVIDENCE GUIDE	
	may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended for example: • ICAA6053B Design system security and controls An individual demonstrating this competency would be able to: • Demonstrate clear understanding of security relationships between software, hardware and human interaction • Analyse security solutions and implement objective solutions across a broad range criteria • Produce security design solutions through the analysis of information and concepts at an abstract level • Demonstrate understanding of specialised knowledge with depth in some areas • Analyse, diagnose, design and execute judgement across a broad range of technical or management functions • Generate ideas through the analysis of information and concepts at an abstract level • Demonstrate a command of wide-ranging, highly specialised technical, creative or conceptual skills • Demonstrate accountability for personal outputs within broad parameters • Demonstrate accountability for personal and group outcomes within broad parameters.

Range Statement

RANGE STATEMENT
The range statement relates to the unit of competency as a whole. It allows for different

RANGE STATEMENT

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.

<i>Security requirements</i>	• May include laws, organisational security policies, customs, expertise and knowledge. The security environment also includes the threats to security that are, or are held to be, present in the environment, encryption, passwords, hardware, authentication and policies
<i>Security threats</i> may include but are not limited to:	• weaknesses in internet networks • local applications or LAN connections • keyboard logging • eavesdropping • data tampering and manipulation; impersonation, penetration and by-pass actions
<i>Client</i> may include but are not limited to:	• internal departments • external organisations • individual people • employees
<i>Security policies</i>	• To cover theft, viruses, standards (including archival, back-up, network), privacy, audits and alerts. Usually relates directly to the security objectives of the organisation
<i>Security strategy</i> includes:	• privacy • authentication • authorisation and integrity • usually relates directly to the security objectives of the organisation
<i>User</i> may include:	• a person within a department • a department within the organisation • a third party
<i>Appropriate person</i> may include:	• supervisor • teacher • authorised business representative • client

Unit Sector(s)

Unit sector	Analyse and Design

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAA6053B Design system security and controls

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to design the controls that ensure the organisational system is secure from both a legal and business perspective. The following unit is linked and forms an appropriate cluster: • ICAA6052B Design an IT security framework No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

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. Review organisational security policies and procedures	1.1. Review business environment to identify existing <i>requirements</i> 1.2. Determine organisational goals for legal and security <i>requirements</i> 1.3. Verify security needs in a policy document 1.4. Determine legislative impact on business domain 1.5. Gather and document objective evidence on current <i>security threats</i> 1.6. Identify options for utilising internal and/or external expertise 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 2.2. Evaluate risks and threats associated with the investigation 2.3. Prioritise assessment results and write <i>security policy</i> 2.4. Document information related to attacks, threats, risks and controls in a <i>security plan</i>

ELEMENT	PERFORMANCE CRITERIA
	2.5. Review the security strategy with security-approved key stakeholders 2.6. Integrate approved changes into business plan and ensure compliance with statutory requirements
3. Design controls to be incorporated in system	3.1. Implement controls in a procedurally organised manner to ensure minimum risk of security breach in line with organisational guidelines 3.2. Monitor each phase of the implementation to determine the impact on the business 3.3. Take corrective action on system implementation breakdown 3.4. Record implementation process 3.5. Evaluate corrective actions for risk 3.6. Plan risk assessment review process 3.7. Take action to ensure confidentiality throughout all phases of design

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Analysis and risk assessment data gathering techniques
- Problem solving skills for an evolving complex scenario of security threats
- Ability to provide accurate and concise insights to possible security threats for all levels of staff, both technical and managerial
- Ability to manage group facilitation and presentation skills in relation to transferring and collecting information (e.g. when senior management and auditor approval is obtained for the design of the controls)

Required knowledge

- Security testing methodology for performing security tests
- Information security risk assessment
- Process security for policies and procedures
- Internet technology security, including firewalls
- Communications security, including human organisational interactions
- Wireless security

REQUIRED SKILLS AND KNOWLEDGE

- Physical security
- Current industry-accepted security processes, including general features and capabilities of software and hardware solutions
- Broad general knowledge of privacy issues and legislation (e.g. when specifying appropriate controls)
- Broad general knowledge of ethics in IT (e.g. when reviewing audit needs)
- Risk analysis, including broad knowledge of general features incorporating substantial depth in some areas (e.g. when designing controls to be incorporated in system)
- Broad knowledge of general features of specific security technology incorporating substantial depth in some areas (e.g. when specifying appropriate controls and for designing controls to be incorporated in system)
- Privacy (e.g. when designing controls to be incorporated in system)

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

Evidence of the following is essential:

- Assessment must confirm sufficient knowledge of security products and organisational security policy.
- Assessment must confirm the ability to establish realistic ground rules for security product procedures.

To demonstrate competency in this unit the following resources will be needed:

- Risks to the mission/business resulting from IT-related risks
- Probability, frequency and severity of direct and indirect harm, loss or misuse of the IT system
- Security environment relating to relevant laws/legislation, existing organisational security policies, organisational expertise and knowledge that

EVIDENCE GUIDE	
	may be relevant • Security environment also includes the threats to security that are, or are held to be, present in the environment • Risk analysis tools/methodologies • IT security assurance specifications
Context of and specific resources for assessment	Design covers: • Resilience of the system to security breaches • Layered security • Risk management in relation to overall system • Levels of security across system • Upgrade/scalability of system and security controls • Ease of implementation of security controls This unit involves organisational policies and procedures for information security, process security, internet technology security, communications security, wireless security and physical security. The breadth, depth and complexity involving analysis, design, planning, execution and evaluation across a range of technical and/or management functions including development of new criteria or applications or knowledge or procedures would be characteristic. Competency in this unit will include observation of real or simulated procedures and policies, security plans and risk assessment strategies. Breadth, depth and complexity of knowledge and competencies would cover a broad range of varied activities in a wider variety of contexts, most of which are complex, evolving and critical in nature. Performance of a broad range of skilled applications, including requirements to evaluate and analyse current security practices and developing new criteria in a risk environment.

EVIDENCE GUIDE	
	Assessment must ensure: • application of a significant range of fundamental principles and complex techniques across a wide and often unpredictable variety of contexts in relation to either varied or highly specific functions. Contribution to the development of a broad plan, budget or strategy may be involved and accountability and responsibility for self and others in achieving the outcomes may also be characteristic. • Applications involve significant judgement in planning, design, technical or leadership/guidance functions related to products, services, operations or procedures would be common.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should to be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment with specific emphasis on due process of policy creation assessment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example:

EVIDENCE GUIDE

	• ICAA6052B Design an IT security framework An individual demonstrating this competency would be able to: • Demonstrate understanding of specialised knowledge with depth in some areas • Analyse, diagnose, design and execute judgement across a broad range of technical or management functions • Generate ideas through the analysis of information and concepts at an abstract level • Demonstrate a command of wide-ranging, highly specialised technical, creative or conceptual skills • Demonstrate accountability for personal outputs within broad parameters • Demonstrate accountability for personal and group outcomes within broad parameters

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.

<i>Security environment</i>	• Includes legislative requirements, organisational security policies, internal and external expertise and threat assessment plans • The security environment also includes the threats to security that are, or are held to be, present in the environment and in human social and organisational interaction
<i>Stakeholders</i> may include:	• sponsor • user • development team • project team

RANGE STATEMENT	
Organisational guidelines may include but are not limited to:	• personal use of emails and internet access • content of emails • downloading information and accessing particular websites • opening mail with attachments • virus risk • dispute resolution • document procedures • templates • communication methods • financial control mechanisms
Requirements may be in reference to:	• business • system • application • network • people in the organisation
Security plan	• A systematic process of controls identified by the organisation to be enforced. May contain social, physical and logical controls to safeguard organisational integrity
Security policy may be in relation to:	• theft • viruses • standards (including archival, back-up, network) • privacy • audits and alerts; usually relates directly to the security objectives of the organisation
Security threats may include but are not limited to:	• weaknesses in internet networks • local applications or LAN connections; keyboard logging, eavesdropping, data tampering and manipulation; impersonation, penetration and by-pass actions
Security strategy includes:	• privacy • authentication • authorisation and integrity • usually forms part of the overall objectives of the organisation
Risk assessment includes:	• developing risk plans • gathering information • identifying threats

RANGE STATEMENT	
	• evaluating threats • developing scenarios • ranking risk • identifying counter measures • reporting • following up

Unit Sector(s)

Unit sector	Analyse and Design

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAA6149B Implement quality assurance processes for business solutions

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to define and implement quality assurance processes and procedures to ensure that business solutions achieve quality performance expectations. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

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 business quality assurance process	1.1. Determine business quality performance expectations and benchmark standards 1.2. Develop business standards and guidelines for achieving each benchmark 1.3. Allocate strategic quality responsibilities for meeting business standards and guidelines according to business procedures 1.4. Communicate quality policy and procedures to appropriate stakeholders 1.5. Document expectations, standards and benchmarks into a quality plan based on business documentation standards 1.6. Identify appropriate quality management systems guides, including quality management plan for complex activities
2. Implement quality policies and plans	2.1. Write quality policy for business directive 2.2. Create quality management plan for business process 2.3. Distribute quality management plan to key people for feedback 2.4. Analyse feedback to determine if corrective action needs to be taken

ELEMENT	PERFORMANCE CRITERIA
	2.5. Make changes to quality management plan, if required, to incorporate corrective action 2.6. Allocate key quality tasks and functions to appropriate person as per the quality management plan 2.7. Establish and document a quality reporting and monitoring program 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 3.2. Obtain stakeholder feedback, including client satisfaction to monitor implementation of quality processes 3.3. Monitor quality process performance as per the quality management plan 3.4. Report on monitoring of quality performance to key decision makers 3.5. Identify and record breakdowns in the system and create corrective action requests 3.6. Take immediate corrective action, where necessary
4. Improve quality	4.1. Collect, analyse and measure quality performance results against benchmarks to determine quality standards 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 4.3. Determine corrective actions to be taken and assign responsibility for taking the action where appropriate 4.4. Identify who will be responsible for quality improvement 4.5. Implement corrective action solutions and measure performance 4.6. Review and adjust benchmark standards periodically in order to improve quality performance 4.7. Document quality performance results and disseminate the information to stakeholders as appropriate 4.8. Review business procedures at predetermined schedules as part of a management review process

ELEMENT	PERFORMANCE CRITERIA
	and quality reporting function

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Website development
- Website analysis and security auditing
- Technical test design development
- Testing implementation data
- Testing evaluation data
- Evaluating feedback from a variety of key stakeholders
- Evaluation analysis

Required knowledge

- Website architecture, including operating system
- Technical performance measurement
- Business model understanding
- Customer and business liaison
- Website privacy, accessibility and equity legislation
- ISO/IEC/AS standards
- Copyright and intellectual property
- Quality concepts
- Quality improvement processes

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.

EVIDENCE GUIDE	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: - Assessment must confirm the competency to plan and implement appropriate processes and procedures that ensure that quality expectations are met. Standards should be quantitative and applied universally wherever possible. Quality assurance standards should be well documented and disseminated. To demonstrate competency in this unit the following resources will be needed: - Quality guidelines - Access to related quality standards - Data related to the business model
Context of and specific resources for assessment	Managing processes related to business involves analysis, documentation and process re-engineering across a broad range of technical and managerial functions, including identifying technical and human processes interactions. Contribution to the development of a broad quality plan is involved and accountability and responsibility for self and others in achieving the outcomes is expected. Implementing quality assurance processes involves significant judgement in planning, design, evaluation, technical or leadership/guidance and communications functions related to products, services, operations, processes and procedures. The degree of emphasis on breadth as against depth of knowledge and skills may vary. The breadth, depth and complexity involving analysis, design, planning, execution and evaluation across a range of technical and/or management functions including development of new criteria or applications or knowledge or procedures would be characteristic.

EVIDENCE GUIDE	
	Assessment must ensure: • application of a significant range of fundamental principles and complex techniques across a wide and often unpredictable variety of contexts in relation to either varied or highly specific functions. Contribution to the development of a broad plan, budget or strategy may be involved and accountability and responsibility for self and others in achieving the outcomes may also be characteristic. • Applications involve significant judgement in planning, design, technical or leadership/guidance functions related to products, services, operations or procedures would be common.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should to be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended

EVIDENCE GUIDE

An individual demonstrating this competency would be able to:

- Provide clear concise plans for managing a quality process related to business
- Demonstrate understanding of knowledge related to business processes and quality assurance
- Analyse objective data related to business performance
- Demonstrate a command of wide-ranging decision making skills related to improving business performance
- Demonstrate accountability for personal outputs within broad parameters related to business
- Demonstrate accountability for group outcomes within broad parameters
- Manage and evaluate organisational performance in line with business key performance indicators
- Demonstrate understanding of specialised knowledge with depth in some areas
- Analyse, diagnose, design and execute judgement across a broad range of technical or management functions
- Generate ideas through the analysis of information and concepts at an abstract level
- Demonstrate a command of wide-ranging, highly specialised technical, creative or conceptual skills
- Demonstrate accountability for personal outputs within broad parameters
- Demonstrate accountability for personal and group outcomes within broad parameters

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

RANGE STATEMENT	
situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Quality standards may be specific to:	- organisational standards - international standards - national standards - internal or customer-supplied standards
Client may include but is not limited to:	- internal departments - external organisations - individual people - employees
Appropriate person may include:	- supervisor - teacher - authorised business representative - client
System	- databases - applications - servers - operating systems - gateways - ASP - ISP
Stakeholders may include but is not limited to:	- end user - internal or external client - government body - corporate body - community groups
Documentation standards	- May include but are not limited to policy relating to sign-off, storage, distribution, revision - Standards may include ISO/IEC/AS standards, organisational standards, project standards (for further information refer to the Standards Australia website at: www.standards.com.au) - May include tools for documenting (e.g. word processing packages, desktop publishing packages)
Quality management plan may include:	- Processes - authorisations and responsibilities for quality control - quality assurance

RANGE STATEMENT	
	• continuous improvement • communications and responsibilities • may contain critical success factors, measurement criteria and inspection, audit, report and review procedures
<i>Standards</i> may include:	• ISO/IEC/AS standards • organisational standards • project standards (for further information refer to the Standards Australia website at: www.standards.com.au)

Unit Sector(s)

Unit sector	Analyse and Design

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAA6157B Develop technical requirements for a business solution

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to develop technical and related requirements that will enable business solutions to be implemented in an organisation. The following unit is linked and forms an appropriate cluster: ICAA6149B Implement quality assurance process for business solutions No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

Prerequisite units		

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. Research business requirements	1.1. Define and document, <i>hardware</i> and <i>software requirements</i> of the business solution 1.2. Determine model of business 1.3. Determine <i>technical specifications</i> for business 1.4. Establish <i>interface requirements</i> for end users and external parties 1.5. Document business solution <i>requirements</i> for approval from <i>stakeholders</i> 1.6. Determine IT security <i>requirements</i>
2. Analyse the impact of technical solutions	2.1. Identify <i>hardware, software</i> and <i>network requirements</i> 2.2. Identify <i>software</i> solutions to build business platform 2.3. Identify processes to be changed by the business solution

ELEMENT	PERFORMANCE CRITERIA
	2.4. Determine the effect changes will have on the value or supply chain 2.5. Document impact of changes and submit to relevant stakeholders 2.6. Research and document a range of security protocols suitable for business solutions
3. Develop and test business solution	3.1. Implement hardware and software solutions for testing purposes 3.2. Identify and document training needs to update personnel skills 3.3. Plan and document timelines and allocation of resources for business solution 3.4. Develop performance standards and benchmark results 3.5. Determine costs involved to implement business solution 3.6. Document the business solution
4. Secure signoff of validated solution	4.1. Test, validate and document results of the business solution 4.2. Provide results to appropriate person for verification 4.3. Obtain sign-off on business solution

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Website analysis and design
- Technical architecture of business solutions
- Use of site design software and hardware
- Business analysis

Required knowledge

- Technical options for website architecture
- Business process design
- Customer and business liaison

REQUIRED SKILLS AND KNOWLEDGE

- Potential business solutions
- Prevailing corporate strategies
- Implications of technology connectivity
- Documenting technical specifications
- Copyright and intellectual property

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

Evidence of the following is essential:

- Assessment must confirm the ability to identify the internal and external technical environments and develop a corresponding list of technical requirements that enable the technology to provide the business solution.

To demonstrate competency in this unit the following resources will be needed:

- Business requirements documentation
- Business model
- Customer relationship model

Context of and specific resources for assessment

Developing the technical requirements for a business solution requires depth and complexity involving analysis, diagnosis, design, planning, execution and evaluation across a broad range of technical functions, including development of new criteria or applications or knowledge or procedures.

Significant reviewing of technical processes and complex business techniques across a wide and often unpredictable variety of contexts is necessary for

EVIDENCE GUIDE	
	determining secure platforms to manage the business solution. Contribution to the development of a broad technical plan is involved and accountability and responsibility for self and others in achieving the outcomes is involved. Applications involve significant judgement in technical or leadership/guidance. The degree of emphasis on breadth as against depth of knowledge and skills may vary between qualifications granted at this level. The breadth, depth and complexity involving analysis, design, planning, execution and evaluation across a range of technical and/or management functions including development of new criteria or applications or knowledge or procedures would be characteristic. Assessment must ensure: • application of a significant range of fundamental principles and complex techniques across a wide and often unpredictable variety of contexts in relation to either varied or highly specific functions. • Contribution to the development of a broad plan, budget or strategy may be involved and accountability and responsibility for self and others in achieving the outcomes may also be characteristic. • Applications involve significant judgement in planning, design, technical or leadership/guidance functions related to products, services, operations or procedures would be common.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related

EVIDENCE GUIDE

	matters is provided in ICA05 Section 1. - Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. - Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: - ICAA6149B Implement quality assurance process for business solutions An individual demonstrating this competency would be able to: - demonstrate understanding of technical requirements, with depth in some areas - analyse technical solutions, diagnose, design and execute judgements across a broad range of options - demonstrate understanding of business needs in a wide-ranging, highly specialised technical creative and conceptual environment - produce technical requirements through the analysis of information and concepts at an abstract level - Demonstrate understanding of specialised knowledge with depth in some areas - Analyse, diagnose, design and execute judgement across a broad range of technical or management

EVIDENCE GUIDE

	functions • Generate ideas through the analysis of information and concepts at an abstract level • Demonstrate a command of wide-ranging, highly specialised technical, creative or conceptual skills • Demonstrate accountability for personal outputs within broad parameters • Demonstrate accountability for personal and group outcomes within broad parameters • Maintain knowledge of industry products and services

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.

Hardware	• A variety of hardware may need to be used. This will include being able to identify the key hardware characteristics of internally used hardware and external hardware that must be interfaced with
Stakeholders may include but are not limited to:	• end user • internal or external client • government body • corporate body • community groups
Requirements may be in reference to:	• business • system • application • network • people in the organisation
Standards may include:	• ISO/IEC/AS standards • organisational standards

RANGE STATEMENT	
	project standards (for further information refer to the Standards Australia website at: www.standards.com.au)
Technical specifications may include:	- project specifications - reports - help references - technical manuals - training materials and self-paced tutorials - on-line help - user guides - brochures
Interface requirements may include but are not limited to:	- GUI (web-based, application-based) - command line - a variety of communication options
Documentation may follow:	- ISO/IEC/AS standards - audit trails - naming standards - version control - project management templates and report writing - maintaining equipment inventory - client training and satisfaction reports
Network may include but are not limited to:	- large and small LANs - WANs - VPNs - the internet - the use of the PSTN for dial-up modems only, - private lines - data - voice
Software may include but are not limited to:	- commercial - in-house - packaged - customised software
Security protocols may include:	- Secure multi-purpose internet mail extensions - Secure socket layer and transport layer security - IP security protocol - Domain name system security extensions - Data over cable service interface specification - IEEE 802.11 protocol standard for secure

RANGE STATEMENT

	wireless local area network products
	• Point-to-point network tunnelling protocol • Secure electronic transactions • Secure shell

Unit Sector(s)

Unit sector	Analyse and Design

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAB3018B Develop macros and templates for clients using standard products

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to develop macros and templates for clients using industry recognised software applications. The following unit is linked and forms an appropriate cluster: ICAU3028B Customise packaged software applications for clients No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		
	ICAU3126B	Use advanced features of computer applications

Prerequisite units		

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. Determine macro or template requirement	1.1. Determine <i>client</i> requirements, ensuring they are in line with <i>organisational guidelines</i> 1.2. Develop macro or template specification 1.3. Confirm that macro or template specification meets the clients needs and operational guidelines 1.4. Determine <i>documentation</i> requirements
2. Develop macro or template for client	2.1. Develop macro or template to specification using industry-recognised <i>software applications</i> 2.2. Demonstrate macro or template to <i>client</i> and obtain feedback 2.3. Amend macro or template, as required by <i>client</i> 2.4. Update macro or template specification
3. Provide client support for macro or	3.1. Document support and instruction requirements 3.2. Provide <i>documentation</i> to <i>client</i> help desk for future

ELEMENT	PERFORMANCE CRITERIA
template	support

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Troubleshooting the operation of macros: for example, to trace which action of the macro may be malfunctioning, converting documents to templates and modifying templates
- Ability to use various modes of employing macros, such as creating a particular keyboard key combination for each macro or by assigning it to a custom button on a toolbar
- Ability to interpret software manual instructions generally, and in particular to follow instructions for creating and using macros and templates

Required knowledge

- General knowledge of functions and features of the operating system
- General knowledge of software and hardware supported by the organisation
- General understanding of 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) and creating new ones

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

Critical aspects for assessment and evidence required to demonstrate

Evidence of the following is essential:

EVIDENCE GUIDE	
competency in this unit	Competency must be demonstrated in the development of a variety of macros and templates using at least two industry-recognised application packages. Competency must be demonstrated in the development of a specification for macros and templates.
Context of and specific resources for assessment	The general environment for these types of operations is predominantly an office environment, in which documents play a major role in communication and business activity. Thus, macros and templates are designed to accelerate the process of document production by employing rapid, automated actions on documents that often would have been created from templates. Thus, a person would demonstrate their competency by using, adapting, creating, saving and troubleshooting macros and templates. The breadth, depth and complexity of knowledge and skills in this competency would cover selecting, adapting and transferring skills and knowledge to new environments and providing technical advice and some leadership in resolution of specified problems. This would be applied across a range of roles in a variety of contexts with some complexity in the extent and choice of options available. Assessment must ensure: - Performance of a defined range of skilled operations, usually within a range of broader related activities involving known routines, methods and procedures, where some discretion and judgement is required in the selection of equipment, services or contingency measures and within known time constraints would be characteristic. - Applications may involve some responsibility for others. Participation in teams including group or team coordination may be involved.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the

EVIDENCE GUIDE	
	implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. - Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. - Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: - ICAU3028B Customise packaged software applications for clients An individual demonstrating this competency would be able to: - Demonstrate some relevant theoretical knowledge - Apply a range of well-developed skills - Apply known solutions to a variety of predictable problems - Perform processes that require a range of well-developed skills where some discretion and judgement is required - Interpret available information, using discretion and judgement - Take responsibility for own outputs in work and

EVIDENCE GUIDE

	learning • Take limited responsibility for the output of others • Maintain knowledge of industry products and services

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.

<i>Client</i> may include but is not limited to:	• internal departments • external organisations • clubs • individual people • internal employees
<i>Organisational guidelines</i> may include but is not limited to:	• personal use of email and internet access • content of emails • downloading information and accessing particular websites • opening mail with attachments • virus risk
<i>Documentation</i> may follow:	• ISO/IEC/AS standards • audit trails • naming standards • version control • project management templates • report writing protocols
<i>Software applications</i>	• May include but are not limited to commercial software applications; organisation-specific software; word processing, spreadsheet, database, graphic, communication packages and presentation functionalities • May include presentation applications contained in: Microsoft Office, Lotus Suite,

RANGE STATEMENT

	Claris Works, Star Office or other similar applications

Unit Sector(s)

Unit sector	Build

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAB4057B Manage a reuse library

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to store, document and maintain components for reuse. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		
	ICAB4075B	Use a library or pre-existing components

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. Specify components for reuse library	1.1. Determine <i>component</i> suitability for reuse by checking the quality and uses of the <i>component</i> 1.2. Review the size and complexity of <i>reuse components</i> for generalisation and remove <i>project-specific</i> refinements 1.3. Evaluate <i>components</i> , including patterns, clusters and frameworks and break down into smaller <i>components</i> for greater flexibility or use 1.4. Review <i>components</i> for duplication and remove duplicates
2. Document reuse library	2.1. Document <i>components</i> internally and externally to ensure efficient retrieval 2.2. Document public constants, data structures, <i>component</i> interfaces and limitations 2.3. Document possible relationships between data structures or objects 2.4. Provide example code demonstrating the use of <i>components</i> within the <i>documentation</i> 2.5. Document <i>development environment</i> configuration 2.6. Provide simple test programs to prove the functionality of the library
3. Set up library	3.1. Classify data structures or objects in a consistent and

ELEMENT	PERFORMANCE CRITERIA
structure	logical manner 3.2.Ensure the library has a logical structure to ensure the user is aware of library contents and can understand the logic of how the functionality may be used by another developer 3.3.Develop the structure in a manner that avoids redundancy within the library 3.4.Configure development environment to automate build of reuse components and library 3.5.Take action to ensure interfaces to library components are consistent and abstracted 3.6.Add, update and remove reuse components as development is undertaken

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Domain analysis skills in relation to the quality of reuse components for efficient retrieval and use
- Naming in relation to the quality of reuse components for efficient retrieval and use
- Abstraction in relation to the quality of reuse components for efficient use

Required knowledge

- Broad knowledge of component libraries
- Broad knowledge of abstraction of code module interfaces
- Broad knowledge of reuse components and metrics
- Broad knowledge of design paradigms
- Broad knowledge of reuse libraries content and structure
- Broad knowledge of patterns, frameworks and idioms

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

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

Evidence of the following is essential:

- Assessment must confirm sufficient knowledge of reuse libraries and the management of components within the library structure.
- Assessment must confirm the ability to store, document and improve the quality of reuse components for efficient retrieval and use. Assessment must confirm the ability to organise, communicate library contents

To demonstrate competency in this unit the person will require access to:

- Software development environment
- Technical requirements

Context of and specific resources for assessment

The breadth, depth and complexity of knowledge and skills in this competency would cover a broad range of varied activities or application in a wider variety of contexts most of which are complex and non-routine. Leadership and guidance would be involved when organising activities of self and others as well as contributing to technical solutions of a non-routine or contingency nature.

Assessment must ensure:

- Performance of a broad range of skilled applications including the requirement to evaluate and analyse current practices, develop new criteria and procedures for performing current practices and provision of some leadership and guidance to others in the application and planning of the skills would be characteristic.
- Applications may involve responsibility for, and

EVIDENCE GUIDE	
	limited organisation of, others.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. - Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. - Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. An individual demonstrating this competency would be able to: - Demonstrate understanding of a broad knowledge base incorporating some theoretical concepts - Apply solutions to a defined range of unpredictable problems - Identify and apply skill and knowledge areas to a wide variety of contexts, with depth in some areas - Identify, analyse and evaluate information from a variety of sources

EVIDENCE GUIDE

	• Take responsibility for own outputs in relation to specified quality standards • Take limited responsibility for the quantity and quality of the output of others • Maintain knowledge of industry products and services

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.

<i>Project</i> may include:	• a business involved in a total organisational change • a systems-only change • a business improvement process • an e-business solution involving the total organisation or part of the organisation
<i>Component</i> may include:	• methods • classes • metadata • design • code • documents • modules • test cases
<i>Development environment</i> may include but is not limited to:	• operating systems • target environments • development tools • computer language used • version control systems • development methodology
<i>User</i> may include:	• a person within a department

RANGE STATEMENT	
	• a department within the organisation • a third party
Reuse components may include but is not limited to:	• code • design patterns • specifications • requirements • metadata

Unit Sector(s)

Unit sector	Build

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAB4059B Develop detailed technical design

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to assist in the development of a detailed technical design. The following units are linked and form an appropriate cluster: • ICAA4041C Determine and confirm client business expectations and needs • ICAD4043B Develop and present a feasibility report No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

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. Contribute to determination of technical design features	1.1. Select and revise design model based on iteration and design changes 1.2. Incorporate outstanding design points according to <i>acceptance criteria</i> 1.3. Distribute reports identifying changes and implications to <i>appropriate person</i> for review
2. Contribute to design review	2.1. Compare design against <i>requirements</i> and fix as necessary 2.2. Confirm design with <i>appropriate person</i> 2.3. Use <i>feedback mechanisms</i> to gather information on design changes from <i>client</i> 2.4. Incorporate design changes where required
3. Contribute to development of program specifications	3.1. Implement modules by incremental development techniques 3.2. Identify user authority for each module 3.3. Prepare detailed specifications of module implementation for each module that will not be incrementally built

ELEMENT	PERFORMANCE CRITERIA
	3.4. Prepare documentation according to requirements of the project

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Problem solving skills for a defined range of unpredictable problems involving participation in the development of strategic initiatives (e.g. when the design model is revised based on iteration and design changes and when design is compared against requirements model and tuned as necessary)
- Facilitation and presentation skills in relation to transferring and collecting information and gaining consensus on concepts
- Problem solving skills in relation to developing algorithms (e.g. when contributing to the determination of technical design features and when contributing to the development of program specifications)

Required knowledge

- Broad knowledge of design fundamentals and refinement (e.g. when contributing to the determination of technical design features)
- Broad general knowledge of the client business domain (e.g. when contributing to design review)
- Broad general knowledge of the client's critical business functions and processes (e.g. when contributing to design review)
- Broad knowledge of current various life cycle options (e.g. when contributing to the determination of technical design features)
- Broad knowledge of design quality metrics (e.g. coupling and metrics) e.g. when contributing to the determination of technical design features and when contributing to the development of program specifications

Evidence Guide

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

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

Evidence of the following is essential:

- Assessment must confirm sufficient knowledge of design fundamentals and processes.
- Assessment must confirm the ability to prepare a clear and best-fit technical design for a set project.

To demonstrate competency in this unit the person will require access to:

- Requirements model
- Business requirements
- Project deliverables
- Acceptance criteria
- Current IT blueprint

Context of and specific resources for assessment

Particular care must be exercised when developing technical designs to ensure that quality outcomes are generated. This includes gathering data to support the design and may involve access and use of information from previous projects or related organisational outcomes.

The breadth, depth and complexity of knowledge and skills in this competency would cover a broad range of varied activities or application in a wider variety of contexts most of which are complex and non-routine. Leadership and guidance would be involved when organising activities of self and others as well as contributing to technical solutions of a non-routine or contingency nature.

Assessment must ensure:

- Performance of a broad range of skilled applications including the requirement to evaluate and analyse current practices, develop new criteria and procedures for performing current practices and provision of some leadership and guidance to others

EVIDENCE GUIDE	
	in the application and planning of the skills would be characteristic. • Applications may involve responsibility for, and limited organisation of, others.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • ICAA4041C Determine and confirm client business expectations and needs • ICAD4043B Develop and present a feasibility report An individual demonstrating this competency would be

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	able to: • Demonstrate understanding of a broad knowledge base incorporating some theoretical concepts • Apply solutions to a defined range of unpredictable problems • Identify and apply skill and knowledge areas to a wide variety of contexts, with depth in some areas • Identify, analyse and evaluate information from a variety of sources • Take responsibility for own outputs in relation to specified quality standards • Take limited responsibility for the quantity and quality of the output of others • Maintain knowledge of industry products and services

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.

<i>Acceptance criteria</i> may include:	• timeframe • cost implications • technical • logistical considerations
<i>Appropriate person</i> may include:	• supervisor • teacher • authorised business representative • client
<i>Requirements</i> may be in reference to:	• business • system • application • network • people in the organisation

RANGE STATEMENT	
Client may include but is not limited to:	• internal departments • external organisations • clubs • individual people • internal employees
Feedback mechanisms may include:	• surveys • questionnaires • interviews • meetings
Project may include:	• a business involved in a total organisational change • a systems-only change • a business improvement process • an e-business solution involving the total organisation or part of the organisation

Unit Sector(s)

Unit sector	Build

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAB4060B Identify physical database requirements

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to create a physical database using a data dictionary and design specifications. The following units are linked and form an appropriate cluster: • ICAA4041C Determine and confirm client business expectations and needs • ICAB4059B Develop detailed technical design • ICAB4061B Monitor physical database implementation • ICAD4043B Develop and present a feasibility report • ICAS4125B Monitor and administer a database No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units	

Prerequisite units		
	ICAA4041C	Determine and confirm client business expectations and needs

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 database scope	1.1. Review requirements of the user and current system architecture 1.2. Determine database size from requirements and technical specifications 1.3. Document database and scope of project 1.4. Evaluate several database management systems against requirements and make appropriate selection
2. Identify database requirements	2.1. Review technical specifications for the database 2.2. Identify database tables and relationships 2.3. Identify database data dictionary, table attributes and keys 2.4. Develop database reports based on acceptance

ELEMENT	PERFORMANCE CRITERIA
	<i>criteria</i> and <i>requirements</i>
3. Identify security requirements	3.1. Review system security plan 3.2. Clarify and confirm chosen database management system and user security required for the database to ensure database security is aligned to security system plan 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 user for feedback 4.2. Review user feedback and adjust database as required 4.3. Present database and documentation to user for final approval

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Design and analysis skills for identifying, analysing and evaluating a range of solutions (e.g. when DBMS options are evaluated through iteration against technical specifications and client requirements)
- DBMS administration skills for identifying, analysing and evaluating a range of solutions
- Data modelling skills for identifying, analysing and evaluating a range of solutions
- Problem solving skills for a defined range of unpredictable problems involving participation in the development of technical solutions (e.g. when DBMS options are evaluated through iteration against technical specifications and client requirements)

Required knowledge

- Three or more current principles of databases
- Current industry-accepted hardware and software products, with knowledge of general features and capabilities
- Database design
- Broad knowledge of quality assurance practices (e.g. when identifying database

REQUIRED SKILLS AND KNOWLEDGE

- scope and database requirements)
- Broad general knowledge of the client business domain (e.g. when identifying database scope)
- Detailed technical knowledge of database requirements

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

Evidence of the following is essential:

- Assessment must confirm the ability to identify technical considerations affecting the physical design of a database and the ability to build a database that meets the client's database performance requirements.
- The final database will meet specified business rules, agreed budget and timeframe. The database will perform efficiently in the runtime environment (the environment required to operate the designed solution, not the development environment).
- Reports must meet the specific output requirements and be presented in a logical and accessible manner.

To demonstrate competency in this unit the person will require access to:

- Client requirements
- Project deliverables
- Acceptance criteria
- Current IT blueprint
- Security system plan
- Technical specifications
- Business analysis process outcomes

EVIDENCE GUIDE	
	Assessment of this unit of competency will include a review of developed documents detailing: • Database directories • Calculation of space requirements for tables • Additional space requirements • Design of node groups
Context of and specific resources for assessment	Technical documentation defining architecture, platform and operating system specifications; database supplier technical specifications and manuals; data samples; database package. The breadth, depth and complexity of knowledge and skills in this competency would cover a broad range of varied activities or application in a wider variety of contexts most of which are complex and non-routine. Leadership and guidance would be involved when organising activities of self and others as well as contributing to technical solutions of a non-routine or contingency nature. Assessment must ensure: • Performance of a broad range of skilled applications including the requirement to evaluate and analyse current practices, develop new criteria and procedures for performing current practices and provision of some leadership and guidance to others in the application and planning of the skills would be characteristic. Applications may involve responsibility for, and limited organisation of, others.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1.

EVIDENCE GUIDE

	- Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. - Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: - ICAA4041C Determine and confirm client business expectations and needs - ICAB4059B Develop detailed technical design - ICAB4061B Monitor physical database implementation - ICAD4043B Develop and present a feasibility report - ICAS4125B Monitor and administer a database An individual demonstrating this competency would be able to: - Demonstrate understanding of a broad knowledge base incorporating some theoretical concepts - Apply solutions to a defined range of unpredictable problems - Identify and apply skill and knowledge areas to a wide variety of contexts, with depth in some areas - Identify, analyse and evaluate information from a variety of sources - Take responsibility for own outputs in relation to specified quality standards - Take limited responsibility for the quantity and

EVIDENCE GUIDE

	- quality of the output of others • Maintain knowledge of industry products and services

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.

Requirements may be in reference to:	- business - system - application - network - people in the organisation
User may include:	- a person within a department - a department within the organisation - a third party
System architecture may include but is not limited to:	- Operating system: Novell NetWare 5 or above or operating system that has multi-user ability; Linux, Mac OS, Windows 2000 or above - Database software: Oracle, Sybase, Microsoft SQL Server, Ingres, DB2, Informix, mSQL, MySQL, SQL server - Configuration: small memory model, large memory model, requests per second
Database management system may include:	- distributed or centralised - on-line - partitioned geographically - thematically distributed
Database may include but is not limited to:	- relational databases - object-relational databases - proprietary databases - commercial off-the-shelf (COTS) database

RANGE STATEMENT	
	packages
Acceptance criteria may include:	• timeframe • cost implications • technical • logistical considerations
System may include but is not limited to:	• network • application • software • business • computers • financial system • management system • information system

Unit Sector(s)

Unit sector	Build

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAB4061B Monitor physical database implementation

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to monitor database performance using database management system modeling. The following units are linked and form an appropriate cluster: • ICAB4060B Identify physical database requirements • ICAS4113C Identify and resolve common database performance problems No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		
	ICAS4125B	Monitor and administer a database

Prerequisite units		

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. Undertake database management system modeling	1.1. Review database prototype, as appropriate, to determine acceptance criteria and performance standards 1.2. Load test data according to the technical sequence detailed in documentation 1.3. Generate a test schedule for the database of tasks to be performed and results expected
2. Monitor database performance	2.1. Evaluate database performance against acceptance criteria and performance standards 2.2. Identify discrepancies in results where expected outcomes do not meet acceptance criteria 2.3. Identify areas needing enhancement and document changes to be made 2.4. Modify database according to project standards 2.5. Repeat performance testing until expected results are

ELEMENT	PERFORMANCE CRITERIA
	achieved
3. Seek client feedback and signoff	3.1. Present test results in a document and provide to client for feedback 3.2. Incorporate client change requests as appropriate 3.3. Seek client sign-off of the monitoring process

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- General knowledge of database performance standards
- Conduct of performance reviews
- Problem solving skills for a defined range of unpredictable problems involving participation in the development of technical solutions

Required knowledge

- Broad knowledge of three or more current principles of databases
- Current industry-accepted hardware and software products, with broad knowledge of general features and capabilities and detailed knowledge in some areas
- Broad knowledge of database design
- Broad knowledge of quality assurance practices
- Broad general knowledge of the client business domain
- Testing and benchmarking processes

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

EVIDENCE GUIDE	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: - Assessment must confirm the ability to identify technical considerations affecting implementation of the database and the ability to analyse performance issues during implementation of the database. To demonstrate competency in this unit the person will require access to: - Client requirements - Project deliverables - Acceptance criteria - Security system plan - Technical specifications - Business analysis process outcomes
Context of and specific resources for assessment	The breadth, depth and complexity of knowledge and skills in this competency would cover a broad range of varied activities or application in a wider variety of contexts most of which are complex and non-routine. Leadership and guidance would be involved when organising activities of self and others as well as contributing to technical solutions of a non-routine or contingency nature. Assessment must ensure: - Performance of a broad range of skilled applications including the requirement to evaluate and analyse current practices, develop new criteria and procedures for performing current practices and provision of some leadership and guidance to others in the application and planning of the skills would be characteristic. - Applications may involve responsibility for, and limited organisation of, others.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have

EVIDENCE GUIDE	
	special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. - Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. - Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: - ICAB4060B Identify physical database requirements - ICAS4113C Identify and resolve common database performance problems An individual demonstrating this competency would be able to: - Demonstrate understanding of a broad knowledge base incorporating some theoretical concepts - Apply solutions to a defined range of unpredictable problems - Identify and apply skill and knowledge areas to a wide variety of contexts, with depth in some areas - Identify, analyse and evaluate information from a variety of sources - Take responsibility for own outputs in relation to specified quality standards - Take limited responsibility for the quantity and

EVIDENCE GUIDE

	quality of the output of others • Maintain knowledge of industry products and services

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.

Documentation may follow:

- ISO/IEC/AS standards
- audit trails
- naming standards
- version control
- project management templates and report writing
- maintaining equipment inventory
- client training
- satisfaction reports

Database may include but are not limited to:

- relational databases
- object-relational databases
- proprietary databases
- commercial off-the-shelf (COTS) database packages

Client may include but are not limited to:

- internal departments
- external organisations
- clubs
- individual people
- internal employees

Acceptance criteria may include:

- timeframe
- cost implications
- technical and logistical considerations

Tasks may include but are not limited to:

- work
- activities

RANGE STATEMENT

	• function • job

Unit Sector(s)

Unit sector	Build

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAB4064B Prepare software development review

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to establish standards associated with IT technical requirements in the context of quality assurance processes applicable to software development. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

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. Review software standards	1.1.Ensure that <i>stakeholders</i> have an understanding of the <i>organisational requirements</i> 1.2.Document <i>software standards</i> according to <i>project standards</i>
2. Review implementation standards	2.1.Assign <i>software standards</i> to functions according to detailed technical plan 2.2.Take action to ensure that <i>communication</i> and distribution strategies are clear, coherent and meet overall project plan requirements 2.3.Monitor and report on implementation of standards against acceptance criteria and detailed technical specifications
3. Review software metrics and milestones	3.1.Define metrics in relation to the project milestones, and timeframe and cost considerations 3.2.Develop schedule of quality reviews 3.3.Determine quality considerations by identifying in-process measurement points that relate to critical <i>organisational requirements</i> 3.4.Determine method to benchmark and scale achievement against stated <i>stakeholders</i> requirements and cost considerations 3.5.Report metrics and milestones to <i>stakeholders</i> in a

ELEMENT	PERFORMANCE CRITERIA
	clear and coherent manner and take action to ensure written agreement

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Data modelling skills for identifying, analysing and evaluating a range of solutions.
- Problem solving skills for a defined range of unpredictable problems involving participation in the development of technical solutions.
- Design and analysis skills for identifying, analysing and evaluating a range of solutions.
- Communication skills in relation to analysis, evaluation and presentation of information (e.g. when all stakeholders are cognisant of the organisational standards and agree to adherence, and when communication and distribution strategies are clear, coherent and meet overall project plan requirements).
- Negotiation and influencing skills (e.g. when metrics and milestones are conveyed to client and developers in a clear and coherent manner, and their agreement in writing is ensured).
- Risk assessment skills for identifying, analysing and evaluating a range of solutions.

Required knowledge

- Broad general knowledge of the client business domain (e.g. when reviewing implementation standards).
- Broad knowledge of quality assurance practices and the identification of standards (e.g. when reviewing software standards, software metrics and milestones).
- Current industry-accepted software configuration management processes, with knowledge of general features and capabilities.
- Broad knowledge of software metrics development.

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

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

Evidence of the following is essential:

- Assessment must confirm the ability to establish the standards associated with the IT technical requirements, taking into account quality assurance processes that are in place for the development of software.

To demonstrate competency in this unit the person will require access to:

- Technical specifications
- Organisational standards for documentation and version control
- Project management process and hierarchy
- Future organisational business processes
- Software requirements specifications
- Interface requirements specifications
- System requirements
- Design specifications
- Project budget, timeframe

Context of and specific resources for assessment

Preparing a software development review will usually include observation of real or simulated software processes and procedures.

Data used in preparing the development review should be validated and come from other projects or related organisational activities.

The breadth, depth and complexity of knowledge and skills in this competency would cover a broad range of varied activities or application in a wider variety of contexts most of which are complex and non-routine. Leadership and guidance would be involved when organising activities of self and others as well as

EVIDENCE GUIDE	
	contributing to technical solutions of a non-routine or contingency nature. Assessment must ensure: • Performance of a broad range of skilled applications including the requirement to evaluate and analyse current practices, develop new criteria and procedures for performing current practices and provision of some leadership and guidance to others in the application and planning of the skills would be characteristic. • Applications may involve responsibility for, and limited organisation of, others.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.

EVIDENCE GUIDE**Guidance information for assessment**

Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.

An individual demonstrating this competency would be able to:

- Demonstrate understanding of a broad knowledge base incorporating some theoretical concepts
- Apply solutions to a defined range of unpredictable problems
- Identify and apply skill and knowledge areas to a wide variety of contexts, with depth in some areas
- Identify, analyse and evaluate information from a variety of sources
- Take responsibility for own outputs in relation to specified quality standards
- Take limited responsibility for the quantity and quality of the output of others
- Maintain knowledge of industry products and services

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.

Stakeholders may include:

- sponsor
- user
- development team
- project team

Organisational requirements may include but is not limited to:

- how and what the organisation wants in regard to work environment
- problem solution processes

RANGE STATEMENT	
	- preventative maintenance and diagnostic policy - roles and technical responsibilities in the IT department - vendor and product service-level support agreements
Standards may include:	- ISO/IEC/AS standards - organisational standards - project standards (for further information refer to the Standards Australia website at: www.standards.com.au) - Java coding standards, GNU coding standard
Documentation may follow:	- ISO/IEC/AS standards - audit trails - naming standards - version control - project management templates and report writing - maintaining equipment inventory - client training - satisfaction reports
Communication may include:	- verbal methods (e.g. telephone, meetings, video conferencing) - non-verbal methods (e.g. written messages, emails, memos)
Project standards may include but is not limited to:	- development methodology - reporting mechanisms - project plan - change control - quality of software modules - sharing of code/libraries - ease of modification and maintenance - delivery against required milestones and budget

Unit Sector(s)

Unit sector	Build

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAB4075B Use a library or pre-existing components

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to identify, evaluate and incorporate reuse components from a library or other source as part of a software project. The following unit is linked and forms an appropriate cluster: • ICAB4057B Manage a reuse library No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

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 potential reuse units	1.1. Analyse <i>project</i> design and functionality to identify reuse <i>components</i> 1.2. Source <i>reuse components</i> with desired functionality
2. Evaluate reuse components for suitability in parent project	2.1. Evaluate <i>reuse component</i> or libraries for suitability for use within the parent software <i>project</i> 2.2. Conduct in-depth comparison of functionality of each potential <i>reuse component</i> to functionality required by parent <i>project</i> 2.3. Evaluate cost of implementing <i>reuse component</i> 2.4. Consider technical impact on parent <i>project</i> design 2.5. Consider <i>reuse component</i> vendor licensing issues 2.6. Finalise selection of <i>reuse components</i> 2.7. Document selection, evaluation and decision processes as part of the parent <i>project</i> design <i>documentation</i>
3. Incorporate reuse components	3.1. Configure <i>development environment</i> to include <i>reuse components</i> during build process 3.2. Construct test programs or use provided example programs to become familiar with <i>reuse components</i> in preparation for incorporation into parent <i>project</i>

ELEMENT	PERFORMANCE CRITERIA
	3.3. Add reuse components to parent project incrementally 3.4. Resolve reuse component dependencies 3.5. Assemble and test parent project with a focus on the functionality provided by reuse components

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Domain analysis skills for identifying, analysing and evaluating a range of solutions
- Ability to complete abstraction for a range of solutions
- Naming skills for a range of solutions
- Research skills for identifying, analysing and evaluating broad features of current reuse issues and best practice in component reuse

Required knowledge

- Current industry development and design methodologies
- Libraries content and structure
- Patterns, frameworks and idioms
- Metrics collection
- Broad knowledge of contract specifications
- Domain modelling
- Genericity specification
- Repository tools

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

EVIDENCE GUIDE	
Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: • Assessment must confirm sufficient knowledge of effective and efficient opportunities for reuse. • Assessment must confirm the ability to meet project requirements by efficiently identifying, modifying and integrating components for reuse. To demonstrate competency in this unit the person will require access to: • Software development environment • Technical requirements
Context of and specific resources for assessment	The breadth, depth and complexity of knowledge and skills in this competency would cover a broad range of varied activities or application in a wider variety of contexts most of which are complex and non-routine. Leadership and guidance would be involved when organising activities of self and others as well as contributing to technical solutions of a non-routine or contingency nature. Assessment must ensure: • Performance of a broad range of skilled applications including the requirement to evaluate and analyse current practices, develop new criteria and procedures for performing current practices and provision of some leadership and guidance to others in the application and planning of the skills would be characteristic. • Applications may involve responsibility for, and limited organisation of, others.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have

EVIDENCE GUIDE	
	special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. - Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. - Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: - ICAB4057B Manage a reuse library An individual demonstrating this competency would be able to: - Demonstrate understanding of a broad knowledge base incorporating some theoretical concepts - Apply solutions to a defined range of unpredictable problems - Identify and apply skill and knowledge areas to a wide variety of contexts, with depth in some areas - Identify, analyse and evaluate information from a variety of sources - Take responsibility for own outputs in relation to specified quality standards - Take limited responsibility for the quantity and quality of the output of others - Maintain knowledge of industry products and

EVIDENCE GUIDE

services

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.

Project may include:

- a business involved in a total organisational change,
- a systems-only change,
- a business improvement process,
- an e-business solution involving the total organisation or part of the organisation

Reuse components may include but are not limited to:

- code
- design patterns
- specifications
- requirements
- metadata

Documentation may follow:

- ISO/IEC/AS standards
- audit trails
- naming standards
- version control
- project management templates
- report writing protocols

Development environment may include but is not limited to:

- operating systems
- target environments
- development tools
- computer language used
- version control systems
- development methodology

Unit Sector(s)

Unit sector	Build

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAB4076B Implement configuration management

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to implement administrative and technical procedures throughout the software development and documentation life cycle. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		
	ICAD4217B	Create Technical Documentation

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 clarify configuration management requirements	1.1. Develop and/or assemble identification standards for the naming and version control of software and documentation, and provide to stakeholders 1.2. Identify the software configuration tools and procedures for the required level of integration into the programming environment 1.3. Identify responsibilities for configuration management within the project and for ongoing support, including approval of changes 1.4. Take action to ensure that stakeholders are aware of their roles 1.5. Identify the point at which items are subjected to configuration control with stakeholders
2. Employ appropriate control mechanisms	2.1. Identify and document the method for identification and recording of change requests in line with organisational requirements and ensure this is maintained during development process 2.2. Take action to ensure that the evaluation criteria and process for approval of change requests are employed according to organisational requirements 2.3. Take action to ensure that other management, security and access control criteria are employed according to organisational requirements

ELEMENT	PERFORMANCE CRITERIA
	2.4. Implement controls to ensure that necessary audit trails and alerts for variations or non-conformance are continuously maintained during development
3. Implement monitoring mechanisms	3.1. Implement controls to ensure that mechanisms to identify the status of software throughout the software development life cycle are continuously maintained 3.2. Document the development and maintenance of records and status reports required to show the history of baselines and their links to back-ups 3.3. Take action to ensure that the level of detail required in the status reports, and identification of target audiences, meets the configuration management procedures, ISO/IEC/AS standards and organisational requirements 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 the physical and functional completeness of items for the purpose of release to all stakeholders 4.2. Identify and implement the requirements for formal control of software products 4.3. Determine and document policies for retention of baseline/master copies, taking into account safety and security, legislative requirements and organisational guidelines

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Configuration management involves problem solving skills involving participation in the development of configuration management (e.g. when the point when items are subjected to configuration control is identified with developers and team members)
- Plain English literacy and communication skills in relation to developing technical

REQUIRED SKILLS AND KNOWLEDGE

and business reports

- Group facilitation and presentation skills in relation to transferring and collecting information and gaining consensus on concepts (e.g. when responsibilities for configuration management within the project and for ongoing support, including approval of changes are identified and responsible parties are aware of their roles)
- Project planning skills in relation to scope, time, cost, quality, communications and risk management (e.g. when the physical and functional completeness of items for the purpose of release is determined with developers and team members)
- Research skills for identifying, analysing and evaluating broad features of a particular business domain and best practice in software development methodologies (e.g. when the requirements for formal control of software products and documentation are identified and implemented)
- Estimating skills for use across a range of predictable project contexts in relation to either varied or highly specific functions (e.g. when the development and maintenance of records and status reports required to show the history of baselines, and their links to back-ups are documented)
- Function point analysis skills for use across a range of predictable project contexts in relation to either varied or highly specific functions (e.g. when configuration management is integrated into general project management processes for monitoring and control purposes)

Required knowledge

- Detailed knowledge of software development methodologies (e.g. when identifying and clarifying configuration management requirements)
- Detailed knowledge of quality assurance and quality processes (e.g. when implementing monitoring mechanisms)
- Broad knowledge of project planning methodologies and tools
- Detailed knowledge of benchmarking methodologies (e.g. when implementing monitoring mechanisms)
- Detailed knowledge of how to formulate software size models and size estimates (e.g. when employing control mechanisms)

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.

EVIDENCE GUIDE	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: • Assessment will confirm knowledge of quality processes, audit trails and version control. • Assessment will confirm the ability to implement and maintain reliable and valid configuration management procedures for technical and administrative procedures for use during the software life cycle. To demonstrate competency in this unit the person will require access to: • Configuration tools • Evaluation criteria • Process for approval of change requests • Templates for status reports
Context of and specific resources for assessment	Implementation of configuration management will usually include observation of real or simulated work processes and procedures, the results of previous configuration projects may be used to assist in understanding configuration management in a global context. The breadth, depth and complexity of knowledge and skills in this competency would cover a broad range of varied activities or application in a wider variety of contexts most of which are complex and non-routine. Leadership and guidance would be involved when organising activities of self and others as well as contributing to technical solutions of a non-routine or contingency nature. Assessment must ensure: • Performance of a broad range of skilled applications including the requirement to evaluate and analyse current practices, develop new criteria and procedures for performing current practices and provision of some leadership and guidance to others in the application and planning of the skills would be

EVIDENCE GUIDE	
	characteristic. Applications may involve responsibility for, and limited organisation of, others.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. - Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. - Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. An individual demonstrating this competency would be able to: - Demonstrate understanding of a broad knowledge base incorporating some theoretical concepts - Apply solutions to a defined range of unpredictable problems - Identify and apply skill and knowledge areas to a

EVIDENCE GUIDE

	wide variety of contexts, with depth in some areas • Identify, analyse and evaluate information from a variety of sources • Take responsibility for own outputs in relation to specified quality standards • Take limited responsibility for the quantity and quality of the output of others • Maintain knowledge of industry products and services To demonstrate this unit of competency the following should be addressed: • Track changes to all software components • Support parallel development of different components • Control the entire project and its evolution over time (e.g. releases and variants) • Manage the approval of changes (e.g. promotion process)

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.

Documentation may follow:

- ISO/IEC/AS standards
- audit trails
- naming standards
- version control
- project management templates
- report writing principles

Stakeholders may include:

- sponsor
- user

RANGE STATEMENT	
	• development team • management • testers • project team
Requirements may be in reference to:	• business • system • application • network • people in the organisation
Organisational requirements may include but is not limited to:	• how and what the organisation wants in regard to work environment • problem solution processes • preventative maintenance and diagnostic policy, roles and technical responsibilities in the IT department • vendor and product service-level support agreements
Software may include but is not limited to:	• commercial software applications • organisation-specific software • packaged software • in-house or customised software
Software configuration tools may include:	• PVCS Version Manager • PVCS Version Manager PLUS • PVCS Configuration Builder • Version Stamper • Baseline +Plus • Version +Plus • ClearCase • Continuus/CM • SCCS • RCS • Source Integrity • TeamWare • CVS
Organisational guidelines may include but is not limited to:	• personal use of emails and internet access • content of emails • downloading information and accessing particular websites • opening mail with attachments • virus risk

RANGE STATEMENT

	• dispute resolution • document procedures and templates • communication methods • financial control mechanisms

Unit Sector(s)

Unit sector	Build

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAB4135B Create a simple mark-up language document to specification

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to design, create and save a simple markup language document to a given specification using a text editor rather than an authoring tool. The following unit is linked and forms an appropriate cluster: • ICAB4137B Produce basic client side script for dynamic web pages No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

Prerequisite units		

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. Analyse specification	1.1. Determine the uses and audience of the document 1.2. Determine the appropriate <i>mark-up language</i> based on the document uses and audience 1.3. Determine relevant document structure 1.4. Determine appropriate browser-safe colours
2. Create document structure to specification	2.1. Create and assign the basic elements of the document, taking into account <i>accessibility</i> 2.2. Add <i>content</i> text to the body of the document 2.3. Save document using a descriptive name and an appropriate <i>extension</i>
3. Format document to specification	3.1. Apply a suitable <i>format</i> for the text 3.2. Apply a suitable background colour 3.3. Apply suitable positional elements 3.4. Create lists

ELEMENT	PERFORMANCE CRITERIA
4. Create tables, hyperlinks and graphics	4.1. Create tables 4.2. Create hyperlinks, anchors and image maps for internal and external navigation 4.3. Define the colours for unvisited, visited and active links 4.4. Create hyperlinks for sending email 4.5. Attach images in a suitable format
5. Validate documents	5.1. Validate mark-up language document against specifications and record outcomes 5.2. Validate mark-up language document in different browsers for compatibility and record outcomes

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Ability to use a variety of mark-up languages to meet a variety of needs
- Using keyboard and mouse in an integrated development environment
- Ability to follow documented instruction from a supplied guide
- Problem solving skills in mark-up language and an ability to troubleshoot problems
- Reading and writing at a level where workplace instructions and documents are clearly understood
- Ability to communicate ideas and concepts in a clear and precise manner

Required knowledge

- Mark-up language and associated standards
- Open platforms

Evidence Guide

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

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

Evidence of the following is essential:

- Assessment must confirm the ability to design, create and save a simple mark-up language document using a mark-up language without the automated generation of code.

To demonstrate competency in this unit the person will require access to:

- Organisational style guide/policy
- User requirements
- Development platform

Context of and specific resources for assessment

Mark-up languages are a common means of promoting websites, providing security via limited internet access and when using open source software, provides a powerful means to control a wide variety of operations.

The scope and complexity of knowledge and skills is dependent on the tasks undertaken as part of creating the code to specification.

The assessment of this unit of competency will usually include observation of mark-up code results and performance of real or simulated work.

The breadth, depth and complexity of knowledge and skills in this competency would cover a broad range of varied activities or application in a wider variety of contexts most of which are complex and non-routine. Leadership and guidance would be involved when organising activities of self and others as well as contributing to technical solutions of a non-routine or contingency nature.

EVIDENCE GUIDE	
	Assessment must ensure: • Performance of a broad range of skilled applications including the requirement to evaluate and analyse current practices, develop new criteria and procedures for performing current practices and provision of some leadership and guidance to others in the application and planning of the skills would be characteristic. • Applications may involve responsibility for, and limited organisation of, others.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example:

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	• ICAB4137B Produce basic client side script for dynamic web pages An individual demonstrating this competency would be able to: • Demonstrate understanding of a broad knowledge base incorporating some theoretical concepts • Apply solutions to a defined range of unpredictable problems • Identify and apply skill and knowledge areas to a wide variety of contexts, with depth in some areas • Identify, analyse and evaluate information from a variety of sources • Take responsibility for own outputs in relation to specified quality standards • Take limited responsibility for the quantity and quality of the output of others • Demonstrate relevant mark-up language coding skills • Maintain knowledge of industry products and services

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.

Accessibility may be in relation to:

- cultural awareness
- ethnicity
- physical impairments
- remote locations

Content may include:

- information and interactive features, such as product information, company information, copyright and disclaimer notices, site map, frequently asked questions, what's new,

RANGE STATEMENT	
	customer-specific information, customer only information, error messages, instructions, feedback mechanisms, reference pages, forms, background articles, ratings/rankings/testimonials/quotes from reviews, hyperlink titles
Mark-up language may include but are not limited to:	• HTML • DHTML • XHTML • SGML • VRML • XML
Extension may include but is not limited to:	• HTM • HTML • XML • DHTML • XHTML
Format includes:	• consideration of the combination of typeface and other attributes, such as size, pitch and spacing of the font
Browser may include but is not limited to:	• Netscape Navigator • Internet Explorer • Mozilla • Opera • Galleon • Phoenix • Konqueror • Lynx

Unit Sector(s)

Unit sector	Build

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAB4136B Use structured query language to create database structures and manipulate data

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to use a structured query language (SQL) to define, create and manipulate database structures and associated data in a relational database. The following units are linked and form an appropriate cluster: • ICAB4060B Identify physical database requirements • ICAB4061B Monitor physical database implementation No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		
	ICAB4225B	Automate processes

Prerequisite units		

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. Write a simple SQL statement to retrieve and sort data	1.1. Retrieve all the data from a single table 1.2. Retrieve data from specific columns in a single table 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 2.2. Restrict the number of rows retrieved by placing specific criteria in the select statement 2.3. Use <i>comparison operators</i> in the 'where' clause to compare numeric, character, string, date and time data 2.4. Use <i>Boolean operators</i> with the correct precedence 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 2.6. Use SQL syntax to suppress duplicate values from

ELEMENT	PERFORMANCE CRITERIA
	query results 2.7. Take action to exclude null values from a query result
3. Write SQL statements that use functions	3.1. Use arithmetic operators with the correct precedence 3.2. Use string functions and operators to obtain the required query output 3.3. Use mathematical functions to obtain the required output, where required 3.4. Use date functions to obtain the required output 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 4.2. Sort aggregated data in the query output 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 5.2. Use 'left outer', 'right outer' and 'full outer' syntax to join tables in the select statement 5.3. Use correct syntax in the 'where' clause to retrieve data from multiple tables 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 6.2. Construct sub-queries that return a single row, and multiple rows 6.3. Use correlated sub-queries to retrieve required data 6.4. Write sub-queries that use aggregates
7. Create and manipulate tables	7.1. Identify required columns, data types, keys, relationships, indexes and constraints 7.2. Use relevant naming conventions for all database elements 7.3. Create tables that implement all required elements 7.4. Insert rows into tables 7.5. Update some or all of the data in a table 7.6. Add columns to a table 7.7. Modify a column within a table 7.8. Delete a column from a table

ELEMENT	PERFORMANCE CRITERIA
	7.9.Delete rows from a table 7.10. View detailed information regarding a table 7.11. Delete tables with regard to referential integrity rules
8. Create and use views	8.1.Create views that satisfy information requirements 8.2.Use check constraints in a view 8.3.Retrieve, insert, update and delete data using a view 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 9.2.Create and execute stored procedures that use one or more parameters 9.3.Drop a stored procedure from the database 9.4.Create and test database triggers that automate data management or perform specific required data-related functions

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Analysis skills to determine data objects required, data structures and business requirements
- Data modelling skills, particularly during the design and development phases
- Report queries and view development using analytical and evaluation skills

Required knowledge

- Broad knowledge of data modelling structures
- Data analysis, particularly in determining data types, data structures and to query and report design
- Run time facilities in relation to implementing live database
- DBMS fundamentals

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	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: • Assessment must confirm the ability to use a structured query language to create database structures, and store, retrieve and manipulate data in a relational database. To demonstrate competency in this unit the person will require access to: • Client requirements • Functionality and scope requirements • Access requirements and policy • Security policy • Naming standards
Context of and specific resources for assessment	SQL database functions are in place for most organisations and have become integral to internet-based data provision and data retrieval. Any assessment of this unit of competency will usually include observation of real or simulated SQL code development and processes data engineering. The breadth, depth and complexity of knowledge and skills in this competency would cover a broad range of varied activities or application in a wider variety of contexts most of which are complex and non-routine. Leadership and guidance would be involved when organising activities of self and others as well as contributing to technical solutions of a non-routine or contingency nature.

EVIDENCE GUIDE	
	Assessment must ensure: • Performance of a broad range of skilled applications including the requirement to evaluate and analyse current practices, develop new criteria and procedures for performing current practices and provision of some leadership and guidance to others in the application and planning of the skills would be characteristic. • Applications may involve responsibility for, and limited organisation of, others. • Applications involve responsibility for SQL code structures and manipulation of data.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended,

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assessment

for example:

- ICAB4060B Identify physical database requirements
- ICAB4061B Monitor physical database implementation

An individual demonstrating this competency would be able to:

- Demonstrate understanding of a broad knowledge base incorporating some theoretical concepts
- Apply solutions to a defined range of unpredictable problems
- Identify and apply skill and knowledge areas to a wide variety of contexts, with depth in some areas
- Identify, analyse and evaluate information from a variety of sources
- Take responsibility for own outputs in relation to specified quality standards
- Take limited responsibility for the quantity and quality of the output of others
- Demonstrate understanding of broad database structures incorporating some theoretical concepts
- Manipulate data and provide solutions to a defined range of unpredictable problems
- Take limited responsibility for the quantity and quality of database data
- Maintain knowledge of industry products and services

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.

Comparison operators may

- equal to

RANGE STATEMENT	
include:	• not equal to • greater than • less than • greater than or equal to • less than or equal to
Boolean operators may include the use of:	• AND • OR • NOT
Database may include but are not limited to:	• Oracle • Sybase • Microsoft SQL Server • Ingres • DB2 • Informix • mSQL • MySQL • SQL Server PostgreSQL
Arithmetical operators may include:	• addition • subtraction • multiplication • modulus division
Mathematical functions may include:	• cos • log • power • sin • square root
Information requirements may include:	• reports • summaries • letters • other business documents required by the organisation

Unit Sector(s)

Unit sector	Build

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAB4137B Produce basic client side script for dynamic web pages

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to produce a number of client side scripts for dynamic web pages, utilising a range of relevant features from different appropriate languages. The following unit is linked and forms an appropriate cluster: • ICAB4135B Create a simple mark up language document to specification No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

Prerequisite units		

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. Analyse requirements for web documents	1.1. Determine the necessary dynamic functionality of the <i>web</i> document 1.2. Determine the appropriate <i>language</i> to achieve that functionality 1.3. Determine web document requirements
2. Design scripts	2.1. Design the web document and embedded scripts to achieve the required functionality
3. Produce web documents	3.1. Write simple HTML considering accessibility 3.2. Write embedded scripts
4. Test scripts and debug	4.1. Test the web document against the required functionality, and reiterate until correct 4.2. Complete <i>documentation</i> and submit to <i>appropriate person</i> for approval

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Basic design skills for the successful viewing of the active elements/objects across different platforms
- Debugging and error handling techniques for the successful viewing of the active elements/objects across different platforms
- Keyboard and general PC skills for operating computing packages
- Basic skills in internet protocols

Required knowledge

- Client side scripting
- Internet protocols incorporating some theoretical concepts
- Server side and client side concepts incorporating
- Types of function, particularly when creating scripts to implement functions
- Events and event handlers, particularly when creating event handlers
- Security restrictions on servers, incorporating some theoretical concepts
- SGML and associated standards
- Basic knowledge of open platforms
- Internet operation related to servers and clients
- Understanding of best practice communication, accessibility and equity principles when writing for audiences with special needs

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

Critical aspects for assessment and evidence required to demonstrate

Evidence of the following is essential:

- Assessment must confirm the ability to produce basic

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competency in this unit	client server side scripts for dynamic web pages and confirm successful viewing of the active elements/objects across different platforms. To demonstrate competency in this unit the person will require access to: • Client requirements • Functionality and scope requirements • Security policy • Web server
Context of and specific resources for assessment	Producing client side scripts is a common means of creating interactive websites. These scripts offer an effective simple means of enabling websites to provide greater interaction with clients. Client side scripting may be used for purposes such as form validation, but only in areas where they would affect only the document in question and no outside objects. The benefit is time saving, particularly as servers can become overloaded due to repeated page requests for each change on the page. It not only helps the server but is more convenient for the users. The assessment of this unit of competency will usually include observation of client side script code, subsequent results and performance of real or simulated work. The breadth, depth and complexity of knowledge and skills in this competency would cover a broad range of varied activities or application in a wider variety of contexts most of which are complex and non-routine. Leadership and guidance would be involved when organising activities of self and others as well as contributing to technical solutions of a non-routine or contingency nature. Assessment must ensure: • Performance of a broad range of skilled applications including the requirement to evaluate and analyse current practices, develop new criteria and

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	procedures for performing current practices and provision of some leadership and guidance to others in the application and planning of the skills would be characteristic. • Applications may involve responsibility for, and limited organisation of, others.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • ICAB4135B Create a simple mark-up language document to specification An individual demonstrating this competency would be

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	able to: • Demonstrate understanding of a broad knowledge base incorporating some theoretical concepts • Apply solutions to a defined range of unpredictable problems • Identify and apply skill and knowledge areas to a wide variety of contexts, with depth in some areas • Identify, analyse and evaluate information from a variety of sources • Take responsibility for own outputs in relation to specified quality standards • Take limited responsibility for the quantity and quality of the output of others • Demonstrate relevant client side language coding skills • Maintain knowledge of industry products and services

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.

Web document may include but is not limited to:	• saved HTML documents • previously created and new HTML documents; saved email files with or without attachments
Accessibility may be in relation to:	• cultural awareness • ethnicity • physical • intellectual impairments and remote locations
Language may include but are not limited to:	• Javascript • DHTML • ActiveX

RANGE STATEMENT	
	• VB script
Documentation may follow:	• ISO/IEC/AS standards • audit trails • naming standards • version control • project management templates • report writing protocols
Appropriate person may include:	• supervisor • teacher • authorised business representative • client

Unit Sector(s)

Unit sector	Build

Co-requisite units

Co-requisite units	

Competency field

Competency field	

ICAB4163B Create a common gateway interface script

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to define and produce common gateway interface (CGI) script and install that script on a server. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		
	ICAU2006B	Operate computing packages

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. Define specification for CGI script	1.1.Determine the functionality of the CGI form 1.2.Define the functionality of the CGI script 1.3.Choose the appropriate language in which to write the CGI script 1.4.Determine server requirements
2. Create CGI form	2.1.Produce an HTML web document that uses the form elements required by the CGI script specification and includes the URL for the CGI script
3. Write CGI script	3.1.Write the CGI script to function as required by the CGI script specification
4. Test CGI script	4.1.Configure the server, if required, that will host the CGI script 4.2.Upload the CGI script to the server 4.3.Run the CGI form and assess its output 4.4.Reiterate until the specification for the CGI script is met

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- HTML
- Basic operating system commands
- Using FTP clients

Required knowledge

- Appropriate language for scripting
- Security issues
- Web servers
- CGI 1.1/1.2 specifications
- Security issues surrounding CGI
- Copyright and intellectual property
- Copyleft and Free Software Foundation

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

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

Evidence of the following is essential:

- Assessment must confirm the ability to create and upload scripts.

To demonstrate competency in this unit the person will require access to:

- Web servers
- E-business website
- FTP or file transfer client software
- Server access

EVIDENCE GUIDE**Context of and specific resources for assessment**

CGI scripts are a common means of interacting with websites, providing security access to directories and databases.

Internet access to server CGI scripts provides a powerful means to control a wide variety of operations on the server.

The breadth, depth and complexity of knowledge and skills in this competency would cover a broad range of varied activities or application in a wider variety of contexts most of which are complex and non-routine. Leadership and guidance would be involved when organising activities of self and others as well as contributing to technical solutions of a non-routine or contingency nature.

Assessment must ensure:

- Performance of a broad range of skilled applications including the requirement to evaluate and analyse current practices, develop new criteria and procedures for performing current practices and provision of some leadership and guidance to others in the application and planning of the skills would be characteristic.
- Applications may involve responsibility for, and limited organisation of, others.

The scope and complexity of knowledge and skills is dependent on the tasks undertaken as part of creating the code to specification. Interpret available information and request clarification where needed and take responsibility for outputs in work and learning.

Method of assessment

The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have

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	special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. - Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. - Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. An individual demonstrating this competency would be able to: - Demonstrate understanding of a broad knowledge base incorporating some theoretical concepts - Apply solutions to a defined range of unpredictable problems - Identify and apply skill and knowledge areas to a wide variety of contexts, with depth in some areas - Identify, analyse and evaluate information from a variety of sources - Take responsibility for own outputs in relation to specified quality standards - Take limited responsibility for the quantity and quality of the output of others - Demonstrate CGI language coding skills - Maintain knowledge of industry products and services

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.	
Language for CGI may include:	• C/C++ • PERL • Visual Basic • AppleScript • Python • Shell
Server requirements may include but is not limited to:	• Secure shell access • Telnet to a server or Telnet-only access on another server • ability to FTP documents to a server • VPN • remote desktop
Server - one or more servers depending on size and functionality of website and may include:	• BEA Weblogic servers • Apache HTTP server • IBM VisualAge and WebSphere • Microsoft-Internet-Information-Server • NetDynamics • Lotus Domino • Netscape Enterprise Server, Netscape-FastTrack, Netscape-Commerce • Sun Microsystems iPlanet Web Server • iPlanet-Enterprise • Sun Microsystems Java Web Server • Email servers • File and print servers • FTP servers • Proxy servers
Form may include:	• text box • scrollable text box

RANGE STATEMENT	
	• on/off flags • single selection buttons • selection lists • submit and reset • hidden form tags
<i>CGI script specifications</i> may include:	• CGI/1.1 Specification • CGI/1.2 Specification

Unit Sector(s)

Unit sector	Build

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAB4169B Use development software and IT tools to build a basic website

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to build a basic website that is consistent with design and technical requirements, and business expectations. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

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. Select and analyse website structure and development tools	1.1. Analyse business <i>specification</i> and select appropriate <i>software</i> 1.2. Identify technical needs for the website and select appropriate <i>software tools</i> 1.3. Identify site structure and navigation flow and demonstrate understanding of functionality 1.4. Review design <i>documentation</i> and integrate design work with site structure and navigation, in accordance with <i>web development standards</i>
2. Begin site construction	2.1. Take action to ensure <i>user</i> input during website construction 2.2. Validate existing information and basic content when incorporating data on website 2.3. Apply consistent design <i>specifications</i> to all aspects of the website 2.4. Gather feedback from <i>user</i> on web design, content, accessibility and structure, using appropriate feedback mechanism
3. Complete and validate website construction and content	3.1. Undertake an evaluation of the website against technical requirements and design <i>specification</i> 3.2. Test each function and process of the website 3.3. Conduct navigation tests and HTML compliance

ELEMENT	PERFORMANCE CRITERIA
	with website standards 3.4. Stress test the website to meet design criteria and user load 3.5. Record testing results to ensure website meets user requirements 3.6. Obtain sign-off/approval of user

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Using appropriate development software and tools
- HTML development
- Debugging and error handling techniques
- Troubleshooting basic web links and HTML code errors

Required knowledge

- Website design
- SGML and the associated standards
- Basic design principles
- Web-specific technical attributes
- Reading and interpretation of design specifications and guidelines
- Appropriate software and tools that meet required technical specifications
- Understanding of best practice communication, accessibility and equity principles when building for diverse users

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.

EVIDENCE GUIDE	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: - Assessment must verify the ability to build a basic website. All development work is done in a manner that accurately reflects the website specifications. The development is audited against the business requirements and design needs prior to task completion and sign-off. To demonstrate competency in this unit the person will require access to: - Website development software and tools - Basic website specifications and guidelines
Context of and specific resources for assessment	Development software for website development simplifies the underlying code creation routine. Website development has moved beyond the mainstream commercial domain as more small companies, individuals and community groups need and use websites for a range of commercial and other purposes. Creating websites with development software from text only to full-blown Integrated Development Environments allows for flexibility in development styles, complexity of website and performance. Determining which development software to use will be dependent on complexity and availability of software. The selected development environment should be flexible enough to allow for the creation of specialised programs for clients or for making available to contributors the underpinning code as part of an open source project. The breadth, depth and complexity of knowledge and skills in this competency would cover a broad range of varied activities or application in a wider variety of contexts most of which are complex and non-routine. Leadership and guidance would be involved when organising activities of self and others as well as contributing to technical solutions of a non-routine or

EVIDENCE GUIDE	
	contingency nature. Assessment must ensure: • Performance of a broad range of skilled applications including the requirement to evaluate and analyse current practices, develop new criteria and procedures for performing current practices and provision of some leadership and guidance to others in the application and planning of the skills would be characteristic. • Applications may involve responsibility for, and limited organisation of, others. The scope and complexity of knowledge and skills is dependent on the tasks undertaken as part of a provided specification.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • The assessment of this unit of competency will usually include observation of code generation and the code results. • Assessment will usually include observation of real or simulated work processes and procedures and/or

EVIDENCE GUIDE	
	performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. An individual demonstrating this competency would be able to: • Demonstrate understanding of a broad knowledge base incorporating some theoretical concepts • Apply solutions to a defined range of unpredictable problems • Identify and apply skill and knowledge areas to a wide variety of contexts, with depth in some areas • Identify, analyse and evaluate information from a variety of sources • Take responsibility for own outputs in relation to specified quality standards • Take limited responsibility for the quantity and quality of the output of others • Maintain knowledge of industry products and services Additionally, an individual demonstrating this competency would be able to: • Use development software and build a website to specification • Apply solutions to a variety of predictable problems • Interpret available information and request clarification where needed

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.	
Specification may include but is not limited to:	• technical requirements • user problem statement • current system functionality
Documentation may follow:	• ISO/IEC/AS standards • audit trails • naming standards • version control • project management templates • report writing protocols
User may include:	• a person within a department • a department within the organisation • a third party
Software may include but is not limited to:	• text editors such as Word pad • Notepad • commercial software applications • Dreamweaver • Golive • Fireworks • NetObjects Fusion • Bluefish
Software tools may include but is not limited to:	• Macromedia • FTP programs • FrontPage • HotDog
Web development standards may include:	• Web content accessibility guidelines 1.0 (WCAG) • Authoring tool accessibility guidelines 1.0 (ATAG)

Unit Sector(s)

Unit sector	Build

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAB4170B Build a database

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to build and implement a database using an established design. There may be benefit in concurrent learning with the following unit: • ICAB4136B Use structured query language to create database structures and manipulate No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

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. Confirm database design	1.1. Review database design documentation , including data structures, queries, reports and user interface 1.2. Compare database access and security feature design with organisational security plan 1.3. Document inconsistencies in database and security design
2. Create prototype	2.1. Develop prototype according to database design 2.2. Populate database tables with suitable data, including current business data 2.3. Write conversion programs to import data from existing systems 2.4. Develop test data to assess database features 2.5. Assess functionality of prototype with client , including identifying errors in program code and modifying screens and reports 2.6. Incorporate feedback from client into prototype 2.7. Obtain client sign-off for the prototype
3. Test database	3.1. Develop implementation plan for the database 3.2. Install database management system software on

ELEMENT	PERFORMANCE CRITERIA
	network 3.3. Populate database tables with business data 3.4. Implement security and access controls 3.5. Test database output and security controls and record results
4. Evaluate database	4.1. Review database with client for final approval 4.2. Complete database documentation 4.3. Identify and document user training requirements 4.4. Seek and secure client acceptance of database

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Techniques to elicit information from users, particularly during the prototype phase
- SQL programming skills, particularly during the development phase
- Data modelling skills, particularly during the design and development phases
- Analysis skills
- Communicating with clients
- Preparation of reports and technical documentation
- Data conversion and validation, particularly during implementation
- Installation and use of proprietary software
- Encryption and authentication as they apply to database security features

Required knowledge

- Functions and features of databases
- Run time facilities in relation to implementing live database and operation of prototype
- Object-oriented data model, particularly in relation to developing a prototype
- Object model design concepts, particularly in relation to developing data structures, queries, screens and reports
- Logical data model, particularly in relation to developing a prototype
- Physical design concepts, particularly in relation to developing a prototype
- OH&S principles and responsibilities in regard to self and others
- DBMS fundamentals in relation to overall unit of competency, particularly during

REQUIRED SKILLS AND KNOWLEDGE

the design phase

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

Evidence of the following is essential:

- Assessment must confirm the ability to build and implement a well-structured database that represents the client's business reality and provides the user with a productive business tool.

To demonstrate competency in this unit the person will require access to:

- Database software
- Database design documentation
- Business requirements and strategy

Context of and specific resources for assessment

Appropriate database design with relevance to the organisation's objectives can provide rapid access to information, achieve client satisfaction and provides an ability to change to meet new demands on the organisation.

The breadth, depth and complexity of knowledge and skills in this competency would cover a broad range of varied activities or application in a wider variety of contexts most of which are complex and non-routine. Leadership and guidance would be involved when organising activities of self and others as well as contributing to technical solutions of a non-routine or contingency nature.

EVIDENCE GUIDE	
	Assessment must ensure: • Performance of a broad range of skilled applications including the requirement to evaluate and analyse current practices, develop new criteria and procedures for performing current practices and provision of some leadership and guidance to others in the application and planning of the skills would be characteristic. • Applications may involve responsibility for, and limited organisation of, others. An individual performing at this standard will display self-directed application of knowledge and skills, with substantial depth in database design and development where judgement is required in planning and selecting appropriate equipment, services and techniques for self and others.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate

EVIDENCE GUIDE	
	may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, such as: • ICAB4136B Use structured query language to create database structures and manipulate An individual demonstrating this competency would be able to: • Demonstrate understanding of a broad knowledge base incorporating some theoretical concepts • Apply solutions to a defined range of unpredictable problems • Identify and apply skill and knowledge areas to a wide variety of contexts, with depth in some areas • Identify, analyse and evaluate information from a variety of sources • Take responsibility for own outputs in relation to specified quality standards • Take limited responsibility for the quantity and quality of the output of others • Maintain knowledge of industry products and services

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.	
<i>Database</i> may include but are not	• Oracle • Sybase

RANGE STATEMENT	
limited to:	• Microsoft SQL Server • Ingres • DB2 • Informix • mSQL • MySQL • SQL Server PostgreSQL
Requirement may be in reference to:	• business • system • application • network • people in the organisation
Documentation may follow:	• ISO/IEC/AS standards • audit trails • naming standards • version control • project management templates • report writing principles
Database management system may include:	• distributed or centralised • on-line • partitioned geographically • thematically distributed
Client may include but is not limited to:	• internal departments • external organisations • clubs • individual people • internal employees

Unit Sector(s)

Unit sector	Build

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAB4171B Develop cascading style sheets

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency 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. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

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. Define styles	1.1. Identify and document the purpose of the mark-up language document 1.2. Identify and document appropriate styles that are to be controlled by the CSS 1.3. Define and document the styles in accordance with established design or <i>business guidelines</i>
2. Produce CSS	2.1. Produce CSS using the determined styles
3. Attach CSS to new markup language documents	3.1. Start new mark-up language document 3.2. Attach CSS to document 3.3. Produce document, applying styles from CSS 3.4. Repeat this process, attaching the same CSS to different document
4. Attach CSS to existing markup language documents	4.1. Open existing mark-up language document 4.2. Attach CSS to document 4.3. Apply styles from CSS to document, removing redundant tags 4.4. Repeat this process, attaching the same CSS to different document
5. Edit CSS	5.1. Edit CSS and confirm changes in attached document
6. Validate CSS	6.1. Validate that the website functions correctly and that

ELEMENT	PERFORMANCE CRITERIA
	the styles satisfy the purpose of the document 6.2. Validate that the website functions correctly using different browsers

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- HTML development
- Application of software needed for cascading style sheets (CSS)
- Select and use a CSS enhanced browser

Required knowledge

- Website architecture
- Using a mark-up language
- Basic design principles
- Software and tools are selected to meet specifications
- Australian Computer Society Code of Ethics

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

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

Evidence of the following is essential:

- Assessment must confirm the ability to develop an appropriate presentation style for an HTML document using embedded or linked CSS. Presentation conforms to web accessibility guidelines

EVIDENCE GUIDE	
	and meets the business needs and is signed off. To demonstrate competency in this unit the person will require access to: • Computer • Application for creating CSS • CSS enhanced browser • Aesthetic presentation brief • HTML documents to have CSS applied to them
Context of and specific resources for assessment	Cascading style sheets are a comprehensive way to deliver complex, interactive websites and provides an opportunity to create a portal that meets a range of client and user needs. The breadth, depth and complexity of knowledge and skills in this competency would cover a broad range of varied activities or application in a wider variety of contexts most of which are complex and non-routine. Leadership and guidance would be involved when organising activities of self and others as well as contributing to technical solutions of a non-routine or contingency nature. Assessment must ensure: • Performance of a broad range of skilled applications including the requirement to evaluate and analyse current practices, develop new criteria and procedures for performing current practices and provision of some leadership and guidance to others in the application and planning of the skills would be characteristic. • Applications may involve responsibility for, and limited organisation of, others.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have

EVIDENCE GUIDE	
	special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. - Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. - The assessment of this unit of competency will usually include observation of CSS generation and the CSS results. - Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. An individual demonstrating this competency would be able to: - Demonstrate understanding of a broad knowledge base incorporating some theoretical concepts - Apply solutions to a defined range of unpredictable problems - Identify and apply skill and knowledge areas to a wide variety of contexts, with depth in some areas - Identify, analyse and evaluate information from a variety of sources - Take responsibility for own outputs in relation to specified quality standards - Take limited responsibility for the quantity and

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	quality of the output of others • Develop CSS style sheets that streamline website experiences or enhance interaction with the end user. • The scope and complexity of knowledge and skills is dependent on the tasks undertaken as part of compiling and running applications • Maintain knowledge of industry products and services

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.

Business guidelines may include but are not limited to:

- personal use of emails and internet access
- content of emails
- downloading information and accessing particular websites
- opening mail with attachments
- virus risk

Browsers may include but is not limited to:

- Netscape Navigator
- Internet Explorer
- Mozilla
- Opera
- Galleon
- Phoenix
- Konqueror
- Lynx

Unit Sector(s)

Unit sector	Build

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAB4178B Build a graphical user interface

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to design, build and test a graphical user interface (GUI) to specification. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

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. Determine specification of GUI	1.1.Determine the back-end for interfacing with the GUI 1.2.Determine the functionality of the GUI, including back-end interface 1.3.Determine the <i>application development language</i> for writing the GUI 1.4.Determine type and level of <i>documentation</i> required
2. Design GUI to specification	2.1.Design the GUI incorporating the required functionality and document outcomes
3. Build GUI to specification	3.1.Build the GUI with the required functionality in the determined language, utilising the toolkit's classes/widgets, containers and other pertinent features
4. Test GUI to meet specification	4.1.Test GUI for overall functionality according to <i>requirements</i> 4.2.Iterate GUI design/build until test results meet <i>requirements</i>

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

REQUIRED SKILLS AND KNOWLEDGE**Required skills**

- HTML, DHTML development
- Programming in C++, C, JAVA
- Workstation operation
- Software packages
- Development standards research and interpretation

Required knowledge

- Object-oriented programming concepts
- System properties
- API (application programming interface)
- Copyright and intellectual property
- Relevant Commonwealth and state privacy and information access legislation
- Australian Computer Society Code of Ethics

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

Evidence of the following is essential:

- Assessment must confirm the ability to design, build and test a GUI.

To demonstrate competency in this unit the person will require access to:

- Development environment

Context of and specific resources for assessment

Graphical user interfaces take commands from input devices and expect the underlying operating system to carry out a function.

When using this competency in a workplace context,

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	building a GUI should be done with the best available tool for the selected platform (e.g. Linux, UNIX, Windows, Mac). Some of the tools used can build a GUI for all of the above platforms and if this is important, select an IDE capable of compiling for all of the above. A number of GUIs are available under open source licences and it may be appropriate to access source code to assist in design and understanding GUI development process. The breadth, depth and complexity of knowledge and skills in this competency would cover a broad range of varied activities or application in a wider variety of contexts most of which are complex and non-routine. Leadership and guidance would be involved when organising activities of self and others as well as contributing to technical solutions of a non-routine or contingency nature. Assessment must ensure: • Performance of a broad range of skilled applications including the requirement to evaluate and analyse current practices, develop new criteria and procedures for performing current practices and provision of some leadership and guidance to others in the application and planning of the skills would be characteristic. • Applications may involve responsibility for, and limited organisation of, others. The scope and complexity of knowledge and skills is dependent on the tasks undertaken as part of compiling and running applications.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility

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	practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. - Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. - Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. An individual demonstrating this competency would be able to: - Demonstrate understanding of a broad knowledge base incorporating some theoretical concepts - Apply solutions to a defined range of unpredictable problems - Identify and apply skill and knowledge areas to a wide variety of contexts, with depth in some areas - Identify, analyse and evaluate information from a variety of sources - Take responsibility for own outputs in relation to specified quality standards - Take limited responsibility for the quantity and quality of the output of others - Maintain knowledge of industry products and services

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	Additionally, an individual demonstrating this competency would be able to: • Demonstrate a GUI in concept and compiled form • Use a development tool to assist GUI construction • Meet client specifications • Contribute to code in an open source GUI project • Apply solutions to a variety of predictable problems • Interpret available information and request clarification where needed • Take responsibility for outputs in work and learning

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.

Documentation may follow:	• ISO/IEC/AS standards • audit trails • naming standards • version control • project management templates and report writing • maintaining equipment inventory • client training • satisfaction reports
Requirements may be in reference to:	• business • system • application • network • people in the organisation
Application development	• Eclipse (open source) • Visual C++

RANGE STATEMENT**language** may include:

- Codemesh
- EMACS
- QT and KDevelop
- EPP
- an extensible pre-processor kit
- GTK2
- Java Runner
- Java 2 SDK
- Netscape Directory SDK for Java: Source Code, Borland Enterprise Studio for JAVA
- JBuilder 3.5, Visual Age 3.0
- Visual J++
- Visual Basic

Unit Sector(s)

Unit sector	Build

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAB4219B Apply introductory object-oriented language skills

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to undertake introductory programming tasks using an object-oriented programming language. Competency includes tool usage, documentation, debugging and testing techniques in support of the programming activities. There may be benefit in concurrent learning with the following unit: • ICAB4224B Apply mathematical techniques for software development The following unit is linked and forms an appropriate cluster: • ICAA4058B Apply skills in object oriented design No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		
	ICAB4225B	Automate processes

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. Apply basic language syntax and layout	1.1. Demonstrate understanding and application of basic <i>language</i> syntax rules and best practices 1.2. Select and use <i>language</i> data types, operators and expressions to create clear and concise code 1.3. Use the appropriate <i>language</i> syntax for sequence, selection and iteration constructs 1.4. Use a modular programming approach within member/function logic 1.5. Apply arrays, including arrays of objects to introductory programming tasks 1.6. Use <i>standard array processing algorithms</i> 1.7. Use the facilities of the <i>language</i> to read and write

ELEMENT	PERFORMANCE CRITERIA
	data from/to text files and record outcomes
2. Apply basic object-oriented principles in the target language	2.1. Implement a class that contains primitive member/instance variables 2.2. Implement a class that contains multiple options for object construction 2.3. Implement a class that uses user-defined aggregation (object instance/member variables) 2.4. Use the facilities provided in the language to implement inheritance to at least two levels of depth 2.5. Use polymorphism at a simple level through inheritance to enable easy extension of code
3. Debug code	3.1. Use an integrated development environment , in particular the language debugging facilities, to debug code 3.2. Interpret compiler/interpreter messages to resolve syntax errors and use debugging techniques to resolve logic errors
4. Document activities	4.1. Follow organisational guidelines for developing maintainable code and adhere to the provided coding standards when documenting activities 4.2. Apply internal documentation to all code created and utilise documentation tools available in the target language when documenting activities
5. Test code	5.1. Create and conduct simple tests to confirm code meets design specification 5.2. Document the tests performed and results achieved
6. Create an application	6.1. Develop a solution when provided with a basic object-oriented design document 6.2. Reference appropriate documentation for the language

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

REQUIRED SKILLS AND KNOWLEDGE

- Reading and interpreting program specifications
- Translating requirements from problem space to machine space
- Integrated development environment usage
- Programming techniques
- Internal (code) documentation techniques
- Debugging techniques
- Testing techniques
- Documentation techniques

Required knowledge

- Object-oriented programming concepts
- Object-oriented programming language
- Small size application development
- Using a GUI to interact with operator

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

Evidence of the following is essential:

- Assessment must confirm that application programs are designed and built from a provided problem scenario and program specification.
- Code documentation must be generated. Testing must be used to confirm that created application meets original specification and solves original problem.

To demonstrate competency in this unit the person will require access to:

- Software development environment
- Technical requirements

Context of and specific resources for

Programming in object-oriented languages is a software

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assessment	development methodology that offers the programmer standard reusable software modules (components), rather than requiring the developer to write custom programming code each time. Using standard components reduces development time (because the writing and testing of those components has already been done by other programmers), and ensures a standard look and feel for programs using the same components. Object-oriented languages are an important feature of software development processes world-wide. The breadth, depth and complexity of knowledge and skills in this competency would cover a broad range of varied activities or application in a wider variety of contexts most of which are complex and non-routine. Leadership and guidance would be involved when organising activities of self and others as well as contributing to technical solutions of a non-routine or contingency nature. Assessment must ensure: • Performance of a broad range of skilled applications including the requirement to evaluate and analyse current practices, develop new criteria and procedures for performing current practices and provision of some leadership and guidance to others in the application and planning of the skills would be characteristic. • Applications may involve responsibility for, and limited organisation of, others. The stages of the development methodology should be followed within the scope of a project or scenario, and the relevant supporting documentation produced.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the

EVIDENCE GUIDE	
	implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • ICAB4224B Apply mathematical techniques for software development • ICAA4058B Apply skills in object-oriented design An individual demonstrating this competency would be able to: • Demonstrate understanding of a broad knowledge base incorporating some theoretical concepts • Apply solutions to a defined range of unpredictable problems • Identify and apply skill and knowledge areas to a wide variety of contexts, with depth in some areas • Identify, analyse and evaluate information from a variety of sources • Take responsibility for own outputs in relation to

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	specified quality standards • Take limited responsibility for the quantity and quality of the output of others • Maintain knowledge of industry products and services Additionally, an individual demonstrating this competency would be able to: • Understand a range of development object-oriented methodologies and their application • Demonstrate theoretical knowledge of object-oriented language development • Apply a methodology to a project or scenario • Produce documentation required by the chosen methodology

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.

<i>Integrated development environment</i> may include but is not limited to:	• Visual C++ • Visual Studio suite • Eclipse • J-Edit • Code Warrior • JBuilder
<i>Coding standards</i> may include:	• Java coding standard • GNU coding standard
<i>Language</i> may include but is not limited to:	• Java • C++ • Small Talk • VB.net

RANGE STATEMENT	
	• C#.net
<i>Design specification</i> may include but is not limited to:	• technical requirements • user problem statement • current system functionality
<i>Standard array processing algorithms</i> may include but is not limited to:	• search • insertion and deletion algorithms
<i>Object-oriented design document</i> may include:	• use-cases • class diagrams • supplementary specifications

Unit Sector(s)

Unit sector	Build

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAB4220B Create scripts for networking

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to undertake scripted programming tasks for networking related activities. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		
	ICAB4225B	Automate processes

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. Create scripts	1.1. Employ abbreviated software development cycle to script creation 1.2. Select appropriate scripting language 1.3. Apply internal document principles to all created code 1.4. Follow organisational guidelines for developing maintainable code when creating scripts 1.5. Adhere to coding standards when creating scripts 1.6. Execute example scripts and record outcomes
2. Create code	2.1. Demonstrate understanding and application of basic language syntax rules and best practices 2.2. Select and use language data types, operators and expressions to create clear and concise code 2.3. Use techniques of selection, iteration and sequence to control script execution flow 2.4. Use techniques for sequential file input and output to retrieve and store information 2.5. Obtain and use user input to affect the operation of the script
3. Use operating system tools	3.1. Use searching and sorting tools to select information from the logging output of operating system 3.2. Implement controls to ensure that where significant

ELEMENT	PERFORMANCE CRITERIA
	events occur, script creates and maintains a log of operations via operating system logging mechanism 3.3. Register and run scripts with operating system scheduling facility
4. Debug code	4.1. Use script debugging techniques suitable for use with scripting language to detect and resolve errors of syntactical, logical and design origin
5. Test code	5.1. Engineer, document and conduct simple tests to confirm code meets design specification 5.2. Take action to ensure that code complies with security policy 5.3. Take action to ensure that code operates with proper permissions
6. Create small utilities	6.1. Design, document, construct and test a small single purpose operating system utility application in response to a problem description 6.2. Validate and record script results

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Creation of scripts to automate operating system tasks
- Manipulate and extract information contained in files
- Execution of scripts
- User and peer documentation
- Interaction with user via script

Required knowledge

- Operating system command line interface
- Operating system tools and utilities
- Operating system logical model
- Scripting language syntax
- Scripting techniques

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

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

Evidence of the following is essential:

- Assessment must ensure the ability to create scripted programs that access information stored in files on the system, use system utility programs to sort or find information within these files and whose execution flow is controlled using the techniques of selection, iteration and sequence. Scripts must contain a level of documentation suitable for peer review and to provide modification/testing audit trail.

To demonstrate competency in this unit the person will require access to:

- Software development environment
- Technical requirements

Context of and specific resources for assessment

Scripting languages form a key part of networking, including automating processes, log analysis and intrusion detection.

The breadth, depth and complexity of knowledge and skills in this competency would cover a broad range of varied activities or application in a wider variety of contexts most of which are complex and non-routine. Leadership and guidance would be involved when organising activities of self and others as well as contributing to technical solutions of a non-routine or contingency nature.

Assessment must ensure:

- Performance of a broad range of skilled applications including the requirement to evaluate and analyse current practices, develop new criteria and

EVIDENCE GUIDE	
	procedures for performing current practices and provision of some leadership and guidance to others in the application and planning of the skills would be characteristic. • Applications may involve responsibility for, and limited organisation of, others.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. An individual demonstrating this competency would be able to: • Demonstrate understanding of a broad knowledge base incorporating some theoretical concepts

EVIDENCE GUIDE

	• Apply solutions to a defined range of unpredictable problems • Identify and apply skill and knowledge areas to a wide variety of contexts, with depth in some areas • Identify, analyse and evaluate information from a variety of sources • Take responsibility for own outputs in relation to specified quality standards • Take limited responsibility for the quantity and quality of the output of others • Maintain knowledge of industry products and services Additionally, an individual demonstrating this competency would be able to: • Understand basic scripting development methodologies and their application • Demonstrate basic theoretical knowledge of language development

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.

Organisational guidelines may include but are not limited to:

- personal use of emails and internet access
- content of emails
- downloading information and accessing particular websites
- opening mail with attachments
- virus risk
- dispute resolution
- document procedures and templates
- communication methods

RANGE STATEMENT	
	financial control mechanisms
Language may include but is not limited to:	- Java - C++ - Small Talk - VB.net
Coding standards may include:	- Java coding standard - GNU coding standard
Operating system	- May include but is not limited to Linux 7.0 or above, Windows 2000 or above, Apple OS X or above, Novel Netware 5 or above. - Selected information from the logging output of the system may be used to affect script operations

Unit Sector(s)

Unit sector	Build

Co-requisite units

Co-requisite units	

Competency field

Competency field	

ICAB4222B Apply introductory programming skills in another language

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to undertake introductory programming tasks using a procedural approach to programming. An object-oriented language may be used in this approach. There may be benefit in concurrent learning with the following unit: • ICAB4224B Apply mathematical techniques for software development No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		
	ICAB4225B	Automate processes

Prerequisite units		

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. Apply basic language syntax and layout	1.1. Demonstrate understanding and application of basic <i>language</i> syntax rules 1.2. Use <i>language</i> data types, operators and expressions to create clear and concise code 1.3. Select and use the appropriate <i>language</i> syntax for sequence, selection and iteration constructs
2. Code using standard algorithms	2.1. Develop algorithms that use the <i>basic programming constructs</i> 2.2. Use a modular programming approach limited to pass-by-value parameters and module return values 2.3. Demonstrate ability to create sequential search, insertion and deletion algorithms to operate on one-dimensional arrays 2.4. Use text files and develop and code standard sequential access algorithms, including end-of-file

ELEMENT	PERFORMANCE CRITERIA
	detection loops
3. Debug code	3.1. Apply standalone debugging tools or tools provided by an integrated development environment to debug code 3.2. Use a 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 the provided coding standard when documenting activities 4.2. Apply internal documentation suitable for consumption by peers to code created and utilise documentation tools available in the target language when documenting activities
5. Test code	5.1. Create and conduct simple tests to confirm code meets design specification 5.2. Document the tests performed and results achieved
6. Create an application	6.1. Develop a solution when provided with a basic design document, including a program specification 6.2. Design the algorithm, construct and test applications in response to a problem description and language elements

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Reading and interpreting program specifications
- Translating requirements from problem space to machine space
- Integrated development environment usage
- Basic programming techniques
- Internal (code) documentation techniques
- Basic debugging techniques
- Testing techniques
- Basic documentation techniques

REQUIRED SKILLS AND KNOWLEDGE**Required knowledge**

- Programming language
- Small size application development
- Data structures
- GUI interfaces
- Best practice in application of language syntax rules

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

Evidence of the following is essential:

- Assessment must confirm that application programs are designed and built from a provided problem scenario and program specification.
- Design and code documentation must be generated. Testing must be used to confirm that created application meets original specifications and solves original problem.
- Assessment must confirm competency in all areas of the software development cycle. Code only solutions are not acceptable.
- Questions related to the performance criteria will assist in assessing competency. Observation of skills may assist in the collection of evidence.

To demonstrate competency in this unit the person will require access to:

- Software development environment
- Technical requirements

Context of and specific resources for

Programming languages form the underpinning software

EVIDENCE GUIDE**assessment**

infrastructure of all computer data processing

The breadth, depth and complexity of knowledge and skills in this competency would cover a broad range of varied activities or application in a wider variety of contexts most of which are complex and non-routine. Leadership and guidance would be involved when organising activities of self and others as well as contributing to technical solutions of a non-routine or contingency nature.

Assessment must ensure:

- Performance of a broad range of skilled applications including the requirement to evaluate and analyse current practices, develop new criteria and procedures for performing current practices and provision of some leadership and guidance to others in the application and planning of the skills would be characteristic.
- Applications may involve responsibility for, and limited organisation of, others

Method of assessment

The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1.

- Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency.
- Assessment will usually include observation of real or simulated work processes and procedures and/or

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	performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, such as: • ICAB4224B Apply mathematical techniques for software development An individual demonstrating this competency would be able to: • Demonstrate understanding of a broad knowledge base incorporating some theoretical concepts • Apply solutions to a defined range of unpredictable problems • Identify and apply skill and knowledge areas to a wide variety of contexts, with depth in some areas • Identify, analyse and evaluate information from a variety of sources • Take responsibility for own outputs in relation to specified quality standards • Take limited responsibility for the quantity and quality of the output of others • Maintain knowledge of industry products and services

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

RANGE STATEMENT	
regional contexts) may also be included.	
Organisational guidelines may include but are not limited to:	• personal use of emails and internet access • content of emails • downloading information and accessing particular websites • opening mail with attachments • virus risk • dispute resolution • document procedures and templates • communication methods • financial control mechanisms
Basic programming constructs may include but are not limited to:	• validation loops • sentinel-controlled loops • nested selections
Language may include but is not limited to:	• C • VB • Java • C++ • Small Talk • VB.net
Integrated development environment may include but is not limited to:	• C • VB • Visual C++ • Visual Studio suite • Eclipse • J-Edit • Code Warrior
Coding standard may include:	• Java coding standard • GNU coding standard

Unit Sector(s)

Unit sector	Build

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAB4224B Apply mathematical techniques for software development

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to use basic mathematical methods and operations with real numbers and their precedence, the evaluation and construction of formulae in standard and computer notation and the use of Boolean algebra, data types and computer storage. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

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. Manipulate algebraic terms, leading to the solution of linear equations	1.1. Position number types on the number line 1.2. Evaluate various numerical expressions involving integers, fractions and indices 1.3. Simplify various algebraic expressions involving integers, fractions and indices
2. Construct mathematical formulae	2.1. Solve simple equations 2.2. Convert formulae between standard algebraic form and computer form 2.3. Create several formulae in standard algebraic form and in computer form
3. Simplify and evaluate Boolean expressions and formulae	3.1. Simplify and evaluate several Boolean expressions 3.2. Complete truth tables based on simple Boolean expressions and logic 3.3. Simplify and evaluate several formulae
4. Manipulate number and character representation systems	4.1. Convert numbers between binary, decimal and hexadecimal number systems 4.2. Add, subtract and multiply numbers in binary 4.3. Determine binary memory storage of an integer and a character

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Problem solving skills with real numbers
- Manipulation of algebraic terms and equations
- Evaluation of Boolean expressions and formulae
- Integer and character storage in bytes in computer memory

Required knowledge

- Basic understanding of mathematical terms and operations
- Calculation tools

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

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

Evidence of the following is essential:

- Assessment must confirm the ability to solve and evaluate various mathematical problems, and demonstrate an understanding of use and manipulation of Boolean algebra, number types and memory storage in various computational contexts.
- Knowledge and skills in this competency are expected to give the person a good understanding of the use of mathematical ideas and techniques.

Context of and specific resources for assessment

Mathematics and algebraic manipulation forms the underpinning structure of computer architecture and memory storage as well as programming languages.

The breadth, depth and complexity of knowledge and skills in this competency would cover a broad range of

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	varied activities or application in a wider variety of contexts most of which are complex and non-routine. Leadership and guidance would be involved when organising activities of self and others as well as contributing to technical solutions of a non-routine or contingency nature. Assessment must ensure: • Performance of a broad range of skilled applications including the requirement to evaluate and analyse current practices, develop new criteria and procedures for performing current practices and provision of some leadership and guidance to others in the application and planning of the skills would be characteristic. • Applications may involve responsibility for, and limited organisation of, others.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment

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	process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. An individual demonstrating this competency would be able to: • Demonstrate understanding of a broad knowledge base incorporating some theoretical concepts • Apply solutions to a defined range of unpredictable problems • Identify and apply skill and knowledge areas to a wide variety of contexts, with depth in some areas • Identify, analyse and evaluate information from a variety of sources • Take responsibility for own outputs in relation to specified quality standards • Take limited responsibility for the quantity and quality of the output of others • Maintain knowledge of industry products and services

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.	
<i>Boolean expressions</i> may include the use of:	• AND • OR • NOT

Unit Sector(s)

Unit sector	Build

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAB4225B Automate processes

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to automate solutions by using basic scripting processes and application specific scripting options. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

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. Develop algorithms to represent solution to a given problem	1.1. Develop an algorithm which is an exact and sufficient description of the solution 1.2. Develop an algorithm which takes account of all expected possible situations 1.3. Develop an algorithm which is guaranteed to end
2. Describe structures of algorithms	2.1. Demonstrate use of structure, sequence, selection and iteration 2.2. Use structures to describe algorithmic solutions to a problem
3. Design and write script	3.1. Create an abstract design to fulfil the requirements of the proposed process 3.2. Review the abstract design for omissions or errors 3.3. Translate the abstract design to the chosen script language 3.4. Create internal script document
4. Verify and review script	4.1. Check the script for syntax and semantic errors 4.2. Identify areas that are not covered or are covered incorrectly in the script
5. Document script	5.1. Create technical-level documentation 5.2. Create user-level documentation

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Creation of scripts to automate application system tasks
- Manipulation and automation of data
- Execution of scripts for set repeat time slices/single runs or break-out loops
- Interaction with user via script
- Using inbuilt scripting options for a variety of scenarios

Required knowledge

- Scripting language syntax
- Scripting techniques
- Debugging knowledge for a variety of scripting scenarios

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

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

Evidence of the following is essential:

- Assessment will confirm knowledge of algorithm design and development.
- Assessment will develop an algorithmic statement of a solution for a set process.

To demonstrate competency in this unit the person will require access to:

- Applications capable of being scripted or having own scripting language

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	• Templates for automating processes
Context of and specific resources for assessment	Automating processes using inbuilt scripting languages forms a key part of increasing throughput for applications to automate processes. All applications or systems administration should examine the options to automate processes to enhance performance. Automating processes are an integral part of contemporary computing. The breadth, depth and complexity of knowledge and skills in this competency would cover a broad range of varied activities or application in a wider variety of contexts most of which are complex and non-routine. Leadership and guidance would be involved when organising activities of self and others as well as contributing to technical solutions of a non-routine or contingency nature. Assessment must ensure: • Performance of a broad range of skilled applications including the requirement to evaluate and analyse current practices, develop new criteria and procedures for performing current practices and provision of some leadership and guidance to others in the application and planning of the skills would be characteristic. • Applications may involve responsibility for, and limited organisation of, others.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be

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	assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. An individual demonstrating this competency would be able to: - Demonstrate understanding of a broad knowledge base incorporating some theoretical concepts - Apply solutions to a defined range of unpredictable problems - Identify and apply skill and knowledge areas to a wide variety of contexts, with depth in some areas - Identify, analyse and evaluate information from a variety of sources - Take responsibility for own outputs in relation to specified quality standards - Take limited responsibility for the quantity and quality of the output of others Additionally, an individual demonstrating this competency would be able to: - Understand the application or process that scripting will control - Demonstrate basic theoretical knowledge of algorithm design - Apply scripting concepts to a variety of manual operations

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	• Maintain knowledge of industry products and services

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.

Requirements may be in reference to:

- business
- system
- application
- network
- people in the organisation

Script language may include:

- Java Script
- Python
- Perl
- Shell script
- VB Script

Client may include but is not limited to:

- internal departments
- external organisations
- clubs, individual people
- internal employees

Unit Sector(s)

Unit sector	Build

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAB4229B Apply intermediate programming skills in another language

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to undertake intermediate programming tasks using another programming language. The language may be an object-oriented language. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		
	ICAB4222B	Apply introductory programming skills in another language

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. Code using user defined data structures	1.1.Design, define and use data structures that are an aggregate of other <i>data types</i> 1.2.Code using an array of user-defined <i>data types</i> 1.3.Use the facilities in the language to create, manipulate and destroy dynamic variables but limited to simple usage, such as an array of dynamic variables
2. Code using standard algorithms	2.1.Demonstrate use of a modular programming approach, including pass-by-reference parameter passing 2.2.Write code to create and manipulate a two-dimensional array 2.3.Create and maintain a sorted array and use language-provided facilities for sorting an array of ordered elements 2.4.Code a simple binary search technique for use with an array of sorted data 2.5.Code binary file handling solutions using random access algorithms
3. Debug code	3.1.Use standalone debugging tools or tools provided by <i>integrated development environment</i> to debug code 3.2.Use a debugger to trace code execution and examine

ELEMENT	PERFORMANCE CRITERIA
	variable contents to detect and correct errors
4. Document activities	4.1. Follow organisational guidelines for developing maintainable code and adhere to the provided coding standard when documenting activities 4.2. Apply internal documentation suitable for use by peers to all code created and utilise documentation tools available in the target language when documenting activities
5. Testing	5.1. Design and document tests 5.2. Undertake limited testing of produced code to ensure compliance with program specification 5.3. Capture and record test results
6. Create an application	6.1. Build an application that requires access to multiple source code files 6.2. Employ integrated development environment project maintenance facilities or make files to automate program building 6.3. Develop a program specification solution when provided with a basic design document 6.4. Design the algorithm, and document, construct and test applications in response to a problem description using the language

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Reading and interpreting program specifications
- Translating requirements from problem space to machine space
- Integrated development environment usage
- Program coding techniques
- Internal (code) documentation techniques
- Debugging techniques
- Testing techniques
- Documentation techniques

REQUIRED SKILLS AND KNOWLEDGE**Required knowledge**

- Medium application development
- User-defined data structures
- Standard array and file handling algorithms
- Dynamic variables

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

Evidence of the following is essential:

- Assessment must confirm that application programs are designed and built from a provided problem scenario and program specification.
- Design and code documentation must be generated. Testing must be used to confirm that created application meets original specification and solves original problem.
- Assessment must confirm competency in all areas of the software development cycle.

To demonstrate competency in this unit the person will require access to:

- Software development environment
- Technical requirements

Context of and specific resources for assessment

Programming languages form the underpinning software infrastructure of all computer data processing. The breadth, depth and complexity of knowledge and skills in this competency would cover a broad range of varied activities or application in a wider variety of contexts most of which are complex and non-routine. Leadership and guidance would be involved when organising

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	activities of self and others as well as contributing to technical solutions of a non-routine or contingency nature. Assessment must ensure: • Performance of a broad range of skilled applications including the requirement to evaluate and analyse current practices, develop new criteria and procedures for performing current practices and provision of some leadership and guidance to others in the application and planning of the skills would be characteristic. • Applications may involve responsibility for, and limited organisation of, others. The stages of the development methodology should be followed within the scope of a project or scenario, and the relevant supporting documentation produced.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills.

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	The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. An individual demonstrating this competency would be able to: • Demonstrate understanding of a broad knowledge base incorporating some theoretical concepts • Apply solutions to a defined range of unpredictable problems • Identify and apply skill and knowledge areas to a wide variety of contexts, with depth in some areas • Identify, analyse and evaluate information from a variety of sources • Take responsibility for own outputs in relation to specified quality standards • Take limited responsibility for the quantity and quality of the output of others • Maintain knowledge of industry products and services Additionally, an individual demonstrating this competency would be able to: • Understand a limited range of development methodologies and their application • Demonstrate limited theoretical knowledge of language development • Apply a programming methodology to a project or scenario • Produce documentation required for the chosen methodology

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.

Organisational guidelines may include but are not limited to:

- personal use of emails and internet access
- content of emails
- downloading information and accessing particular websites
- opening mail with attachments
- virus risk
- dispute resolution
- document procedures and templates
- communication methods
- financial control mechanisms

Documentation may follow:

- ISO/IEC/AS standards
- audit trails
- naming standards
- version control
- project management templates
- report writing

Data types may include but are not limited to:

- language-provided data types

Integrated development environment may include but is not limited to:

- Borland C++
- Visual C++
- Visual Studio suite
- Eclipse
- Code Warrior

Coding standards may include:

- ANSI C coding standard
- GNU coding standard

Language may include but is not limited to:

- C
- VB
- Java
- C++
- Small Talk
- VB.net

Unit Sector(s)

Unit sector	Build

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAB4232B Maintain open source code programs

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to contribute as a member of an open source software project community and to maintain open source code. The open source development model differs considerably from the traditional commercial model. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		
	ICAB4222B	Apply introductory programming skills in another language

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. Introduction to open source paradigm	1.1.Examine the open source paradigm and demonstrate an understanding of the differences from the traditional <i>software</i> development models 1.2. Investigate and demonstrate understanding of the types of <i>on-line resources</i> 1.3. Investigate and demonstrate understanding of the types of project <i>documentation</i> 1.4. Recognise and demonstrate understanding of the role of an <i>on-line community</i> and international collaboration 1.5. Examine and demonstrate understanding of motivational factors for contributors to open source code 1.6. Analyse and demonstrate understanding of open source <i>licensing models</i>
2. Familiarise with target project	2.1. Examine <i>on-line resources</i> associated with the target project 2.2. Download pre-built executable binaries, to install and run project 2.3. Download, read and demonstrate understanding of supporting <i>documentation</i>
3. Prepare for	3.1. Select and register with a relevant <i>on-line</i>

ELEMENT	PERFORMANCE CRITERIA
maintenance activities	community open source group 3.2. Download nightly snapshots of latest source code and supporting documentation 3.3. Build and execute snapshot where appropriate
4. Maintain code	4.1. Access the project bug database and select bugs to be resolved or features to be added 4.2. Make changes to local copy of code to resolve selected bugs 4.3. Test resulting code to ensure it performs appropriately 4.4. Prepare code patch for submission 4.5. Submit code patch to project 4.6. Use appropriate software development tools and environment
5. Maintain documentation	5.1. Access project documentation 5.2. Prepare and contribute new information or updates to existing documentation 5.3. Prepare and submit documentation changes to project
6. Participate in community	6.1. Exchange messages with other project members and actively participate in community activities 6.2. Take action to ensure exchanges are socially acceptable 6.3. Submit code and documentation code patches for inclusion 6.4. Access on-line project resources frequently to keep up to date with project and community developments 6.5. Take action to ensure community participation standards are observed and maintained

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Communicating with global peers

REQUIRED SKILLS AND KNOWLEDGE

- Participating in volatile communities of interest
- Effectively participating in open source projects
- Building existing software projects from source
- Creating and maintaining code
- Testing and debugging code at a high level

Required knowledge

- Open source development methodology
- On-line project communities
- Project-specific knowledge

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

Evidence of the following is essential:

- Assessment must confirm that a significant contribution to an open source project has occurred. Contributions will be in the form of:
 - Program source code changes and/or additions
 - Documentation changes and/or additions
 - On-line participation in the project direction
 - Local proof of building of snapshots, code modifications and testing

To demonstrate competency in this unit the person will require access to:

- Software development environment
- Access to the internet
- Technical requirements
- CVS databases
- Information repositories

EVIDENCE GUIDE	
	• Programming languages • Group facilitation software
Context of and specific resources for assessment	The breadth, depth and complexity of knowledge and skills in this competency would cover a broad range of varied activities or application in a wider variety of contexts most of which are complex and non-routine. Leadership and guidance would be involved when organising activities of self and others as well as contributing to technical solutions of a non-routine or contingency nature. Assessment must ensure: • Performance of a broad range of skilled applications including the requirement to evaluate and analyse current practices, develop new criteria and procedures for performing current practices and provision of some leadership and guidance to others in the application and planning of the skills would be characteristic. • Applications may involve responsibility for, and limited organisation of, others.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Assessment must confirm competency in all areas of the software development cycle. Code-only solutions

EVIDENCE GUIDE	
	are not acceptable. Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. An individual demonstrating this competency would be able to: - Demonstrate understanding of a broad knowledge base incorporating some theoretical concepts - Apply solutions to a defined range of unpredictable problems - Identify and apply skill and knowledge areas to a wide variety of contexts, with depth in some areas - Identify, analyse and evaluate information from a variety of sources - Take responsibility for own outputs in relation to specified quality standards - Take limited responsibility for the quantity and quality of the output of others - Maintain knowledge of industry products and services Additionally, an individual demonstrating this competency would be able to: - Contribute to and understand a range of development methodologies and their application to a project or scenario - Demonstrate theoretical knowledge of open source practices - Produce documentation

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.	
<i>Documentation</i> may follow:	• ISO/IEC/AS standards • audit trails • naming standards • version control • project management templates • report writing principles
<i>On-line project</i> may be:	• private website • commercial hosting facility hosting community code • ftp site • CVS site • other type of group repository
<i>On-line community</i>	• May include but is not limited to local communities, on-line virtual communities of interest and organisational communities • The main tools for on-line communities are mailing lists, web conferencing and newsgroups.
<i>On-line resources</i> may be:	• websites • news groups • CVS trees • gopher sites • ftp sites • community sites • on-line communities
<i>Community participation standards</i> may be:	• verbal or written policies • procedures or guidelines • may be informal or formal rules and regulations used by groups to manage their on-line projects.

RANGE STATEMENT	
Software may include but is not limited to:	• commercial software applications; organisation-specific software, packaged software, in-house or customised software
Socially acceptable messages should be:	• designed and sent with regard to recipient's location • culture • ethnicity • race • social sensitivities
Software development tools may include:	• operating systems • target environments • development tools • computer language • version control systems • development methodology
Licensing models may include but are not limited to:	• GPL • LGPL • BSD • Mozilla • Apache licences

Unit Sector(s)

Unit sector	Build

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAB4235B Build basic perimeter security into a network

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to build basic security into either a virtual private network (VPN), a wireless local area network (WLAN) or local area network (LAN). No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

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. Assess vulnerability and threats to system	1.1. Determine levels of required basic perimeter security based on current and future needs of the business 1.2. Assess and report on current system security in line with levels of required security of <i>assets</i> 1.3. Develop basic security framework and policy if not already present having regard to <i>encryption processes, standards, protocols and management systems</i> 1.4. Determine <i>key network, software, hardware and system</i> security performance criteria 1.5. Make recommendations to management to address security deficiencies in line with current and future <i>commercial and business requirements</i>
2. Secure perimeter router	2.1. Configure routers and switches to provide appropriate levels of <i>perimeter function</i> security 2.2. Disable unneeded services 2.3. Configure supporting security services on related <i>network</i> services
3. Test and verify performance of security system implemented	3.1. Design test item to verify key measurable performance against criteria 3.2. Conduct tests and record results 3.3. Modify and debug as necessary

ELEMENT	PERFORMANCE CRITERIA
	3.4. Develop documentation on current system settings and file securely for future reference

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Ability to develop enterprise policies strategies and procedures
- Ability to undertake a network security risk assessment
- Ability to implement security strategies and configure network security software and hardware
- Implementing LAN, WAN, VPN and WLAN solutions
- Cost-benefit comparison
- Troubleshooting and debugging

Required knowledge

- Security threats, including eavesdropping, data interception, data corruption, data falsification
- Authentication issues
- Organisational issues surrounding security
- Security perimeters and their functions
- Types of VPNs, including site-to-site, user-to-site internet traffic and extranets
- Function and operation of VPN concepts, including encryption, firewalls, packet tunnelling and authentication
- Common VPN issues, including bandwidth and dynamic security environment
- Network protocols and operating systems
- Security protocols, standards and data encryption
- Configuring routers and switches
- Cryptography
- LAN, WLAN and WAN
- TCP/IP protocols and applications
- Auditing and penetration testing techniques
- Screened subnets
- Virus detection software
- Audit and intrusion detection systems

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

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

Evidence of the following is essential:

- Assessment must confirm the ability to develop, implement and maintain basic security functionality for VPNs, LANs, WANs or WLANs

To demonstrate competency in this unit the person will require access to:

- Network technical requirements
- Network infrastructure, including servers and security hardware and software

Context of and specific resources for assessment

The breadth, depth and complexity of knowledge and skills in this competency would cover a broad range of varied activities or application in a wider variety of contexts most of which are complex and non-routine. Leadership and guidance would be involved when organising activities of self and others as well as contributing to technical solutions of a non-routine or contingency nature.

Assessment must ensure:

- Performance of a broad range of skilled applications including the requirement to evaluate and analyse current practices, develop new criteria and procedures for performing current practices and provision of some leadership and guidance to others in the application and planning of the skills would be characteristic.
- Applications may involve responsibility for, and

EVIDENCE GUIDE	
	limited organisation of, others.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. - Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. - Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. An individual demonstrating this competency would be able to: - Demonstrate understanding of a broad knowledge base incorporating some theoretical concepts - Apply solutions to a defined range of unpredictable problems - Identify and apply skill and knowledge areas to a wide variety of contexts, with depth in some areas - Identify, analyse and evaluate information from a variety of sources

EVIDENCE GUIDE

	• Take responsibility for own outputs in relation to specified quality standards • Take limited responsibility for the quantity and quality of the output of others • Maintain knowledge of industry products and services

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.

Assets may include:	• data and information • intellectual property • physical assets
Networks may include:	• VPNs • WLANs • WANs
Standards, protocols and management systems may include:	• IEEE 802.11 Protocol standard for secure wireless local area network products. • AAA security • Secure multi-purpose internet mail extensions • Secure socket layer and transport layer security • IP security protocol • Domain name system security extensions • Data over cable service interface specification • Point-to-point network tunnelling protocol • Secure electronic transactions • Secure shell • Generic routing encapsulation • Network port addresses translation (NAT/PAT) • Access control lists, context-based control lists

RANGE STATEMENT	
	Internet group management protocol
Encryption processes may include:	built-in or third-party products, including sniffers, PKI, SSH, DESlogin, PKZIP, secure socket layer (SSL), digital signatures, Cisco IOS layer encryption, TACACS, RADIUS, internet key exchange and simple certificate enrolment protocol
Software may include:	- security - audit - operating systems - virus checking network monitoring software - applications systems - encryption modules
Hardware may include:	- Firewall devices - Routers - Switches - Wired and wireless networks - Network monitoring appliances - Desktop and laptop computers, networked and standalone
Commercial and business requirements	- Back-up and recovery of data - Remote access to internal network - Password logons - Firewalls - Hacking prevention - Confidentiality - Integrity - Availability
System may include:	- databases - applications - servers - operating systems - gateways - application and external agencies, such as ISPs, digital certification providers
Perimeter functions may include:	- identification - authentication - authorisation - access control - auditing

RANGE STATEMENT

	• surveillance

Unit Sector(s)

Unit sector	Build

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAB4236B Build security into a virtual private network

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to build security into a virtual private network (VPN). No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

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. Configure router to provide for network security monitoring and management	1.1. Create and apply audit rules consistent with <i>policies, standards, protocols and management systems</i> 1.2. Configure router to provide appropriate level of asset security and monitoring of security consistent with <i>commercial and business requirements</i> 1.3. Monitor and manage system to assess the level of security and attempts to breach security of <i>framework components</i> 1.4. Employ appropriate <i>hardware</i> and <i>software</i> to monitor and 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) 2.2. Configure site-to-site IPSec VPN using pre-shared keys 2.3. Configure site-to-site IPSec VPN using digital certificates
3. Secure a remote access VPN	3.1. Configure a VPN server 3.2. Install and administer a router management console 3.3. Develop documentation on current <i>system</i> settings and <i>framework components</i> and file securely for future reference

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Ability to develop enterprise policies, strategies and procedures
- Ability to undertake a network security risk assessment
- Ability to implement security strategies and configure network security software and hardware
- Implementing LAN, WLAN, VPN and WAN solutions
- Cost-benefit comparison
- Troubleshooting and debugging

Required knowledge

- Security threats, including eavesdropping, data interception, data corruption, data falsification, authentication issues
- Organisational issues surrounding security
- Security perimeters and their functions
- Types of VPNs, including site-to-site, user-to-site internet traffic and extranets
- Function and operation of virtual private networking (VPN) concepts, including encryption, firewalls, packet tunnelling and authentication
- Common VPN issues, including bandwidth, dynamic security environment
- Network protocols and operating systems
- Configuring routers and switches
- Cryptography
- LAN, WLAN and WAN solutions
- TCP/IP protocols and applications
- Auditing and penetration testing technique
- Security protocols, standards and data encryption.
- Auditing and penetration testing techniques
- Screened subnets
- Virus detection software
- Audit and intrusion detection systems

Evidence Guide

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

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

Evidence of the following is essential:

- Assessment must confirm the ability to develop, implement and maintain basic security functionality for either VPN, LANs, WANs or WLANs

To demonstrate competency in this unit the person will require access to:

- Network technical requirements

Network infrastructure, including servers and security hardware and software

Context of and specific resources for assessment

This competency can be assessed in the workplace or in a simulated environment. Assessment of this unit of competency will usually include observation of real or simulated work processes and procedures, quality projects, questioning on underpinning knowledge and skills

Questions related to the performance criteria and directed to the candidate, peers and business client will assist in assessing competency. Observation of skills may assist in the collection of evidence.

The breadth, depth and complexity of knowledge and skills in this competency would cover a broad range of varied activities or application in a wider variety of contexts most of which are complex and non-routine. Leadership and guidance would be involved when organising activities of self and others as well as contributing to technical solutions of a non-routine or contingency nature.

Assessment must ensure:

- Performance of a broad range of skilled applications including the requirement to evaluate and analyse

EVIDENCE GUIDE	
	current practices, develop new criteria and procedures for performing current practices and provision of some leadership and guidance to others in the application and planning of the skills would be characteristic. • Applications may involve responsibility for, and limited organisation of, others.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. An individual demonstrating this competency would be able to: • Demonstrate understanding of a broad knowledge

EVIDENCE GUIDE

	base incorporating some theoretical concepts • Apply solutions to a defined range of unpredictable problems • Identify and apply skill and knowledge areas to a wide variety of contexts, with depth in some areas • Identify, analyse and evaluate information from a variety of sources • Take responsibility for own outputs in relation to specified quality standards • Take limited responsibility for the quantity and quality of the output of others • Maintain knowledge of industry products and services

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.

Standards, protocols and management systems may include:

- IEEE 802.11 Protocol standard for secure wireless local area network products.
- AAA security
- Secure multi-purpose internet mail extensions
- Secure socket layer and transport layer security
- IP security protocol
- Domain name system security extensions
- Data over cable service interface specification
- Point-to-point network tunnelling protocol
- Secure electronic transactions
- Secure shell
- Generic routing encapsulation
- Network port addresses translation (NAT/PAT)

RANGE STATEMENT	
	• Access control lists, context-based control lists • Internet group management protocol
Software may likely to be:	• packaged software but can be supplied from many varying vendors and can include security • audit • operating systems • virus checking • encryption modules
Hardware may include:	• Firewall devices • Routers • Switches • Wired and wireless networks • Network monitoring appliances • Desktop and laptop computers, networked and standalone
Commercial and business requirements may include:	• Back-up • Password logons • Firewalls • Hacking prevention • Confidentiality • Integrity • Availability
System	• databases • applications • servers • operating systems • gateways • application • external service providers such as ISPs and digital certification suppliers
Framework components	• May include trusted systems; trusted hardware and operating systems at selective desktops, servers, network points and mainframes; operating systems capable of providing access control, audit services; firewall technologies; multi-platform directory services supporting relevant standards; deployment of PKI, CA and key management services; support for generalised security services interfaces, personnel security

RANGE STATEMENT	
Policies may include:	• Incident response procedures • network intrusion detection systems • audit systems
Perimeter functions	• identification • authentication • access control • auditing • surveillance

Unit Sector(s)

Unit sector	Build

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAB4239C Build a small wireless local area network

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to build and arrange connectivity to a basic wireless local area network (WLAN). No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

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. Select, install and configure wireless access point	1.1. Select access point device based on current and future needs of the <i>client</i> 1.2. Install and configure access point to provide wireless access to <i>network</i> 1.3. Configure services 1.4. Test access point and verify wireless connection
2. Install and configure wireless card	2.1. Select appropriate wireless card 2.2. Install and configure wireless card 2.3. Configure <i>security</i> and other key parameters consistent with <i>commercial and business requirements</i>
3. Monitor and administer wireless network	3.1. Monitor wireless <i>network</i> performance using diagnostic <i>tools</i> 3.2. Debug networking issues to maintain trouble-free wireless connection 3.3. <i>Document</i> current settings and store securely

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Design, development and implementation of various wireless network solutions
- Ability to implement wireless networking strategies and configure wireless network software and hardware
- Implementing LANs
- Cost-benefit comparison
- Troubleshooting and debugging

Required knowledge

- Security threats
- Network protocols and operating systems
- Security protocols, standards and data encryption
- Factors affecting signal quality
- Wireless topologies
- Wireless security strategies
- SOHO and enterprise LANs
- Layer 2 and layer 3 design issues
- Bandwidth and quality of service
- WLAN and WAN solutions
- TCP/IP protocols and applications
- Auditing and penetration testing techniques
- Audit and intrusion detection systems

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

Critical aspects for assessment and evidence required to demonstrate

Evidence of the following is essential:

- Assessment must confirm the ability to develop,

EVIDENCE GUIDE	
competency in this unit	implement and maintain wireless networks. To demonstrate competency in this unit the following resources will be needed: • Network technical requirements • Network infrastructure, including wireless hardware and software
Context of and specific resources for assessment	The breadth, depth and complexity of knowledge and skills in this competency would cover a broad range of varied activities or application in a wider variety of contexts most of which are complex and non-routine. Leadership and guidance would be involved when organising activities of self and others as well as contributing to technical solutions of a non-routine or contingency nature. Assessment must ensure: • Performance of a broad range of skilled applications including the requirement to evaluate and analyse current practices, develop new criteria and procedures for performing current practices and provision of some leadership and guidance to others in the application and planning of the skills would be characteristic. • Applications may involve responsibility for, and limited organisation of, others.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should to be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated

EVIDENCE GUIDE	
	environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process.
Guidance information for assessment	The interdependence of units for assessment purposes may vary with the particular project or scenario. Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. An individual demonstrating this competency would be able to: - Demonstrate understanding of a broad knowledge base incorporating some theoretical concepts - Apply solutions to a defined range of unpredictable problems - Identify and apply skill and knowledge areas to a wide variety of contexts, with depth in some areas - Identify, analyse and evaluate information from a variety of sources - Take responsibility for own outputs in relation to specified quality standards - Take limited responsibility for the quantity and quality of the output of others - Maintain knowledge of industry products and services

Range Statement

RANGE STATEMENT

The range statement relates to the unit of competency as a whole. It allows for different

RANGE STATEMENT	
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.	
<i>Client</i> may include but is not limited to:	• internal departments • external organisations • individuals • internal employees
<i>Networks</i> may include:	• domestic and small enterprise WLANs
<i>Security</i> may include but is not limited to:	• IPSec • SSL • PKM • LEAP • WEP • WPA • AAA • Diameter • Tokens • smart cards
<i>Commercial and business requirements</i> may include:	• Back-up and recovery of data • Remote access to internal network • Password logons • Firewalls • Hacking prevention • Confidentiality • Integrity • Availability
<i>Tools</i> may include but are not limited to:	• network performance software • data and voice integration measurements
<i>Documentation</i> may follow:	• ISO/IEC/AS standards • audit trails • naming standards • version control • project management templates and report writing • maintaining equipment inventory • client training • satisfaction reports

RANGE STATEMENT	
Organisational requirements may include but is not limited to:	• how and what the organisation wants in regard to work environment • problem solution processes • preventative maintenance and diagnostic policy • roles and technical responsibilities in network management • vendor and product service-level support agreements
Hardware may include but is not limited to:	• mobile equipment • workstations • personal computers • modems wireless access points • power controllers • UPS • antennae and other connectivity devices • networks • DSL modems • remote sites • servers
Cabling may include but is not limited to:	• Category 5e, 6, 7 coaxial and fibre

Unit Sector(s)

Unit sector	Build

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAB4240C Build an enterprise wireless network

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to build an enterprise wireless network. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

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. Select, install and configure access points and other wireless devices	1.1. Select appropriate hardware including access points, bridges and other wireless devices based on current and future needs of the enterprise 1.2. Install and configure access points, bridges and other wireless devices to provide wireless access to network 1.3. Configure security , monitoring, logging and quality of service features consistent with standards and protocols 1.4. Test wireless network systems performance and verify that it meets enterprise requirements and is consistent with standards and protocols
2. Select, install and configure antennas	2.1. Select appropriate antennas based on current and future needs of the business 2.2. Safely install and configure antennas to provide wireless access to network 2.3. Obtain optimal signal strength
3. Secure wireless network	3.1. Identify possible security threats to assets 3.2. Configure client server and helper security devices 3.3. Configure associations and filters
4. Monitor and administer wireless network	4.1. Monitor wireless network performance using diagnostic tools including appropriate software 4.2. Debug networking issues to maintain trouble-free wireless connection 4.3. Document current settings and store securely

ELEMENT	PERFORMANCE CRITERIA
	consistent with <i>commercial and business requirements</i>

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Design, development and implementation of various wireless network solutions
- Ability to implement wireless networking strategies and configure wireless network software and hardware
- Implementing LANs
- Cost-benefit comparison
- Troubleshooting and debugging

Required knowledge

- Security threats
- Network protocols and operating systems
- Security protocols, standards and data encryption
- Factors affecting signal quality
- Wireless topologies
- Wireless security strategies
- SOHO and enterprise LANs
- Layer 2 and layer 3 design issues
- Bandwidth and quality of service
- WLAN and WAN solutions
- TCP/IP protocols and applications
- Auditing and penetration testing techniques
- Audit and intrusion detection systems

Evidence Guide

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	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: - Assessment must confirm the ability to develop, implement and maintain wireless networks. To demonstrate competency in this unit the following resources will be needed: - Network technical requirements - Network infrastructure, including wireless hardware and software
Context of and specific resources for assessment	The breadth, depth and complexity of knowledge and skills in this competency would cover a broad range of varied activities or application in a wider variety of contexts most of which are complex and non-routine. Leadership and guidance would be involved when organising activities of self and others as well as contributing to technical solutions of a non-routine or contingency nature. Assessment must ensure: - Performance of a broad range of skilled applications including the requirement to evaluate and analyse current practices, develop new criteria and procedures for performing current practices and provision of some leadership and guidance to others in the application and planning of the skills would be characteristic. - Applications may involve responsibility for, and limited organisation of, others.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have

EVIDENCE GUIDE

	special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. - Competency in this unit should to be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. - Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process.
Guidance information for assessment	The interdependence of units for assessment purposes may vary with the particular project or scenario. Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. An individual demonstrating this competency would be able to: - Demonstrate understanding of a broad knowledge base incorporating some theoretical concepts - Apply solutions to a defined range of unpredictable problems - Identify and apply skill and knowledge areas to a wide variety of contexts, with depth in some areas - Identify, analyse and evaluate information from a variety of sources - Take responsibility for own outputs in relation to specified quality standards - Take limited responsibility for the quantity and quality of the output of others - Maintain knowledge of industry products and services

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.

Hardware may include but is not limited to:

- mobile equipment
- workstations
- personal computers
- modems wireless access points
- power controllers
- UPS
- antennae and other connectivity devices
- networks
- DSL modems
- remote sites
- servers

Network topology may include:

- cabled connected single zone
- multiple zone
- stand-alone multi-zone wireless networks
- indoor and outdoor installations
- satellite connections
- carrier links
- LMDS
- MMDS
- Free Space Optics

Security may include but is not limited to:

- IPSec
- SSL
- PKM
- LEAP
- WEP
- WPA
- AAA
- Diameter
- tokens
- smart cards

RANGE STATEMENT	
Standards may include:	• ISO/IEC/IEEE/IETF/ITU/AS standards • organisational standards • project standards
Enterprise requirements may include but are not limited to:	• how and what the organisation wants in regard to work environment • problem solution processes • preventative maintenance and diagnostic policy • roles and technical responsibilities in network management • vendor and product service-level support agreements
Assets may include:	• data and information • intellectual property • physical assets
Software may include but is not limited to:	• commercial software applications; organisation-specific software, packaged software, in-house or customised software
Documentation may follow:	• ISO/IEC/AS standards • audit trails • naming standards • version control • project management templates and report writing • maintaining equipment inventory • client training • satisfaction reports
Commercial and business requirements may include:	• Back-up and recovery of data • Remote access to internal network • Password logons • Firewalls • Hacking prevention • Confidentiality • Integrity • Availability
Client may include but is not limited to:	• internal departments • external organisations • clubs • communities • individual people • internal employees

RANGE STATEMENT	
User may include:	• a department • a department within the organisation • community members • a third party
Cabling may include but is not limited to:	• to Category 5e, 6, 7 coaxial and fibre
Tools may include but are not limited to:	• network performance software • data and voice integration measurements • policing and shaping tools • frequency and spectrum analysers • cable testing • equipment testing • carrier connection tests • power meters • radiation meter

Unit Sector(s)

Unit sector	Build

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAB4247A Link an RFID system to a database

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to transfer RFID data to a database. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		
	ICAB4136B	Use structured query language to create database structures and manipulate data

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. Determine data mapping and integration requirements	1.1. Identify and document the format of the data from the RFID system including data schema 1.2. Collect required data, target <i>database</i> requirements and implementation details ensuring uniqueness of entries
2. Perform data transition	2.1. Write and test <i>conversion programs</i> and use <i>conversion tools</i> 2.2. Ensure clean data take-on by converting according to database requirements 2.3. Utilize database adaptors and interfaces for data transition
3. Check data transition	3.1. Verify that data transition has been completed in accordance with requirements 3.2. Document programs, procedures and processes in accordance with clients requirements 3.3. Provide conversion reports to client for signoff

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- ISO/IEC standard 15962:2004 used as reference
- Database data formats
- RFID data formats
- Data conversion programs
- Sample data conversion program used as model to write program
- Data base reports discussed and sample reports generated
- Analysis skills to determine data objects required, data structures, business requirements
- Registering a data source name (DSN)
- Use of website administration software and site server utilities
- Ability to build a database using a commercially available database product, including: MS SQL server 7.0, Oracle, Sybase
- HTML/XML

Required knowledge

- Knowledge of clients database data structures
- Broad knowledge of the client's data management and data security policies and procedures
- Broad knowledge of system data requirements
- Knowledge of software tools
- Detailed knowledge of the system's current functionality (e.g. when performing data transition)
- Programming skills
- Broad knowledge of quality assurance practices (e.g. when checking data integrity)
- Data analysis, particularly in determining data types and data structures and query and report design
- CGI
- Primary files and transaction logs
- Open database connection (ODC)
- Website foundations
- Data source names (DSN)

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

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

Evidence of the following is essential:

- Assessment must confirm the ability to identify formats of RFID system output and data fields in database.
- Assessment must confirm the ability to analyse, write, install and test conversion programs.
- Identify format of output from RFID system
- Identify format of data fields of database
- Write or obtain, and install conversion software
- Compile entries in database reports

Context of and specific resources for assessment

The integration of databases with web connectivity is of fundamental importance to e-commerce transactions.

This competency requires a breadth, depth and complexity of knowledge and would cover a broad range of varied activities.

The breadth, depth and complexity covering planning and initiation of alternative approaches to skills or knowledge applications across a broad range of technical and/or management requirements, evaluation and coordination would be characteristic.

The demonstration of competency may also require self-directed application of knowledge and skills, with substantial depth in some areas where judgement is required in planning and selecting appropriate equipment, services and techniques for self and others.

To demonstrate competency in this unit the person will require access to:

- RFID equipment specifications

EVIDENCE GUIDE	
	• Conversion tools • Database software • Organisational guidelines • Networked computers
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. The following assessment method is appropriate for this unit: • Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • The assessment of this unit of competency will usually include observation of RFID system and database configuration and equipment selection for a variety of scenarios. • Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. • The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. An individual demonstrating this competency would be able to: • Demonstrate understanding of a broad knowledge

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	base incorporating theoretical concepts, with substantial depth in some areas • Analyse and plan approaches to technical problems or management requirements • Transfer and apply theoretical concepts and/or technical or creative skills to a range of situations • Take responsibility for own outputs in relation to broad quantity and quality parameters • Take some responsibility for the achievement of group outcomes • Maintain knowledge of industry products and services

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.

Database may include:

- relational databases
- object relational databases
- proprietary databases
- commercial off-the-shelf (COTS) database packages
- Software, e.g.
 - Oracle
 - Sybase
 - Microsoft SQL Server
 - Access connected to a SQL server
 - Ingres
 - DB2
 - Informix
 - mSQL
 - MySQL

RANGE STATEMENT	
	• SQL Server
Conversion programs may be in:	• object-oriented language • procedural programming language
Conversion tool may include tools for:	• analysis of data quality, e.g. • QDB/Analyze • WizRule • Unitech Systems Inc) • extraction and transformation, e.g. • ETI Extract • Passport • Warehouse Manager • InfoPump, InfoHub, InfoRefiner, InfoSuite • cleansing data, e.g. • Integrity • Enterprise/Integrator • data mart management

Unit Sector(s)

Unit sector	Build

Co-requisite units

Co-requisite units	

Competency field

Competency field	

ICAB5062B Perform data conversion

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to translate data from one format to another by means of a data conversion process. The following units are linked and form an appropriate cluster: • ICAB5063B Monitor and support data conversion • ICAI5096B Complete data transition No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

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. Prepare system for conversion	1.1. Obtain data stores that are subject to conversion 1.2. Protect and confirm back-up solutions 1.3. Trial conversion work in an isolated environment secure from production system 1.4. Map and document required data fields from the old system to the new or upgraded system 1.5. Determine field validation requirements from conversion plans, including data field legal ranges 1.6. Determine actions to be taken with fields or records that are rejected by the conversion plan 1.7. Consult stakeholders on creation of conversion plan 1.8. Design data conversion program modules from conversion specifications 1.9. Code and test data conversion program modules according to conversion specifications 1.10. Confirm data conversion and test converted production data
2. Perform data	2.1. Estimate and plan for conversion time

ELEMENT	PERFORMANCE CRITERIA
conversion	2.2. Prepare production system for data conversion and take off-line 2.3. Undertake action to protect production data 2.4. Take action to ensure minimal disruption to client business requirements during the conversions process 2.5. Document data rejected by conversion routines and the reason for rejection 2.6. Execute conversion program modules 2.7. Document results of the conversion process and report to appropriate person

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Problem solving skills for a defined range of unpredictable problems involving participation in the development of strategic initiatives (e.g. when performing data conversion)
- Plain English literacy and communication skills in relation to analysis, evaluation and presentation of information

Required knowledge

- Broad knowledge of industry-accepted DBMS modelling
- Broad knowledge of conversion from legacy systems
- Broad knowledge of current industry data conversion tools
- Current industry-accepted hardware and software products, with broad knowledge of general features and capabilities and detailed knowledge in some areas
- Broad knowledge of current data modelling methodologies

Evidence Guide

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

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

Evidence of the following is essential:

- Assessment must confirm sufficient knowledge of the inherent data requirements of both old and upgraded or new systems. Assessment must confirm the ability to remodel data to achieve successful conversion.

To demonstrate competency in this unit the person will require access to:

- Analysis of the source data
- Software development environment
- Technical requirements
- Data mappings
- Logic to convert the data
- Plan of the conversion routines
- Business quality assurance rules associated with data
- The person will need access to the data conversion plan to demonstrate competency in this unit.

Context of and specific resources for assessment

The data conversion process should include/cover:

- Replacing missing data values
- Ensuring correct field values to match field definitions
- Removing unwanted duplicates
- Establishing storage and data presentation standards
- Standardising abbreviations
- Removing unwanted or unnecessary characters and data types

Checking the consistency of data across files and testing data integrity rules

Data conversion is the translation of data from one format to another. Often when data is moved from one system to another, some form of data conversion is

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	required to convert the data to a format the receiving system can interpret. In some cases, it is even necessary to have an intermediate format before converting to final form. The breadth, depth and complexity covering planning and initiation of alternative approaches to skills or knowledge applications across a broad range of technical and/or management requirements, evaluation and coordination would be characteristic. Assessment must ensure: • The demonstration of competency may also require self-directed application of knowledge and skills, with substantial depth in some areas where judgement is required in planning and selecting appropriate equipment, services and techniques for self and others. • Applications involve participation in development of strategic initiatives as well as personal responsibility and autonomy in performing complex technical operations or organising others. It may include participation in teams including teams concerned with planning and evaluation functions. Group or team coordination may also be involved.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full

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	demonstration of competency. Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: - ICAB5063B Monitor and support data conversion - ICAI5096B Complete data transition An individual demonstrating this competency would be able to: - Demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas - Analyse and plan approaches to technical problems or management requirements - Transfer and apply theoretical concepts and/or technical or creative skills to a range of situations - Evaluate information, using it to forecast for planning or research purposes - Take responsibility for own outputs in relation to broad quantity and quality parameters - Take some responsibility for the achievement of group outcomes - Maintain knowledge of industry products and services

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.

<i>System</i> may include but is not limited to:	• databases • applications • servers • operating systems • gateways • application service provider • ISP
<i>Requirements</i> may be in reference to:	• business • system • platform • application • database • network • people in the organisation
<i>Stakeholders</i> may include:	• sponsor • user • development team • project team
<i>Specifications</i> may include but is not limited to:	• technical requirements • user problem statement • current system functionality
<i>Client</i> may include but is not limited to:	• internal departments • external organisations • clubs • individual people • internal employees
<i>Appropriate person</i> may include:	• supervisor • teacher • authorised business representative • client

Unit Sector(s)

Unit sector	Build

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAB5063B Monitor and support data conversion

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to monitor and support data conversion. The following unit is linked and forms an appropriate cluster: • ICAB5062B Perform data conversion No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

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. Monitor data conversion	1.1. Obtain conversion <i>supporting documentation</i> and apply to conversion process 1.2. Protect production data by taking action to ensure back-up before conversion 1.3. Determine <i>requirements</i> of the <i>client</i> and impact on business operation 1.4. Identify and confirm <i>software, hardware or environmental prerequisites</i> in the conversion plan 1.5. Validate data accuracy and integrity according to conversion specifications 1.6. Identify data rejected by conversion <i>tools</i> and actions detailed in conversion plan are carried out 1.7. Document data rejection or errant behaviour of the conversion process
2. Support conversion	2.1. Verify results 2.2. Present to <i>appropriate person</i> and obtain sign-off 2.3. Maintain and document back-up copies of conversion files according to <i>requirements</i> 2.4. Develop clear and coherent <i>technical documentation</i>

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Problem solving skills for a defined range of unpredictable problems involving participation in the development of strategic initiatives (e.g. data accuracy and integrity are validated according to conversion specifications)
- Communication skills in relation to analysis, evaluation and presentation of information (e.g. when results are verified with Domain Expert, signed off and passed on to appropriate personnel, and the production of technical documentation in a clear and coherent manner)
- Facilitation and presentation skills in relation to transferring and collecting information

Required knowledge

- Broad knowledge of data conversion from legacy systems
- Broad knowledge of current industry data conversion tools
- Current industry-accepted hardware and software products, with broad knowledge of general features and capabilities and detailed knowledge in some areas
- Broad knowledge of current data modelling methodologies

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

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

Evidence of the following is essential:

- Assessment must confirm sufficient knowledge of the inherent data requirements of both old and upgraded or new systems. Assessment must confirm the ability to achieve a physical transfer or transformation of data.

EVIDENCE GUIDE

	To demonstrate competency in this unit the person will require access to: • Data conversion plan • Conversion specifications • Documentation guidelines
Context of and specific resources for assessment	To demonstrate this unit of competency the person will during the monitoring process give consideration to: • Data migration from the legacy systems to the staging area (if necessary) • Data conditioning, cleaning, transformation, and integration in the staging area • Storing, updating and exporting converted data • Data loading and indexing on the production server • Ensuring data quality throughout the data conversion process Supplementary questioning may be used during the summative assessment phase, where necessary, to ensure that: • Data is complete and valid • Structural integrity of both the legacy system and the new database/data warehouse is sound • Data reflects and works with the business rules and data standards An individual performing at this standard will display self-directed application of knowledge and skills, with substantial depth in database design and development where judgement is required in planning and selecting appropriate equipment, services and techniques for self and others. The breadth, depth and complexity covering planning and initiation of alternative approaches to skills or knowledge applications across a broad range of technical and/or management requirements, evaluation and coordination would be characteristic.

EVIDENCE GUIDE

	Assessment must ensure: • The demonstration of competency may also require self-directed application of knowledge and skills, with substantial depth in some areas where judgement is required in planning and selecting appropriate equipment, services and techniques for self and others. • Applications involve participation in development of strategic initiatives as well as personal responsibility and autonomy in performing complex technical operations or organising others. It may include participation in teams including teams concerned with planning and evaluation functions. Group or team coordination may also be involved.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.

EVIDENCE GUIDE**Guidance information for assessment**

Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example:

- ICAB5062B Perform data conversion

An individual demonstrating this competency would be able to:

- Demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas
- Analyse and plan approaches to technical problems or management requirements
- Transfer and apply theoretical concepts and/or technical or creative skills to a range of situations
- Evaluate information, using it to forecast for planning or research purposes
- Take responsibility for own outputs in relation to broad quantity and quality parameters
- Take some responsibility for the achievement of group outcomes
- Maintain knowledge of industry products and services

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.

Supporting documentation may include:

- data conversion plan
- conversion specifications
- documentation guidelines

Requirements may be in reference to:

- business
- system

RANGE STATEMENT	
	- platform - application - database - network - people in the organisation
Client may include but is not limited to:	- internal departments - external organisations - clubs - individual people - internal employees
Hardware may include but is not limited to:	- workstations - personal computers - modems and other connectivity devices - networks - remote sites - servers - DSL modems
Software may include but is not limited to:	- commercial software applications - organisation-specific software - packaged software - in-house or customised software
Environmental prerequisites may consist of but is not limited to:	- dust - heat - extreme cold - temperature stability - air circulation - moisture
Tools may include:	- Tools that analyse data quality - Tools for extraction and transformation - Tools for cleansing data (identifying invalid field entries and forcing to legal values) - Data management tools
Appropriate person may include:	- supervisor - teacher - authorised business representative - client
Technical documentation may include:	- project specifications - reports - help references

RANGE STATEMENT

	• technical manuals • training materials and self-paced tutorials • on-line help • user guides • brochures

Unit Sector(s)

Unit sector	Build

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAB5065B Prepare for the build phase

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to prepare the development environment for the build phase and actual coding of the system. The following unit is linked and forms an appropriate cluster: • ICAB5066B Coordinate the build phase No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

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 best development platform for project	1.1. Identify <i>requirements</i> of the <i>development platform</i> using the detailed <i>technical specifications</i> 1.2. Match the <i>technical specification</i> of the <i>development platform</i> with the <i>technical specification</i> of the project and relevant <i>quality standards</i>
2. Identify best development tools for project	2.1. Identify functional requirements for development tools using the detailed <i>technical specifications</i> and other <i>program documentation</i> 2.2. Evaluate development tools for match with <i>requirements</i> and document evaluation outcomes 2.3. Select appropriate <i>development tools</i>
3. Prepare development environment	3.1. Obtain components for <i>development platform</i> , development tools and required <i>hardware</i> 3.2. Install, configure and test <i>development platform</i> and tools 3.3. Document the configuration of the <i>development platform</i>

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Ability to read and correctly interpret technical design documentation
- Analytical skills for identifying, analysing and evaluating a range of solutions
- Ability to install, configure and test a variety of development tools and platforms
- Documentation skills for quality-related software documentation
- Problem solving skills for a defined range of predictable problems (e.g. when identifying best development tools for project)

Required knowledge

- Current industry-accepted coding methods and standards in a recognised language
- Current industry-accepted DBMS modelling techniques
- Software and database design principles and techniques
- Software and database architectures and their technical requirements
- Broad knowledge of quality assurance practices (e.g. when identifying best development platform for project)
- Broad general knowledge of the client business domain (e.g. when identifying best development platform for project)

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

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

Evidence of the following is essential:

- Assessment must confirm sufficient knowledge of the build or coding phase in a number of key areas. Coding, testing, administration, GUI design, etc. are all components of this phase.

EVIDENCE GUIDE	
	• Assessment must confirm the ability to meet technical requirements by successfully preparing the development environment. To demonstrate competency in this unit the person will require access to: • Technical specifications • Version control standards • Software requirements specifications • System requirements • Design specification
Context of and specific resources for assessment	The breadth, depth and complexity covering planning and initiation of alternative approaches to skills or knowledge applications across a broad range of technical and/or management requirements, evaluation and coordination would be characteristic. Assessment must ensure: • The demonstration of competency may also require self-directed application of knowledge and skills, with substantial depth in some areas where judgement is required in planning and selecting appropriate equipment, services and techniques for self and others. • Applications involve participation in development of strategic initiatives as well as personal responsibility and autonomy in performing complex technical operations or organising others. It may include participation in teams including teams concerned with planning and evaluation functions. Group or team coordination may also be involved.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1.

EVIDENCE GUIDE

	- Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. - Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: - ICAB5066B Coordinate the build phase An individual demonstrating this competency would be able to: - Demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas - Analyse and plan approaches to technical problems or management requirements - Transfer and apply theoretical concepts and/or technical or creative skills to a range of situations - Evaluate information, using it to forecast for planning or research purposes - Take responsibility for own outputs in relation to broad quantity and quality parameters - Take some responsibility for the achievement of group outcomes - Maintain knowledge of industry products and services

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.	
<i>Requirements</i> may be in reference to:	• business • system • platform • application • database • network • people in the organisation
<i>Development platform</i> may include but is not limited to:	• operating systems • target environments • development tools • computer language used • version control systems • development methodology
<i>Technical specification</i> may include but is not limited to:	• technical requirements • user problem statement • system functionality
<i>Quality standards</i> relevant quality standards include:	• AS 4043-1992 Software configuration management • AS 4042-1992 Software configuration management plans • AS 3925.1-1994 Software quality assurance - plans • AS/NZS 4258:1994 Software user documentation process • AS/NZS ISO/IEC 12207:1997 Information technology - software life cycle processes • AS/NZS 14102:1998 Information technology - guideline for evaluation and selection of CASE tools.

RANGE STATEMENT	
	International and Australian Standards are updated and changed on a regular basis. It is therefore important to check the Standards Australia website on a regular basis for new standards: http://www.standards.com.au
Program documentation may include but is not limited to:	• user manuals • design documents • requirement documents • test documents • release documents • in-code documentation • code comments • internal module documentation • architecture documentation • design document
Development tools may include:	• CASE tools • program generator • screen generator • fourth-generation language
Components may include:	• motherboards • CMOS battery • central processing unit (CPU) • CD and DVD drives • interface cards • drives • fax/modem cards • RAM upgrades • CPU upgrades
Hardware may include but is not limited to:	• workstations • personal computers • modems and other connectivity devices • networks • remote sites • servers • DSL modems

Unit Sector(s)

Unit sector	Build

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAB5066B Coordinate the build phase

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to coordinate activities to be carried out during the build phase and actual coding of the system. The unit focuses on the day to day management of tasks associated with making sure that the software product is developed in accordance with the design specifications and project plan. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		
	ICAB5065B	Prepare for the build phase

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. Prepare work	1.1. Review the <i>specifications</i> and standards for the <i>project</i> 1.2. Review the project documentation for the <i>development environment</i> 1.3. Analyse and confirm that the <i>development environment</i> matches the project documentation and meets standards 1.4. Select <i>development tools</i>
2. Coordinate work	2.1. Determine work units based on the design 2.2. Delegate work units to the appropriate developers 2.3. Brief developers on standards, procedures, schedules and other <i>requirements</i> 2.4. Implement project management techniques to ensure that all tasks are completed on time and in accordance with standards and the <i>specification</i>
3. Coordinate development environment	3.1. Implement and test changes to the <i>development environment</i> and document outcomes 3.2. Update the project documentation for the <i>development environment</i>

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Planning skills in relation to scope and quality
- Attention to detail in coding work on units under testing
- Data modelling skills for identifying, analysing and evaluating a range of solutions
- Algorithm skills for identifying, analysing and evaluating a range of solutions
- Problem solving skills when coordinating build phase

Required knowledge

- Broad knowledge of current industry-accepted coding in a recognised language, with knowledge of features and capabilities and detailed knowledge in some areas
- Broad knowledge of current industry-accepted DBMS modelling techniques
- Broad knowledge of at least three or more current principles of databases
- Current industry-accepted hardware and software products, with broad knowledge of general features and capabilities and detailed knowledge in some areas
- Broad knowledge of database design
- Broad knowledge of quality assurance practices (e.g. when providing development environment and designing work units)
- Broad general knowledge of the client business domain
- Broad knowledge of client/server architecture

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

Critical aspects for assessment and evidence required to demonstrate

Evidence of the following is essential:

- Assessment must confirm sufficient knowledge of the

EVIDENCE GUIDE**competency in this unit**

build and coding phase in a number of key areas. Components of this phase that need to be coordinated include coding, testing, administration and GUI design.

- Assessment must confirm the ability to coordinate the technical requirements by successfully coordinating allocated tasks.

To demonstrate competency in this unit the person will require access to:

- Technical specifications
- Version control standards
- Software requirements specification
- System requirements
- Design specification

Assessment of this unit of competency may include a review of documents developed by an organisation, which relate to the clear documentation of:

- Test results
- Performance benchmarks and module design
- Planning information system overview and module implementation specifications

Context of and specific resources for assessment

The build phase of a software project should be carefully managed to prevent unauthorised tampering with code. Security should always be considered during code work as back-doors and Trojans can be embedded and be difficult to locate. The breadth, depth and complexity covering planning and initiation of alternative approaches to skills or knowledge applications across a broad range of technical and/or management requirements, evaluation and coordination would be characteristic.

Assessment must ensure:

- The demonstration of competency may also require self-directed application of knowledge and skills, with substantial depth in some areas where judgement is required in planning and selecting appropriate equipment, services and techniques for

EVIDENCE GUIDE	
	self and others. Applications involve participation in development of strategic initiatives as well as personal responsibility and autonomy in performing complex technical operations or organising others. It may include participation in teams including teams concerned with planning and evaluation functions. Group or team coordination may also be involved
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. - Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. - Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. An individual demonstrating this competency would be able to:

EVIDENCE GUIDE

	• Demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas • Analyse and plan approaches to technical problems or management requirements • Transfer and apply theoretical concepts and/or technical or creative skills to a range of situations • Evaluate information, using it to forecast for planning or research purposes • Take responsibility for own outputs in relation to broad quantity and quality parameters • Take some responsibility for the achievement of group outcomes • Maintain knowledge of industry products and services

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.

<i>Specification</i> may include but is not limited to:	• technical requirements • user problem statement • current system functionality • project plan • software requirements • metrics
<i>Project</i> may include:	• a business involved in a total organisational change • a systems-only change • a business improvement process • an e-business solution involving the total organisation or part of the organisation
<i>Development environment</i> may	• operating systems

RANGE STATEMENT	
include but is not limited to:	• target environments • development tools • computer language used • version control systems • development methodology
Development tools may include:	• CASE tools • program generator • screen generator • fourth-generation language
Requirements may be in reference to:	• business • system • platform • application • database • network • people in the organisation

Unit Sector(s)

Unit sector	Build

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAB5067B Prepare for software development using rapid application development

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to carry out rapid application development, known as RAD, in the context of preparing for software development. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

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. Determine RAD requirements	1.1. Select and demonstrate use of the most suitable industry standard <i>tool set</i> 1.2. Implement a prioritised plan using a series of recursive stages of build and review for delivery of the <i>system</i> 1.3. Implement and/or incorporate a physical <i>database</i> 1.4. Identify, document and schedule modules to be implemented by incremental development techniques 1.5. Identify and formally allocate responsibilities to authorised <i>user</i> and suitably skilled builders for each module 1.6. Plan for and document the endorsement of reviews, administration schedules and development milestones
2. Determine work metrics	2.1. Set development goals 2.2. Seek and secure agreement on and adherence to a single common notation 2.3. Determine tools, features and techniques most appropriate to the development environment 2.4. Facilitate, plan, develop and document version and change control methods 2.5. Facilitate the training and exposure to the <i>user</i>

ELEMENT	PERFORMANCE CRITERIA
	participants via RAD
3. Implement administration method	3.1. Determine and reach agreement of stakeholders on the specifics 3.2. Confirm dates for milestones with stakeholders and secure with written agreement 3.3. Inform production system parties and secure with written acknowledgment 3.4. Administer and maintain relevant time recording and management methodologies

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Risk management when a prioritised plan using a series of recursive stages of build and review for delivery of the system is implemented
- Problem solving skills for a defined range of unpredictable problems (e.g. when determining RAD requirements)
- Communication skills in relation to evaluation of Rapid Applications Development (RAD) tools selection
- Skills in facilitating planning and developing version/change control methods, and when agreement of all parties is ensured
- Facilitating the training and exposure to the user participants via Joint Applications Development (JAD) process
- Prototyping tools skills for identifying, analysing and evaluating a range of solutions

Required knowledge

- Current industry-accepted prototyping tools, with broad knowledge of general features and capabilities and detailed knowledge in some areas
- Client business (e.g. when determining RAD requirements)
- Two or more programming languages
- Broad knowledge of quality assurance practices
- Broad knowledge of two or more current industry development methodologies

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	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: • Assessment must confirm sufficient knowledge of RAD tools and prototyping methods. Assessment must confirm the ability to meet client requirements by meeting the agreed deadlines and client performance requirements. • Assessment must confirm that code produced is bug-free. To demonstrate competency in this unit the person will require access to: • CASE tools • Prototyping software • Detailed user requirements • CASE repository to facilitate the reuse of templates and components • Requirements document, including model and scope
Context of and specific resources for assessment	The selection and utilisation of a suitable RAD tools can have an impact on cost and quality of a software project and should be carefully selected and used with code projects. The breadth, depth and complexity covering planning and initiation of alternative approaches to skills or knowledge applications across a broad range of technical and/or management requirements, evaluation and coordination would be characteristic. Assessment must ensure: • The demonstration of competency may also require self-directed application of knowledge and skills, with substantial depth in some areas where judgement is required in planning and selecting

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	appropriate equipment, services and techniques for self and others. • Applications involve participation in development of strategic initiatives as well as personal responsibility and autonomy in performing complex technical operations or organising others. It may include participation in teams including teams concerned with planning and evaluation functions. Group or team coordination may also be involved.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • This competency may also be applicable to other phased implementation methods and related competencies. • Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.

EVIDENCE GUIDE**Guidance information for assessment**

Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.

An individual demonstrating this competency would be able to:

- Demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas
- Analyse and plan approaches to technical problems or management requirements
- Transfer and apply theoretical concepts and/or technical or creative skills to a range of situations
- Evaluate information, using it to forecast for planning or research purposes
- Take responsibility for own outputs in relation to broad quantity and quality parameters
- Take some responsibility for the achievement of group outcomes
- Maintain knowledge of industry products and services

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.

Tool set may include:

- compiler
- code beautifier
- integrated development environment
- bug analyser
- test harness software

Database may include but is not limited to:

- relational databases
- object-relational databases

RANGE STATEMENT	
	• proprietary databases • commercial off-the-shelf (COTS) database packages
System may include but is not limited to:	• databases • applications • servers • operating systems • gateways • application service provider • ISP
Documentation may follow:	• ISO/IEC/AS standards • audit trails • naming standards • version control • project management templates and report writing • maintaining equipment inventory • client training • satisfaction reports
Stakeholders may include:	• sponsor • user • development team • project team

Unit Sector(s)

Unit sector	Build

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAB5068B Build using rapid application development

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to build using rapid application development (RAD) tools. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

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. Construct application using RAD	1.1. Capture and record business rules using a methodology well-suited for the chosen RAD and <i>RAD techniques</i> 1.2. Design <i>application</i> with focus on modularity and future extension 1.3. Develop code by other <i>RAD tools</i> 1.4. Build and demonstrate completed transaction to <i>user</i> for revision within the agreed terms of reference 1.5. Take action to ensure that design caters for continuous change by involving <i>user</i> in iteration process 1.6. Provide QA testing throughout the phase and provide feedback to <i>appropriate person</i> 1.7. Demonstrate use of code optimisers and performance tools
2. Prepare handover stage	2.1. Track implemented modules and follow up where necessary with <i>appropriate person</i> 2.2. Review <i>user</i> and builds for each module in the deliverables as preparation for handover 2.3. Compare <i>specifications</i> and implementation schedules for each module and confirm the functional requirements according to <i>specifications</i>

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Communications where code is developed by CASE tool, code generator or industry standard tools and delivered within the 'timebox', and when specifications and implementation schedules for each module are compared and the functional requirements are confirmed according to project requirements
- Evaluation and presentation of information (e.g. when each completed transaction is built and demonstrated to end-users for revision within the agreed terms of reference)
- Ability to manage iterative changes in design by involving end-users in the development process
- Prototyping tools skills for identifying, analysing and evaluating a range of solutions

Required knowledge

- Current industry-accepted prototyping tools, with broad knowledge of general features and capabilities and detailed knowledge in some areas
- Broad general knowledge of the client business domain (e.g. when developing construction stage)
- Broad knowledge of three or more programming languages
- Broad knowledge of the role of stakeholders and the degree of stakeholder involvement
- Broad knowledge of quality assurance practices (e.g. when developing construction stage)
- Broad knowledge of three or more current industry development methodologies

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

Critical aspects for assessment and evidence required to demonstrate

Evidence of the following is essential:

EVIDENCE GUIDE**competency in this unit**

- Assessment must confirm sufficient knowledge of the fundamentals and features of RAD. Assessment must confirm the ability to build using RAD within the required timeframe and to technical and client specifications. High-quality code should be produced.
- Supplementary questioning may be used during the assessment, where necessary, to ensure that all issues relating to quality issues were considered and appropriate choices made, given the chosen RAD technique.

To demonstrate competency in this unit the person will require access to:

- CASE tools
- Prototyping software
- Detailed user requirements
- CASE repository to facilitate the reuse of templates and components
- Code generator
- Requirements document, including model and scope

Context of and specific resources for assessment

RAD building for a software project should be carefully managed to deliver maximum benefit for cost and quality. Selection of the most appropriate RAD tool will take into consideration the targeted platform or multi-platform options. The breadth, depth and complexity covering planning and initiation of alternative approaches to skills or knowledge applications across a broad range of technical and/or management requirements, evaluation and coordination would be characteristic.

Assessment must ensure:

- The demonstration of competency may also require self-directed application of knowledge and skills, with substantial depth in some areas where judgement is required in planning and selecting appropriate equipment, services and techniques for self and others.
- Applications involve participation in development of

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	strategic initiatives as well as personal responsibility and autonomy in performing complex technical operations or organising others. It may include participation in teams including teams concerned with planning and evaluation functions. Group or team coordination may also be involved.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. - Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. - Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. An individual demonstrating this competency would be able to: - Demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas - Analyse and plan approaches to technical problems

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	or management requirements • Transfer and apply theoretical concepts and/or technical or creative skills to a range of situations • Evaluate information, using it to forecast for planning or research purposes • Take responsibility for own outputs in relation to broad quantity and quality parameters • Take some responsibility for the achievement of group outcomes • Maintain knowledge of industry products and services

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.

<i>Applications</i> may include but are not limited to:	• commercial software applications • organisation-specific software; word processing, spreadsheet, database, graphic, communication packages and presentation functionalities
<i>RAD tools</i> may include:	• CASE tool • code generators
<i>User</i> may include:	• a person within a department • a department within the organisation • a third party
<i>Appropriate person</i> may include:	• supervisor • teacher • authorised business representative • client
<i>Specifications</i> may include but is not limited to:	• technical requirements • user problem statement • current system functionality

RANGE STATEMENT	
	• project plan • software requirements • metrics
<i>RAD techniques</i> may include:	• CASE tools • iterative life cycles • prototyping • workshops • SWAT teams • timebox development methodology; and reuse of applications, templates and code

Unit Sector(s)

Unit sector	Build

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAB5071B Review developed software

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required when applying quality standards associated with software development. The following units are linked and form an appropriate cluster: • ICAT5077B Develop detailed test plan • ICAT5083B Develop and conduct client acceptance test No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

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. Review quality standards	1.1. Review copies of the organisation's <i>quality standards</i> and <i>international standards</i> related to software development and prepare for use 1.2. Contact <i>appropriate person</i> to discuss their involvement in the review and establish their role 1.3. Determine and document the approach to be used to validate the quality during the review
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 2.2. Hold discussions on quality issues with development staff and establish agreed actions 2.3. Allocate responsibilities to development staff 2.4. Obtain agreement from <i>appropriate person</i> on procedures to ensure quality of development, where necessary
3. Review specific quality areas	3.1. Review plans to ensure that they are adequate to control the quality of the development process 3.2. Review testing processes to ensure that defect-free

ELEMENT	PERFORMANCE CRITERIA
	software will be developed 3.3. Examine documentation and methods for development to ensure that software will be supportable 3.4. Monitor requirements to ensure that client needs are met

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Project planning skills in relation to scope, time, cost, quality, communications and risk management (e.g. when plans are reviewed to ensure that they are adequate to control the development process)
- Problem solving skills for a defined range of unpredictable problems (e.g. when test processes are reviewed to ensure that defect-free software will be developed)
- Plain English literacy and communication skills in relation to analysis, evaluation and presentation of information (e.g. when the approach to be used to validate the quality during development is documented)
- Data modelling skills for identifying, analysing and evaluating a range of solutions (e.g. when processes that have a significant impact on the quality of the development process are examined)
- Design and analysis skills for identifying, analysing and evaluating a range of solutions (e.g. when processes that have a significant impact on the quality of the development process are examined)
- Size estimation skills in relation to analysis, evaluation and identification of boundaries (e.g. when client requirements are monitored and met)
- Algorithms skills in relation to analysis, evaluation and identification of solutions

Required knowledge

- Broad knowledge of the client business domain (e.g. when reviewing quality standards)
- Broad knowledge of quality assurance practices and the identification of standards (e.g. when reviewing quality standards)
- Broad knowledge of programming languages, two or more procedural languages and three or more object-oriented languages
- Broad knowledge of software metrics development

REQUIRED SKILLS AND KNOWLEDGE

- Broad knowledge of the operating system
- Broad knowledge of real-time programming
- Broad knowledge of input/output drivers
- Broad knowledge of current industry-accepted hardware and software products, with broad knowledge of general features and capabilities and detailed knowledge in some areas
- Broad knowledge of software development configuration management processes
- Broad knowledge of size estimation

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

Evidence of the following is essential:

- Assessment must demonstrate the ability to determine quality standards and procedures that will support the development of defect-free products to meet client requirements.

To demonstrate competency in this unit the person will require access to:

- Standards
- Data dictionaries
- DSMS
- Design specifications
- Simulated scenario

Context of and specific resources for assessment

The breadth, depth and complexity covering planning and initiation of alternative approaches to skills or knowledge applications across a broad range of technical and/or management requirements, evaluation and coordination would be characteristic.

EVIDENCE GUIDE

	Assessment must ensure: • The demonstration of competency may also require self-directed application of knowledge and skills, with substantial depth in some areas where judgement is required in planning and selecting appropriate equipment, services and techniques for self and others. • Applications involve participation in development of strategic initiatives as well as personal responsibility and autonomy in performing complex technical operations or organising others. It may include participation in teams including teams concerned with planning and evaluation functions. Group or team coordination may also be involved.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.

EVIDENCE GUIDE**Guidance information for assessment**

Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example:

- ICAT5077B Develop detailed test plan
- ICAT5083B Develop and conduct client acceptance test

An individual demonstrating this competency would be able to:

- Demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas
- Analyse and plan approaches to technical problems or management requirements
- Transfer and apply theoretical concepts and/or technical or creative skills to a range of situations
- Evaluate information, using it to forecast for planning or research purposes
- Take responsibility for own outputs in relation to broad quantity and quality parameters
- Take some responsibility for the achievement of group outcomes
- Maintain knowledge of industry products and services

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.

Quality standards - relevant quality standards include:

- AS 4043-1992 Software configuration management
- AS 4042-1992 Software configuration management plans

RANGE STATEMENT	
	• AS 3925.1-1994 Software quality assurance - plans • AS/NZS 4258:1994 Software user documentation process • AS/NZS ISO/IEC 12207:1997 Information technology - software life cycle processes • AS/NZS 14102:1998 Information technology - guideline for evaluation and selection of CASE tools International and Australian Standards are updated and changed on a regular basis. It is therefore important to check the Standards Australia website on a regular basis for relevant new domestic and international standards: http://www.standards.com.au
International standards may include:	• International Standards Organisation (ISO) • International Electrotechnical Commission (IEC) • Australian Standards (AS) • software development standards (for further information refer to the Standards Australia website at: www.standards.com.au)
Appropriate person may include:	• supervisor • teacher • authorised business representative • client
Documentation may follow:	• ISO/IEC/AS standards • audit trails • naming standards • version control • project management templates and report writing • maintaining equipment inventory; client training and satisfaction reports
Requirements may be in reference to:	• business • system • platform • application • database • network

RANGE STATEMENT	
	• people in the organisation
<i>Client</i> may include but is not limited to:	• internal departments • external organisations • clubs • individual people • internal employees

Unit Sector(s)

Unit sector	Build

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAB5072B Develop integration blueprint

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to document and maintain details of integration technology and architectural components important in developing an integration blueprint. The following units are linked and form an appropriate cluster: • ICAA5054C Validate quality and completeness of system design specifications • ICAT5077B Develop detailed test plan • ICAT5083B Develop and conduct client acceptance test No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units	

Prerequisite units		

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. Review technical architecture documents	1.1. Review technical architecture documents, supplemented with discussions where necessary, to ensure complete understanding 1.2. Identify and evaluate technical considerations that cover the overall <i>requirements</i> and provide best technical fit against <i>requirements</i> 1.3. Update the integration blueprint according to best-fit technical <i>specifications</i>
2. Undertake compatibility tests	2.1. Assemble <i>components</i> and <i>component technologies</i> according to design <i>specifications</i> 2.2. Test <i>components</i> for functionality against design <i>specifications</i> 2.3. Identify non-compliance against technical

ELEMENT	PERFORMANCE CRITERIA
	specifications 2.4. Update the integration blueprint to reflect functionality and non-compliance changes
3. Assess risk areas	3.1. Identify the scope of modifications required from compatibility test 3.2. Negotiate with the suppliers modifications required, based on outcomes of compatibility test 3.3. Update the integration blueprint to reflect modifications to risk areas
4. Assess readiness for stress testing	4.1. Continue integration activities until platform is stable 4.2. Evaluate the platform's compliance against technical requirements 4.3. Update the integration blueprint for stress testing

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Risk assessment skills related to problems (e.g. when scope of modifications required is identified from compatibility test)
- Design and analysis skills for identifying, analysing and evaluating a range of solutions (e.g. when ensuring that technical considerations cover the overall project requirements and best technical fit against project requirements is identified and evaluated)
- Negotiation and influencing skills (e.g. when technical architecture documents are reviewed and additional discussions are held with architect to ensure complete understanding if necessary)
- Problem solving skills for a defined range of unpredictable problems involving participation in the development of strategic initiatives (e.g. when integration activities are continued until platform is stable)

Required knowledge

- Knowledge of technology suppliers and components
- Broad knowledge of current industry-accepted hardware and software products, with broad knowledge of general features and capabilities and detailed knowledge

REQUIRED SKILLS AND KNOWLEDGE

- in some areas (e.g. when undertaking compatibility tests)
- Broad knowledge of current industry development and design methodologies (e.g. when reviewing technical architecture documents)
- Broad knowledge of current industry-accepted testing procedures (e.g. when undertaking compatibility tests)
- Broad knowledge of stress load testing (e.g. when assessing readiness for stress testing)

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

Evidence of the following is essential:

- Assessment must confirm the ability to identify and capture technical design changes important for future integration activities on a particular platform and to avoid integration activities that have been previously performed.

To demonstrate competency in this unit the person will require access to:

- Design specifications
- High-level diagrammatic view of the main system components

Context of and specific resources for assessment

Assessment should demonstrate:

- Finding systematic methods to identify and select tests from component test suites to form integration test suites
- Defining a reusable integration infrastructure to build an integration test platform to cope with integration of diversified components

EVIDENCE GUIDE

	The breadth, depth and complexity covering planning and initiation of alternative approaches to skills or knowledge applications across a broad range of technical and/or management requirements, evaluation and coordination would be characteristic. Assessment must ensure: • The demonstration of competency may also require self-directed application of knowledge and skills, with substantial depth in some areas where judgement is required in planning and selecting appropriate equipment, services and techniques for self and others. • Applications involve participation in development of strategic initiatives as well as personal responsibility and autonomy in performing complex technical operations or organising others. It may include participation in teams including teams concerned with planning and evaluation functions. Group or team coordination may also be involved.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills.

EVIDENCE GUIDE	
	The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • ICAA5054C Validate quality and completeness of system design specifications • ICAT5077B Develop detailed test plan • ICAT5083B Develop and conduct client acceptance test An individual demonstrating this competency would be able to: • Demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas • Analyse and plan approaches to technical problems or management requirements • Transfer and apply theoretical concepts and/or technical or creative skills to a range of situations • Evaluate information, using it to forecast for planning or research purposes • Take responsibility for own outputs in relation to broad quantity and quality parameters • Take some responsibility for the achievement of group outcomes • Maintain knowledge of industry products and services

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

RANGE STATEMENT

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.

Requirements may be in reference to:

- business
- system
- platform
- application
- database
- network
- people in the organisation

Specifications may include but are not limited to:

- technical requirements
- user problem statement
- current system functionality
- project plan
- software requirements
- metrics

Components may include:

- transactional processing component
- file system object in Windows operating systems

Component technologies may include:

- CORBA
- ActiveX
- JavaBeans
- COM
- DCOM
- OpenDoc
- NET

Modifications may include but are not limited to:

- software patches and upgrades
- internal or external hardware model information
- telecommunications hardware and software version details
- custom-designed components
- driver and firmware revisions
- board and chip revisions
- software versions
- distribution release details

Unit Sector(s)

Unit sector	Build

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAB5073B Pilot the developed system

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to test and evaluate the developed system among a subset of clients to gauge reaction and gather feedback. The following unit is linked and forms an appropriate cluster: • ICAB5074B Monitor the system pilot No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

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. Prepare for pilot system	1.1. Establish and confirm objectives, success criteria and <i>acceptance criteria</i> for pilot implementation 1.2. Identify and secure technical and <i>organisational resources</i> required for <i>pilot</i> implementation 1.3. Establish and confirm executive support for <i>pilot</i> 1.4. Complete <i>project plan</i> for <i>pilot</i> and refer project documentation to <i>appropriate person</i> for approval
2. Install pilot system	2.1. Install and configure <i>pilot</i> according to <i>project plan</i> 2.2. Verify and record technical readiness of <i>pilot</i> 2.3. Take necessary actions to ascertain accuracy of data 2.4. Prepare a status report and submit to <i>appropriate person</i> for sign-off

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Problem solving skills for a defined range of unpredictable problems involving participation in the development of strategic initiatives (e.g. when technical and organisational resources required for pilot implementation are identified and secured)
- Plain English literacy and communication skills in relation to analysis, evaluation and presentation of information (e.g. when training and user participants' exposure to joint application development (JAD) process is facilitated)
- Project planning skills in relation to scope, time, cost, quality, communications and risk management (e.g. when project plan for pilot is completed and authorisation obtained from higher authorities)

Required knowledge

- Current industry-accepted system piloting methodologies, with knowledge of general features and capabilities
- Current industry system development and design methodologies (e.g. when preparing for pilot)
- Current industry-accepted hardware and software products, with broad knowledge of general features and capabilities and detailed knowledge in some areas (e.g. when installing pilot system)
- Overall project objectives and client requirements (e.g. when preparing for pilot)
- Client business domain
- Three or more current industry information gathering methodologies (e.g. when preparing for pilot)
- Role of stakeholders and the degree of stakeholder involvement
- System's current functionality (e.g. when installing pilot system)
- Quality assurance practices

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

EVIDENCE GUIDE	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: - Assessment must confirm the ability to plan and evaluate the pilot and to transfer knowledge to users and front-line support personnel. To demonstrate competency in this unit the person will require access to: - Acceptance criteria - Pilot plan - Effective assessment of this competency requires access to: - A pilot system - Project plan - Technical materials and - People to be involved in the pilot
Context of and specific resources for assessment	Assessments should demonstrate competency in: - System functionality - System integration - User interfaces - Validation of inputs and outputs - System response and recovery times - Whether the system meets the acceptance criteria The breadth, depth and complexity covering planning and initiation of alternative approaches to skills or knowledge applications across a broad range of technical and/or management requirements, evaluation and coordination would be characteristic. Assessment must ensure: - The demonstration of competency may also require self-directed application of knowledge and skills, with substantial depth in some areas where judgement is required in planning and selecting appropriate equipment, services and techniques for self and others. - Applications involve participation in development of

EVIDENCE GUIDE	
	strategic initiatives as well as personal responsibility and autonomy in performing complex technical operations or organising others. It may include participation in teams including teams concerned with planning and evaluation functions. Group or team coordination may also be involved.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. - Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. - Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: - ICAB5074B Monitor the system pilot An individual demonstrating this competency would be able to: - Demonstrate understanding of a broad knowledge

EVIDENCE GUIDE

	base incorporating theoretical concepts, with substantial depth in some areas • Analyse and plan approaches to technical problems or management requirements • Transfer and apply theoretical concepts and/or technical or creative skills to a range of situations • Evaluate information, using it to forecast for planning or research purposes • Take responsibility for own outputs in relation to broad quantity and quality parameters • Take some responsibility for the achievement of group outcomes • Maintain knowledge of industry products and services

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.

<i>Acceptance criteria</i> may include:	• timeframe • cost implications • technical • logistical considerations
<i>Pilot</i>	• Details of pilot will vary according to organisational requirements and nature of system. All system pilots will take an iterative approach and involve users in the process
<i>Organisational resources</i>	Will vary, subject to nature of pilot. Staffing resources would be expected from user community, technical operations, technical support, technical development, supplier, project manager and executive sponsor. Financial resources will need to be secured to fund the pilot.

RANGE STATEMENT	
	• Systems developers and IT technicians • Representative experts from relevant business areas (e.g. functional managers or operational staff) • Representative users • Personnel with an understanding of corporate governance (e.g. legal, audit and data security specialists)
<i>Appropriate person</i> may include:	• supervisor • teacher • authorised business representative • client
<i>Project plan</i> may include a number of variables including:	• parties and their responsibilities • project scope • project objectives • schedule • project budget, etc

Unit Sector(s)

Unit sector	Build

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAB5074B Monitor the system pilot

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to evaluate the performance of the developed system among a subset of clients. The following unit is linked and forms an appropriate cluster: • ICAB5073B Pilot the developed system No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

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. Monitor implementation of pilot system	1.1. Review <i>pilot</i> and support documentation, to ensure complete understanding 1.2. Identify <i>pilot</i> and <i>system</i> procedures 1.3. Supervise <i>system</i> functionality and integrity tests 1.4. Document findings 1.5. Provide appropriate technical support as required
2. Evaluate pilot system	2.1. Review <i>pilot</i> objectives and success criteria against <i>pilot</i> operation 2.2. Review client and executive feedback on <i>pilot</i> against <i>acceptance criteria</i> 2.3. Identify and prioritise areas of success and improvement 2.4. Assess the impact of changes on the <i>pilot</i> 2.5. Document review process and submit to <i>appropriate person</i>

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Problem solving skills for a defined range of unpredictable problems involving participation in the development of strategic initiatives (e.g. when appropriate technical support for the pilot is provided in a timely manner)
- Plain English literacy and communication skills in relation to analysis, evaluation and presentation of information (e.g. when functionality and integrity of system is tested by client user groups and findings documented)
- Teamwork skills involving the contribution to solutions and goals of a non-routine or contingency nature (e.g. when client user and executive feedback on pilot are reviewed against acceptance criteria)
- Group facilitation and presentation skills in relation to transferring and collecting information and gaining consensus on concepts
- Project planning skills in relation to scope, time, cost, quality, communications and risk management (e.g. when ongoing operation of pilot is reviewed according to pilot project plan)
- Research skills for identifying, analysing and evaluating broad features of a particular business domain and best practice in system piloting (e.g. when organisational procedures used for the pilot are documented)

Required knowledge

- Current industry-accepted system piloting methodologies, with knowledge of general features and capabilities (e.g. when evaluating pilot)
- Current industry system development and design methodologies
- Current industry-accepted hardware and software products, with broad knowledge of general features and capabilities and detailed knowledge in some areas
- Project objectives and client requirements (e.g. when monitoring implementation of pilot)
- Client business domain (e.g. when evaluating pilot)
- Three or more current industry information gathering methodologies
- Role of stakeholders and the degree of stakeholder involvement (e.g. when monitoring implementation of pilot)
- System's current functionality

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

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

Evidence of the following is essential:

- Assessment must confirm the ability to observe and evaluate the pilot by monitoring performance and analysing performance issues from a systems and a client user perspective.

To demonstrate competency in this unit the person will require access to:

- Acceptance criteria
- Pilot plan

Context of and specific resources for assessment

Assessment should demonstrate competency in:

- System functionality
- System integration
- User interfaces
- Validation of inputs and outputs
- System response and recovery times
- Whether the system meets the acceptance criteria

The breadth, depth and complexity covering planning and initiation of alternative approaches to skills or knowledge applications across a broad range of technical and/or management requirements, evaluation and coordination would be characteristic.

Assessment must ensure:

- The demonstration of competency may also require self-directed application of knowledge and skills, with substantial depth in some areas where judgement is required in planning and selecting appropriate equipment, services and techniques for self and others.

EVIDENCE GUIDE	
	Applications involve participation in development of strategic initiatives as well as personal responsibility and autonomy in performing complex technical operations or organising others. It may include participation in teams including teams concerned with planning and evaluation functions. Group or team coordination may also be involved.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. - Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. - Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: ICAB5073B Pilot the developed system An individual demonstrating this competency would be able to:

EVIDENCE GUIDE

	• Demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas • Analyse and plan approaches to technical problems or management requirements • Transfer and apply theoretical concepts and/or technical or creative skills to a range of situations • Evaluate information, using it to forecast for planning or research purposes • Take responsibility for own outputs in relation to broad quantity and quality parameters • Take some responsibility for the achievement of group outcomes • Maintain knowledge of industry products and services

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.

<i>Pilot</i>	• Details of pilot will vary according to organisational requirements and nature of system. All system pilots will take an iterative approach and involve users in the process
<i>System</i> may include but is not limited to:	• databases • applications • servers • operating systems • gateways • application service provider • ISP
<i>Client</i> may include but is not limited to:	• internal departments • external organisations

RANGE STATEMENT	
	• individual people • internal employees
<i>Acceptance criteria</i> may include:	• timeframe • cost implications • technical • accessibility • logistical considerations
<i>Appropriate person</i> may include:	• supervisor • teacher • authorised business representative • client

Unit Sector(s)

Unit sector	Build

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAB5159C Build a security shield for a network

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to build a security shield for a wireless local area network (WLAN) or local area network (LAN). The following unit is linked and forms an appropriate cluster: • ICAA5056B Prepare disaster recovery and contingency plans No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		
	ICAS5192B	Configure an internet gateway

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. Develop security framework	1.1. Determine level and nature of security required based on the current and future business requirements, the business strategic plan or client expectations 1.2. Identify and document security threats 1.3. Prepare plans and determine impact appraisal costs to manage sufficient protection of those assets identified as being at risk 1.4. Review firewall features and evaluate for security risks 1.5. Identify security perimeters within client/server system as required by developed security plan 1.6. Evaluate intrusion detection system (IDS) methods 1.7. Investigate framework for secure electronic communication infrastructure (SECI) and consider for use in an organisation that has valuable IP or organisational secrets 1.8. Investigate the use of a virtual private network (VPN) solution and determine where outside communication is used to link to the network as a

ELEMENT	PERFORMANCE CRITERIA
	normal business process 1.9. Determine hardware and software needs and prioritise according to security plan 1.10. Prepare cost-benefit analysis for proposed security shield according to business requirements 1.11. Finalise security framework components 1.12. Develop related policies and procedures and distribute to client as required according to business requirements
2. Implement security framework	2.1. Establish physical security perimeter through use of secure sites and components as required by enterprise security plan 2.2. Establish system security perimeter as required by security plan and chosen technology 2.3. Establish application security perimeter as required through server configuration 2.4. Establish data security perimeter through application access on the client/server system, wireless and use of VPN solution as required 2.5. Instruct client on the security shield and their responsibilities according to enterprise security plan
3. Test and validate security processes	3.1. Develop and execute a program of selective independent audits and penetration tests and record outcomes 3.2. Compare performance benchmarks against enterprise security plan 3.3. Implement audit and test programs and record, analyse and report results 3.4. Make changes to the security framework based on test results

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Ability to develop basic policies and procedures

REQUIRED SKILLS AND KNOWLEDGE

- Ability to undertake a basic network security risk assessment
- Design, development and implementation of various VPN solutions
- Implementing LAN and WAN solutions
- Cost-benefit analysis

Required knowledge

- Security threats, including eavesdropping, data interception, data corruption, data falsification
- Authentication issues
- Organisational issues surrounding security
- Security perimeters and their functions
- Types of VPNs, including site-to-site, user-to-site internet traffic and extranets
- Function and operation of virtual private networking (VPN) concepts, including encryption, firewalls, packet tunnelling and authentication
- Common VPN issues, VoIP, wireless VoIP including quality of service (QoS) considerations, bandwidth, dynamic security environment
- Network protocols and operating systems
- Cryptographic check summing
- LAN, WLAN and WAN solutions
- TCP/IP protocols and applications
- NGN data and voice integration, policing and shaping,
- Basic auditing and penetration testing techniques
- EDI security specifications, such as S/MIME and the use of XML/EDI
- Screened subnets
- Virus detection software
- Audit and intrusion detection systems
- Australian Computer Society Code of Ethics

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**Critical aspects for assessment and**

Evidence of the following is essential:

EVIDENCE GUIDE	
evidence required to demonstrate competency in this unit	- Assessment must confirm the ability to develop, implement and maintain a network security shield for VPNs, LANs and WLANs. To demonstrate competency in this unit the following resources will be needed: - Network technical requirements - Network infrastructure, including servers and security hardware and software Industry/vendor training may include CISCO, Microsoft, IBM, Redhat.
Context of and specific resources for assessment	The breadth, depth and complexity covering planning and initiation of alternative approaches to skills or knowledge applications across a broad range of technical and/or management requirements, evaluation and coordination would be characteristic. The demonstration of competency may also require self-directed application of knowledge and skills, with substantial depth in some areas where judgement is required in planning and selecting appropriate equipment, services and techniques for self and others. Assessment must ensure: Applications involve participation in development of strategic initiatives as well as personal responsibility and autonomy in performing complex technical operations or organising others. It may include participation in teams including teams concerned with planning and evaluation functions. Group or team coordination may also be involved.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1.

EVIDENCE GUIDE

	- Competency in this unit should to be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. - Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process.
Guidance information for assessment	The interdependence of units for assessment purposes may vary with the particular project or scenario. Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: - ICAA5056B Prepare disaster recovery and contingency plans An individual demonstrating this competency would be able to: - Demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas - Analyse and plan approaches to technical problems or management requirements - Transfer and apply theoretical concepts and/or technical or creative skills to a range of situations - Evaluate information, using it to forecast for planning or research purposes - Take responsibility for own outputs in relation to broad quantity and quality parameters - Take some responsibility for the achievement of group outcomes - Maintain knowledge of industry products and

EVIDENCE GUIDE

services

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.

Business requirements may include but is not limited to:

- people and technology interaction
- storage and recovery of data
- access to internal network
- passwords/logons
- access control lists
- firewalls
- black-hat hacking/cracking
- confidentiality
- integrity
- availability
- the perceived value of information to competitors and the malicious nature of internet crackers
- an increase in internet usage

Client may include but is not limited to:

- internal departments
- external organisations
- individual people
- internal employees

Security threats may include:

- eavesdropping
- manipulation
- impersonation
- penetration
- denial of service and by-pass
- hackers
- viruses using logging
- spoofing

RANGE STATEMENT	
	• associations
Firewall may include:	• hardware appliances • proxy servers • individual PC solution • varying functionality including network address translation (NAT)/IP masquerading, routing to specific machines
System may include but is not limited to:	• databases • applications • servers • operating systems • gateways • application service provider • ISP
Security plan may include:	• theft • viruses • standards (including archival, back-up, network) • privacy • audits • alerts • usually relates directly to the security objectives of the organisation
Secure electronic communication infrastructure (SECI) may include:	• strong authentication • WPA • AAA • strong encryption • remote access integration • secure tunnelling • IP routing • firewalls • scalability • redundancy
Network may include but is not limited to:	• large and small LANs • WLANs • national WANs • VPNs • the internet • the use of the PSTN for dial-up modems only • DSL connections

RANGE STATEMENT	
	• private lines • data • voice
Hardware may include but is not limited to:	• workstations • personal computers • modems and other connectivity devices • networks • remote sites • servers • DSL modems
Software may include but is not limited to:	• commercial software applications • organisation-specific software, packaged software, in-house or customised software
Policies may include:	• incident response procedures • network intrusion detection systems • forensic procedures • training • awareness raising policy
Server may include:	• Application/web servers • BEA Weblogic servers • IBM VisualAge and WebSphere • Novell NDS servers • Email servers • Voice servers • File and print servers • FTP servers • Firewall servers • Proxy/cache servers
Application	• May include but are not limited to commercial software applications; organisation-specific software; word processing, spreadsheet, database, graphic, communication packages and presentation functionalities. • May include presentation applications contained in Microsoft Office, Lotus Suite, Claris Works, Star Office or other similar applications.
Security perimeter	• physical security perimeter • system security perimeter • wireless security perimeter

RANGE STATEMENT

	• application security perimeter • data and voice security perimeter

Unit Sector(s)

Unit sector	Build

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAB5160C Build and configure a server

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to build, configure and test a server. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		
	ICAA5140C	Design a server

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. Confirm server specification	1.1. Confirm network operating system, server applications and server design with client 1.2. Identify product and vendor architecture and equipment specifications 1.3. Identify technology and resource within business requirements and budget
2. Build server	2.1. Create a detailed task list identifying breakdown of the logical stages and sequence of work required 2.2. Review hardware and software to ensure compatibility 2.3. Obtain all hardware required for server installation 2.4. Install the required operating system 2.5. Install additional tools or third-party software as required by the created design 2.6. Patch the operating system and applications to ensure maximum security and reliability
3. Configure and test server	3.1. Configure the server as required by technical requirements 3.2. Define the scope and applicability of the testing against technical requirements 3.3. Develop the test plan with reference to resources and network impact 3.4. Run the system testing according to test plan and record outcomes 3.5. Analyse the error report and make changes as

ELEMENT	PERFORMANCE CRITERIA
	required 3.6. Test required changes or additions 3.7. Validate changes or additions against specifications

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Ability to assemble computer components
- Install and configure complex software packages
- Basic logic process skills
- Ability to deploy testing solutions at the system and component level
- Liaising with vendors and service providers

Required knowledge

- Single and multiple processors; memory (SD and RD RAM DDR, Registered RAM, memory leads, bandwidth); chassis (size, thermals, EMI specifications, security, drive bays, cable management, ease of maintenance, LED/LCD panels, aesthetics)
- Disk drives and internal/external storage devices (RAID solutions and functionality, drive formats, back-up systems - DAT/DLT/AIT, storage area networks (SANs); load balancers
- Power (supply requirements and management, protection - back-up/line conditioning/surge suppression, power budgeting); hot plug peripherals (PCI expansion cards, power supplies, hard drives, fans)
- Ancillaries (racks, keyboard, monitor, cabinets, air flow)
- Server design and network architecture

Evidence Guide

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the

EVIDENCE GUIDE	
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 of the following is essential: - Assessment must confirm the ability to build, configure and test a server according to business needs and technical requirements. To demonstrate competency in this unit the person will require access to: - Server components - Tools and equipment - Vendor specification and propriety software - Open source software
Context of and specific resources for assessment	Servers form the backbone of the internet and are integral to contemporary business. Careful selection and use of appropriate servers should be considered a priority for all organisations. A thorough knowledge of servers will assist in assuring competency and would cover a broad range of varied activities or application in a wider variety of contexts, most of which are complex and non-routine. The breadth, depth and complexity covering planning and initiation of alternative approaches to skills or knowledge applications across a broad range of technical and/or management requirements, evaluation and coordination would be characteristic. Assessment must ensure: The demonstration of competency may also require self-directed application of knowledge and skills, with substantial depth in some areas where judgement is required in planning and selecting appropriate equipment, services and techniques for self and others.

EVIDENCE GUIDE	
	Applications involve participation in development of strategic initiatives as well as personal responsibility and autonomy in performing complex technical operations or organising others. It may include participation in teams including teams concerned with planning and evaluation functions. Group or team coordination may also be involved.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. - Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. - Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. An individual demonstrating this competency would be able to: Demonstrate understanding of a broad knowledge

EVIDENCE GUIDE

	base incorporating theoretical concepts, with substantial depth in some areas • Analyse and plan approaches to technical problems or management requirements • Transfer and apply theoretical concepts and/or technical or creative skills to a range of situations • Evaluate information, using it to forecast for planning or research purposes • Take responsibility for own outputs in relation to broad quantity and quality parameters • Take some responsibility for the achievement of group outcomes • Maintain knowledge of industry products and services

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.

<i>Network operating system</i> may include but is not limited to:	• Novell NetWare 5 or above or operating system that has multi-user ability: Linux 8.0, Mac OS X, Windows 2000 or above
<i>Client</i> may include but is not limited to:	• internal departments • external organisations • clubs • individual people • internal employees
<i>Equipment</i> may include but is not limited to:	• workstations • personal computers • modems and other connectivity devices • printers • DSL modems • hard drives

RANGE STATEMENT	
	• monitors • switches • hubs • personal digital assistant (PDA) • other peripheral devices
Business requirements may be in reference to:	• business • system • application • network • people in the organisation
Server applications may include:	• file sharing • printer sharing • messaging • web services • network and remote access • database and data warehousing • directory services • management • line of business applications • terminal services
Task may include but is not limited to:	• work • activities • function • job
Software may include but is not limited to:	• commercial software applications; organisation-specific software, packaged software, in-house or customised software
Server may include:	• Application/web servers • BEA Weblogic servers • IBM VisualAge and WebSphere • Novell NDS servers • Email servers • File and print servers • FTP servers • Firewall servers • Proxy/cache servers
Operating system may include but is not limited to:	• Linux 8.0 or above • Windows 2000/Server 2003 or above • Apple OS X or above

RANGE STATEMENT	
Hardware may include but is not limited to:	• workstations • personal computers • modems and other connectivity devices • networks • remote sites • servers
Application may include	• database programs • word processors • email programs • internet browsers • system browsers • spreadsheets
Technical requirements may be in reference to:	• business • system • platform • application • database • network • people in the organisation
Network may include but is not limited to:	• large and small LANs • national WANs • the internet • the use of the PSTN for dial-up modems only • private lines • data • voice
System may include but is not limited to:	• databases • applications • servers • operating systems • gateways • application service provider • ISP

Unit Sector(s)

Unit sector	Build

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAB5161B Build a document using extensible mark-up language

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to design and build a valid extensible markup language (XML) document to suit a specified requirement. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

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 process	1.1. Produce a plan to analyse the specified requirements and design and build valid <i>extensible mark-up language</i> documentation allowing for iterative development
2. Analyse specified requirements	2.1. Determine and document the purpose, expectations and functionality of the XML document 2.2. Determine the <i>hardware</i> and <i>software</i> and tools needed to design the document 2.3. Determine the requirements for the document 2.4. Determine appropriate design methodologies, such as utilising software engineering life-cycle
3. Design and develop document	3.1. Decide on document type definition (DTD), if required 3.2. Define the required entities, elements and their attributes 3.3. Produce the document, declaring the DTD, the required entities, elements and their attributes, including associated graphics or sounds, following appropriate <i>standards</i>
4. Test document	4.1. Test document off-line against specifications and confirm the document's validity 4.2. Test, where appropriate, the document on-line

ELEMENT	PERFORMANCE CRITERIA
	against specifications and with a representative audience

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- HTML development
- Design and problem solving skills
- Basic analysis skills
- Data collection and dissemination techniques

Required knowledge

- SGML
- Unified modelling language
- Introductory knowledge of business process and information modelling
- UN/CEFACT modelling methodology
- Meta modelling
- XLT and XSLT
- Document object model
- Copyright and intellectual property
- Copyleft and Free Software Foundation
- Web technologies

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

EVIDENCE GUIDE	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: - Assessment must confirm the ability to produce a valid XML document. To demonstrate competency in this unit the person will require access to: - XML parser or IE5 - An XML authoring tool
Context of and specific resources for assessment	XML is extensible mark-up language. It is designed to improve the functionality of the web by providing more flexible and adaptable information identification. XML is not a fixed format like HTML (a single, predefined mark-up language). Instead, XML is a 'metalanguage', a language for describing other languages. XML can do this because it is written in SGML, the international standard metalanguage for text mark-up systems (ISO 8879). The breadth, depth and complexity covering planning and initiation of alternative approaches to skills or knowledge applications across a broad range of technical and/or management requirements, evaluation and coordination would be characteristic. Assessment must ensure: - The demonstration of competency may also require self-directed application of knowledge and skills, with substantial depth in some areas where judgement is required in planning and selecting appropriate equipment, services and techniques for self and others. - Applications involve participation in development of strategic initiatives as well as personal responsibility and autonomy in performing complex technical operations or organising others. It may include participation in teams including teams concerned

EVIDENCE GUIDE	
	with planning and evaluation functions. Group or team coordination may also be involved.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. - Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. - Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. An individual demonstrating this competency would be able to: - Demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas - Analyse and plan approaches to technical problems or management requirements - Transfer and apply theoretical concepts and/or technical or creative skills to a range of situations

EVIDENCE GUIDE

	• Evaluate information, using it to forecast for planning or research purposes • Take responsibility for own outputs in relation to broad quantity and quality parameters • Take some responsibility for the achievement of group outcomes • Maintain knowledge of industry products and services Additionally, an individual demonstrating this competency would be able to: • Demonstrate understanding of XML incorporating theoretical concepts • Apply XML solutions to a defined range of problems • Identify and apply XML knowledge to a wide variety of solutions • Identify, analyse and evaluate information from a variety of sources

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.	
<i>Extensible mark-up language</i> may include:	• XML • ebXML
<i>Hardware</i> may include but is not limited to:	• workstations • personal computers • modems and other connectivity devices • networks • remote sites • servers • DSL modems

RANGE STATEMENT	
Software may include but is not limited to:	commercial software applications; organisation-specific software, packaged software, in-house or customised software
Tools may include	- Easy XML 1.0 - EXml Editor - QuickSilver 1.0 XML Suite - XML Bean Suite - XML Pro 2.0
Standards	W3C DOM specification, extensible mark-up language (XML) 1.0 (Current Edition), W3C XML instances, W3C XML DTDs, W3C XML DTDs, ISO SGML meta-DTDs. - ISO/IEC 14662: Open-edition Reference Model - ISO 11179/3 Metadata repository - ISO 10646: Character encoding - ISO 8601:2000 Date/time/number data typing - OASIS Registry/repository technical specification - RFC 2119: Keywords for use in RFCs to indicate requirement levels - UN/CEFACT Modelling methodology (UMM) - W3C XML v1.0 Second edition specification - ebXML Requirements specification version 1.0 - ebXML Technical architecture specification - ebXML Repository and registry specification - ebXML Transport, routing and packaging specification

Unit Sector(s)

Unit sector	Build

Co-requisite units

Co-requisite units	

Co-requisite units		

Competency field

Competency field	

ICAB5162B Install, configure and test a payment gateway

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to install, configure and test a payment gateway which enables translation of electronic payment information provided online into a form accessible to a merchant processor. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

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. Prepare server and e-business software for payment site	1.1. Evaluate payment software and select appropriate software to meet specifications , including security and privacy benchmarks 1.2. Review and compare on-line merchant options 1.3. Choose payment method with reference to business requirements and client expectations 1.4. 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 2.2. Establish on-line merchant account 2.3. Configure web pages and back-end solutions to handle requests and integrate with the database for each transaction 2.4. Obtain merchant account information from the relevant financial institution 2.5. Implement appropriate security systems to protect the payment infrastructure 2.6. Configure payment gateway to accept the appropriate payment methods and transaction types according to business requirements
3. Test payment	3.1. Check transaction server for functionality against

ELEMENT	PERFORMANCE CRITERIA
gateway	expected performance benchmarks 3.2. Test gateway using relevant transaction types 3.3. Verify transactions by using the administrative functions of chosen payment software

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Configuring software on a server
- Selecting and configuring a merchant account
- Setting up a merchant ID (MID) and a terminal ID (TID)
- Scripting in a variety of languages

Required knowledge

- Payment software products
- Relative advantages and disadvantages of credit card, digital cash and on-line cheque systems
- Encryption options for national and international business
- Implementing client side shopping carts through active server pages (ASP) and interfacing with databases with ActiveX Data Objects (ADO)
- Public key infrastructure (PKI)
- Copyright and intellectual property
- Copyleft and Free Software Foundation
- Relevant privacy legislation
- Globally unique ID (GUID)
- Batching verification
- Electronic commerce modelling language (ECML)

Evidence Guide

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

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

Evidence of the following is essential:

- Assessment must confirm the ability to install, configure and test a payment gateway.

To demonstrate competency in this unit the person will require access to:

- Website
- Appropriate servers and software
- Payment software
- Simulated merchant account

Context of and specific resources for assessment

Payment gateways meet business requirement for on-line transactions. As more business is transacted globally, payment gateways provide an important option for financial transactions.

Configuring a payment gateway is a complex process involving analysis, diagnosis and, planning, execution and evaluation across a broad range of technical and management functions, including development of new criteria, applications, knowledge and procedures.

Applications involve significant judgement in planning, design and technical solutions.

The breadth, depth and complexity covering planning and initiation of alternative approaches to skills or knowledge applications across a broad range of technical and/or management requirements, evaluation and coordination would be characteristic.

Assessment must ensure:

- The demonstration of competency may also require self-directed application of knowledge and skills,

EVIDENCE GUIDE	
	with substantial depth in some areas where judgement is required in planning and selecting appropriate equipment, services and techniques for self and others. Applications involve participation in development of strategic initiatives as well as personal responsibility and autonomy in performing complex technical operations or organising others. It may include participation in teams including teams concerned with planning and evaluation functions. Group or team coordination may also be involved.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. - Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. - Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.

EVIDENCE GUIDE

	An individual demonstrating this competency would be able to: • Demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas • Analyse and plan approaches to technical problems or management requirements • Transfer and apply theoretical concepts and/or technical or creative skills to a range of situations • Evaluate information, using it to forecast for planning or research purposes • Take responsibility for own outputs in relation to broad quantity and quality parameters • Take some responsibility for the achievement of group outcomes • Maintain knowledge of industry products and services Additionally, an individual demonstrating this competency would be able to: • Demonstrate understanding of merchant accounts and payment software, with depth in some areas • Evaluate and execute judgements related to configuring payment software • Demonstrate accountability for outputs related to payment solutions

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.

Software may include but is not

- commercial software applications;

RANGE STATEMENT	
limited to:	organisation-specific software, packaged software, in-house or customised software
Specifications may include but is not limited to:	• technical requirements • user problem statement • current system functionality • project plan • software requirements • metrics
Client may include but is not limited to:	• internal departments • external organisations • clubs • individual people • internal employees
System may include but is not limited to:	• databases • applications • servers • operating systems • gateways • application service provider • ISP
Solutions may include but is not limited to:	• new hardware • hardware upgrades; new software, software upgrades • user training or implementing a new system • changes to network infrastructure • changes to security or privacy provisions • quality requirements • OH&S requirements • audit requirements • inventory management • an e-business/e-commerce solution
Database may include but are not limited to:	• relational databases • object-relational databases • proprietary databases • commercial off-the-shelf (COTS) database packages
Payment method may be:	• off-line • on-line or a combination of both • include the use of credit cards • on-line cheques or digital cash

RANGE STATEMENT	
	• and provide for local and/or international transactions
Server may include:	• Application/web servers • BEA Weblogic servers • IBM VisualAge and WebSphere • Novell NDS servers • Email servers • File and print servers • FTP servers • Firewall servers • Proxy/cache servers

Unit Sector(s)

Unit sector	Build

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAB5164B Create a data warehouse

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to design, develop and implement a data warehouse within an organisation. The following units are linked and form an appropriate cluster: • ICAA5139B Design a database • ICAA5147B Determine suitability of database functionality and scalability • ICAA5151B Gather data to identify business requirements • ICAA5153B Model data objects • ICAA5154B Model data processes • ICAB4170B Build a database No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		
	ICAB4170B	Build a database

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 required data and sources	1.1. Identify required organisational data with reference to enterprise knowledge management strategy 1.2. Identify subject areas with reference to business processes and required enterprise data 1.3. Explore the operational data and define warehouse sources and record outcomes 1.4. Develop warehouse source specifications with reference to existing data tables and files
2. Determine warehouse operational steps and processes	2.1. Develop warehouse targets with reference to business processes and required enterprise data 2.2. Identify warehouse agents according to <i>system configuration</i>

ELEMENT	PERFORMANCE CRITERIA
	2.3. Identify and develop warehouse steps and processes
3. Design and develop warehouse features	3.1. Design and develop warehouse user interface with reference to principles of user interface design 3.2. Develop and implement warehouse security strategy in accordance with enterprise security plan 3.3. Identify dimension tables and fact tables with reference to required enterprise data 3.4. Develop warehouse information catalogue with reference to the enterprise's knowledge management strategy
4. Test and implement data warehouse	4.1. Test data warehouse against business requirements to ensure that iterations meet business objectives 4.2. Recommend changes to business processes to ensure compatibility with data warehouse and knowledge management strategy 4.3. Implement the data warehouse 4.4. Establish an ongoing maintenance schedule to keep the system efficient 4.5. Benchmark and document the performance level of the data warehouse 4.6. Arrange for users to have ongoing training in the data warehouse 4.7. Validate results 4.8. Obtain sign-off of the data warehouse

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Use of SQL
- Cost-benefit analysis
- Data gathering and analysis skills
- Project management
- Business analysis
- User interface design

REQUIRED SKILLS AND KNOWLEDGE

- Modelling of steps and processes
- Development of warehouse source specifications

Required knowledge

- Business operating systems in relation to data sources
- Decision support systems in relation to knowledge management strategies
- Functions and features of data warehousing and data mining
- Functions and features of subject areas, warehouse sources, warehouse targets
- Functions and features of warehouse agents and agent sites
- Functions and features of steps and processes, including transformer steps, program steps, SQL steps and user-defined program steps
- Functions and features of dimension tables and fact tables

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

Evidence of the following is essential:

- Assessment must confirm the ability to successfully undertake all activities from proposal to implementation stage for a data warehouse model that reflects current and future business requirements and the business knowledge management strategy.

To demonstrate competency in this unit the person will require access to:

- LAN with a relational database management system
- Internet connectivity tools
- Computers configurable as information servers
- Proxy server software
- Specialised internet security software
- Business requirements

EVIDENCE GUIDE	
	Enterprise knowledge management strategy
Context of and specific resources for assessment	Data and data mining are essential for a variety of operations related to government needs and business requirements. Extrapolating the right data for a scenario can allow for targeted resources to meet determined needs. Creating a data warehouse requires depth and complexity involving analysis and planning across a broad range of technical and management functions. The breadth, depth and complexity covering planning and initiation of alternative approaches to skills or knowledge applications across a broad range of technical and/or management requirements, evaluation and coordination would be characteristic. Assessment must ensure: - The demonstration of competency may also require self-directed application of knowledge and skills, with substantial depth in some areas where judgement is required in planning and selecting appropriate equipment, services and techniques for self and others. - Applications involve participation in development of strategic initiatives as well as personal responsibility and autonomy in performing complex technical operations or organising others. It may include participation in teams including teams concerned with planning and evaluation functions. Group or team coordination may also be involved.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1.

EVIDENCE GUIDE

	- Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. - Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: - ICAA5139B Design a database - ICAA5147B Determine suitability of database functionality and scalability - ICAA5151B Gather data to identify business requirements - ICAA5153B Model data objects - ICAA5154B Model data processes - ICAB4170B Build a database An individual demonstrating this competency would be able to: - Demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas - Analyse and plan approaches to technical problems or management requirements - Transfer and apply theoretical concepts and/or technical or creative skills to a range of situations - Evaluate information, using it to forecast for planning

EVIDENCE GUIDE

	or research purposes • Take responsibility for own outputs in relation to broad quantity and quality parameters • Take some responsibility for the achievement of group outcomes • Maintain knowledge of industry products and services Additionally, an individual demonstrating this competency would be able to: • Demonstrate an understanding of data warehousing concepts, with depth in some areas • Diagnose and design appropriate data warehousing solutions • Demonstrate accountability for outputs

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.

<i>System configuration</i> may include:	• Operating system: Novell NetWare 5 or above or operating system that has multi-user ability; Linux, Mac OS, Windows 2000 or above • Database software: Oracle, Sybase, Microsoft SQL Server, Ingres, DB2, Informix, mSQL, MySQL, SQL server • Configuration: small memory model, large memory model, requests per second
<i>Security plan</i> may contain strategies for:	• handling theft • viruses • standards (including archival, back-up, network) • privacy

RANGE STATEMENT	
	- audits - alerts - usually relates directly to the security objectives of the organisation
System may include but is not limited to:	- databases - applications - servers - operating systems - gateways - application service provider - ISP
Users may include:	- a person within a department - a department within the organisation - a third party

Unit Sector(s)

Unit sector	Build

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAB5165B Create dynamic web pages

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to build active or dynamic web pages. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

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. Prepare the technical environment	1.1. Check that <i>development environment</i> and <i>server software</i> is available and accessible 1.2. Take action to ensure access to organisational or networked <i>server</i> 1.3. Set up access to the <i>server</i> and establish connection to the correct directory for <i>server</i> access 1.4. Determine <i>users</i> who can upload dynamic content to <i>server</i>
2. Create dynamic pages	2.1. Create pages using appropriate <i>language</i> and save with the correct extension 2.2. Store pages in the appropriate location on the <i>server</i> 2.3. Take action to ensure comments are executed as part of the code 2.4. Take action to ensure that code follows correct formatting procedures for ease of reading, maintenance and troubleshooting 2.5. Format pages using appropriate web-suitable <i>language</i> and add business content as required 2.6. Test access file/page through http://localhost/, the local IP address or the full URL
3. Add functions to dynamic pages	3.1. Declare and use variables and arrays according to requirements and if necessary variable types 3.2. Assign variable values, strings and constants 3.3. Call and use functions and formulas 3.4. Set arguments and parameters

ELEMENT	PERFORMANCE CRITERIA
	3.5. Correctly call randomised statements, integers and round functions 3.6. Format string functions correctly 3.7. Incorporate conditionals ('if/then' statements) as required
4. Test and sign off dynamic pages	4.1. Save pages to correct location on server with required extension 4.2. Open pages through browser and test 4.3. Check formatting and dynamic function all perform as required by the business and client 4.4. Document results of tests and obtain client sign-off on the pages

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Scripting
- Server accessing and uploading
- HTML language
- Basic design skills

Required knowledge

- Programming theory
- Built-in objects/functions
- Internet technology
- Stateless programming
- Website models and technologies
- Copyright and intellectual property
- Copyleft and Free Software Foundation
- Federal and State privacy legislation
- Electronic commerce modelling language
- Australian Computer Society Code of Ethics

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	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: - Assessment must confirm the ability to produce dynamic web pages with a large range of functions that meet business needs. To demonstrate competency in this unit the person will require access to: - Server access - Development environment
Context of and specific resources for assessment	Dynamic pages provide for an interactive process between customers and clients. Competent individuals operating in the workplace will engage in a varied range of activities that are complex and non-routine using skilled applications related to dynamic content of web pages. The breadth, depth and complexity covering planning and initiation of alternative approaches to skills or knowledge applications across a broad range of technical and/or management requirements, evaluation and coordination would be characteristic. Assessment must ensure: - The demonstration of competency may also require self-directed application of knowledge and skills, with substantial depth in some areas where judgement is required in planning and selecting appropriate equipment, services and techniques for self and others. - Applications involve participation in development of

EVIDENCE GUIDE	
	strategic initiatives as well as personal responsibility and autonomy in performing complex technical operations or organising others. It may include participation in teams including teams concerned with planning and evaluation functions. Group or team coordination may also be involved.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. - Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. - Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. An individual demonstrating this competency would be able to: - Demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas - Analyse and plan approaches to technical problems

EVIDENCE GUIDE

	or management requirements • Transfer and apply theoretical concepts and/or technical or creative skills to a range of situations • Evaluate information, using it to forecast for planning or research purposes • Take responsibility for own outputs in relation to broad quantity and quality parameters • Take some responsibility for the achievement of group outcomes • Maintain knowledge of industry products and services Additionally, an individual demonstrating this competency would be able to: • Demonstrate understanding of dynamic content incorporating theoretical concepts • Apply solutions to a range of web-based page creation issues • Identify and apply skill and knowledge to a wide variety of related dynamic page creations problems • Identify and evaluate breakdowns in dynamic content

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.

Development environment may include but is not limited to:

- Text file editors
- HTML editors
- Dreamweaver
- Eclipse
- Microsoft Visual InterDev
- BlueFISH for Linux

RANGE STATEMENT	
Software may include but is not limited to:	• commercial software applications; organisation-specific software, packaged software, in-house or customised software
Users may include:	• a person within a department • a department within the organisation • a third party
Server may include:	• Application/web servers • BEA Weblogic servers • IBM VisualAge and WebSphere • Novell NDS servers • Email servers • File and print servers • FTP servers • Firewall servers • Proxy/cache servers
Language may include:	• PHP • VBScript • ASP • ASP.NET • Javascript • Coldfusion • Perlscript • XML
Browser may include but is not limited to:	• Netscape Navigator • Internet Explorer • Mozilla • Opera • Galleon • Phoenix • Konqueror • Lynx
Client may include but is not limited to:	• internal departments • external organisations • individual people • internal employees

Unit Sector(s)

Unit sector	Build

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAB5177B Build Java applets

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to compile and run an applet that executes in Java enabled browsers and interacts with users. The following unit is linked and forms an appropriate cluster: • ICAB5161B Build a document using extensible mark up language No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

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. Create Java source file	1.1. Create a file with a text editor 1.2. Create a sub-class of the class java.applet.Applet 1.3. Ensure that the Applet sub-class implements at least one of the following methods: init and paint 1.4. Define classes that contain instance variables, methods and local variables 1.5. Ensure that the init method initialises instance variables and constructs any graphical interface used in the Applet sub-class 1.6. Implement the paint and update methods to manage output that is drawn in the applet window 1.7. Incorporate event handling methods 1.8. Implement code that allows a <i>user</i> to enter values and assigns these values to variables 1.9. Use available graphical <i>user</i> interface (GUI) components to allow user interaction with the applet 1.10. Specify and load images and sounds 1.11. Include comments to describe the behaviour of the applet

ELEMENT	PERFORMANCE CRITERIA
2. Compile source file	2.1. Use a Java compiler to compile the file 2.2. Correct errors detected by the compiler 2.3. Confirm basic correctness of file to ensure that all variables have been initialised 2.4. Ensure compiler creates a class file and the class is interpreted correctly
3. Run applet	3.1. Create and name a HTML file and add an <APPLET> tag 3.2. Write the applet class file to match the HTML document that contains the <APPLET> tag 3.3. Confirm that the applet loads and executes correctly 3.4. Identify and correct run-time errors 3.5. Identify and correct logic errors 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 3.7. Ensure that user interaction is implemented efficiently and effectively

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Writing HTML code
- Keyboarding
- Object-oriented design

Required knowledge

- Browser security restrictions
- Object-oriented programming concepts
- System properties
- Application programming interface (API)
- Australian Computer Society Code of Ethics

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

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

Evidence of the following is essential:

- Assessment must confirm the ability to compile and run an applet that executes in Java-enabled browsers and allows users to customise the applet's operation.
- Evidence will include accepting user input and generating response based on the input. (e.g. in a web-browser 'shopping cart' situation, select multiple items and calculate the total cost of these items).

To demonstrate competency in this unit the person will require access to:

- Java development environment
- Java compiler and interpreter
- Java enabled web browser

Context of and specific resources for assessment

Performance of a broad range of skilled web-based applications, including requirements to evaluate and analyse current methods.

The breadth, depth and complexity covering planning and initiation of alternative approaches to skills or knowledge applications across a broad range of technical and/or management requirements, evaluation and coordination would be characteristic.

Assessment must ensure:

- The demonstration of competency may also require self-directed application of knowledge and skills, with substantial depth in some areas where judgement is required in planning and selecting appropriate equipment, services and techniques for

EVIDENCE GUIDE	
	self and others. Applications involve participation in development of strategic initiatives as well as personal responsibility and autonomy in performing complex technical operations or organising others. It may include participation in teams including teams concerned with planning and evaluation functions. Group or team coordination may also be involved.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. - Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. - Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: ICAB5161B Build a document using extensible mark-up language

EVIDENCE GUIDE

An individual demonstrating this competency would be able to:

- Demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas
- Analyse and plan approaches to technical problems or management requirements
- Transfer and apply theoretical concepts and/or technical or creative skills to a range of situations
- Evaluate information, using it to forecast for planning or research purposes
- Take responsibility for own outputs in relation to broad quantity and quality parameters
- Take some responsibility for the achievement of group outcomes
- Maintain knowledge of industry products and services

Additionally, an individual demonstrating this competency would be able to:

- Demonstrate knowledge of Java programming, including theoretical concepts
- Apply solutions to Java applet problems
- Identify and apply skill and knowledge to Java solutions
- Identify and evaluate information from a variety of sources

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.

RANGE STATEMENT	
User may include:	• a person within a department • a department within the organisation • a third party
Java compiler may include but is not limited to:	• ALE - adaptable layout environment • alma 0.28 • AnyTool • AutoRad • Bean scripting framework • BEanACTION • Codemesh • DocWiz: The JavaDoc documentation tool • Eclipse • EPP - extensible pre-processor kit • Grace - generating graphical editors • Java 2 SDK • Java Runner • JBuilder 3.5 • Jcreator • Jgrasp • Metamata development environment • Netscape Directory SDK for Java: Source Code • WingSoft • Utility+ • Visual Age 3.0 • Visual J++ • Zero G software

Unit Sector(s)

Unit sector	Build

Co-requisite units

Co-requisite units	

Co-requisite units		

Competency field

Competency field	

ICAB5179B Build decks using wireless mark-up language

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to create wireless markup language (WML) decks. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

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. Design WML deck	1.1. Analyse existing HTML page design and identify information to be accessible via hand-held device 1.2. Design deck logical structure, ensuring that deck size is kept within acceptable boundaries 1.3. Determine structure of content based on business needs and user requirements 1.4. Identify links between sets of cards 1.5. Design cards for user input or for the selection of more than one item
2. Create deck	2.1. <i>Code</i> each card in the deck, ensuring each card has an ID and a title 2.2. Create cards using language and practices compliant with the international <i>WML standard</i> 2.3. Use best practice coding standards in creating the deck 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 3.2. Validate wireless mark-up language files by typing and submitting the uniform resource locator of the wireless mark-up language file or the wireless mark-up language validator 3.3. Ensure the <go> and <prev> tasks selects the correct card in the deck 3.4. Ensure the tested wireless mark-up language files

ELEMENT	PERFORMANCE CRITERIA
	meets the needs of the business <i>client</i>

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- WWW, HTML and building web pages
- JavaScript
- XML

Required knowledge

- WAP and application communication protocols
- Internet standards and TCP/IP
- XML 1.0 standard
- WMLScript specification
- WMLScript
- XML applications
- The five layer protocol stack of TCP/IP
- Wireless application environment
- Wireless session protocol
- Wireless transaction protocol
- Wireless transport layer security
- Wireless datagram protocol
- Australian Computer Society Code of Ethics

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.

EVIDENCE GUIDE	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: - Assessment must confirm the ability to create WML files that meet the business clients need. To demonstrate competency in this unit the person will require access to: - XML parser - WML valuator
Context of and specific resources for assessment	The breadth, depth and complexity covering planning and initiation of alternative approaches to skills or knowledge applications across a broad range of technical and/or management requirements, evaluation and coordination would be characteristic. Assessment must ensure: - The demonstration of competency may also require self-directed application of knowledge and skills, with substantial depth in some areas where judgement is required in planning and selecting appropriate equipment, services and techniques for self and others. - Applications involve participation in development of strategic initiatives as well as personal responsibility and autonomy in performing complex technical operations or organising others. It may include participation in teams including teams concerned with planning and evaluation functions. Group or team coordination may also be involved.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1.

EVIDENCE GUIDE

	- Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. - Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. An individual demonstrating this competency would be able to: - Demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas - Analyse and plan approaches to technical problems or management requirements - Transfer and apply theoretical concepts and/or technical or creative skills to a range of situations - Evaluate information, using it to forecast for planning or research purposes - Take responsibility for own outputs in relation to broad quantity and quality parameters - Take some responsibility for the achievement of group outcomes - Maintain knowledge of industry products and services Additionally, an individual demonstrating this competency would be able to:

EVIDENCE GUIDE

	• Demonstrate understanding of wireless mark-up language • Apply solutions to problems related to wireless mark-up language

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.

Code card elements may contain:

- Card elements may contain text, mark-up language, links, input fields, tasks and images

WML standard may include:

- WAP specification 1.1 or later
- WAP architecture specification - WAP-100, Wireless application protocol architecture specification
- WAP specification suite
- WAP-190 Wireless application environment specification
- WAP-191 Wireless mark-up language specification
- WAP-192 Binary XML content format specification
- WAP-193 WMLScript language specification
- WAP-194 WMLScript standard libraries specification
- WAP-120 WAP caching model specification
- WAP-175 WAP cache operation specification
- WAP-174 User agent profiling specification

The above are examples of some industry-wide WAP specifications, the complete range and new additions can be found at

RANGE STATEMENT	
	www.wapforum.org/what/technical.htm
Client may include but is not limited to:	• internal departments • external organisations • clubs • individual people • internal employees

Unit Sector(s)

Unit sector	Build

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAB5180C Integrate database with a website

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to ensure database connectivity with a website. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

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. Prepare database	1.1. Identify site data needs from technical requirements 1.2. Review existing database to ensure site data needs can be met 1.3. Make additions/adjustments to database as required
2. Create database logons	2.1. Identify site operators and site visitors against business needs 2.2. Determine database permission sets, and authentication and authorisation parameters for each class of user 2.3. Create log-on names using relevant server application utility 2.4. Add log-on names to server application using relevant server utility
3. Create data source names	3.1. Use server utility to create data source names (DSN) as required by website 3.2. Confirm DSN, database log-on name and passwords against business requirements 3.3. Use a server utility to create a database connection using appropriate connectivity tools 3.4. Amend site configuration files as required
4. Test database connectivity	4.1. Retrieve required information for website, including site functionality 4.2. Take action to maintain database integrity according to security benchmarks 4.3. Check that access permissions function correctly

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Analysis skills to determine data objects required, data structures, business requirements
- Registering a data source name (DSN)
- Use of website administration software and site server utilities
- Ability to build a database using a commercially available database product, including: MS SQL server 7.0, Oracle, Sybase
- HTML/XML

Required knowledge

- Data analysis, particularly in determining data types and data structures and query and report design
- CGI
- Primary files and transaction logs
- Open database connection (ODC)
- Website foundations
- Data source names (DSN)

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

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

Evidence of the following is essential:

- Assessment must confirm the ability to successfully ensure database to website connectivity without compromising security and privacy.

EVIDENCE GUIDE	
	To demonstrate competency in this unit the following resources will be needed: • Web servers • E-business website • Requirements documentation • Business planning documentation
Context of and specific resources for assessment	The integration of databases with web connectivity is of fundamental importance to e-commerce transactions. This competency requires a breadth, depth and complexity of knowledge and would cover a broad range of varied activities. An individual in the workplace would be required to undertake a broad range of skilled applications, including requirements to evaluate and analyse current practices in relation to database integration. The breadth, depth and complexity covering planning and initiation of alternative approaches to skills or knowledge applications across a broad range of technical and/or management requirements, evaluation and coordination would be characteristic. The demonstration of competency may also require self-directed application of knowledge and skills, with substantial depth in some areas where judgement is required in planning and selecting appropriate equipment, services and techniques for self and others. Assessment must ensure: • Applications involve participation in development of strategic initiatives as well as personal responsibility and autonomy in performing complex technical operations or organising others. It may include participation in teams including teams concerned with planning and evaluation functions. Group or team coordination may also be involved.

EVIDENCE GUIDE**Method of assessment**

The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1.

- Competency in this unit should to be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency.
- Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process.

Guidance information for assessment

The interdependence of units for assessment purposes may vary with the particular project or scenario. Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.

An individual demonstrating this competency would be able to:

- Demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas
- Analyse and plan approaches to technical problems or management requirements
- Transfer and apply theoretical concepts and/or technical or creative skills to a range of situations
- Evaluate information, using it to forecast for planning or research purposes

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- Take responsibility for own outputs in relation to broad quantity and quality parameters
- Take some responsibility for the achievement of group outcomes
- Maintain knowledge of industry products and services

Additionally, an individual demonstrating this competency would be able to:

- Demonstrate understanding of database technology and web interfacing
- Apply solutions to a defined range of problems
- Apply skills and knowledge, with depth in some areas
- Identify, analyse and evaluate information
- Take responsibility for outputs in relation to database and web outputs

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.

Database may include but are not limited to:

- Oracle
- Sybase
- Microsoft SQL Server
- Access connected to a SQL server
- Ingres
- DB2
- Informix
- mSQL
- MySQL
- SQL Server, etc

RANGE STATEMENT	
User may include:	• a person within a department • a department within the organisation • a third party
Server application may include but is not limited to:	• Apache/MS IIS • SQL Server • other database server
Servers may include:	• BEA Weblogic servers • Apache HTTP server • IBM VisualAge and WebSphere • Microsoft-Internet-Information-Server (IIS) • Windows 2000 server • NetDynamics • Lotus Domino • Netscape Enterprise Server, Netscape-FastTrack, Netscape-Commerce • Sun Microsystems iPlanet web server • iPlanet-Enterprise • Sun Microsystems Java web server • Email servers • File and print servers • FTP servers • Proxy servers
Connectivity tools may include:	• Cold Fusion Professional 1.5 • Sapphire/Web 2.0 • NetDynamics 1.0 • Apple WebObjects Enterprise • ZOPE • open source software
Site functionality may be in relation to:	• volumes (hits, page views, transactions, searches) • arrival rates • response times by class • user session time • number of concurrent users

Unit Sector(s)

Unit sector	Build

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAB5223B Apply intermediate object-oriented language skills

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to undertake intermediate level programming tasks using an object-oriented programming language. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		
	ICAB4219B	Apply introductory object-oriented language skills

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. Build applications using provided language utilities	1.1.Divide multiple source code files into logical units/packages 1.2.Use at least two of the utilities of the target language allowing for internal storage of <i>collections of data</i> 1.3.Use the utilities of the target language providing internal data sorting and searching facilities 1.4.Employ <i>integrated development environment</i> facilities to make files to automate program building 1.5.Follow guidelines for developing maintainable code adhering to <i>coding standards</i> 1.6.Use the facilities in the language for persisting objects to binary files 1.7.Use the operator and function/method overloading facilities available in the <i>language</i> at an introductory level 1.8.Demonstrate ability to use exception handling techniques to ensure program stability 1.9.Demonstrate 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 <i>database</i> 2.2.Design and implement programs that use the

ELEMENT	PERFORMANCE CRITERIA
	languages facilities to extract, update and delete data stored in a database 2.3.Design and implement programs that use the languages facilities to manipulate database structure (query, create and delete) 2.4. Write programs that deliver transactional integrity
3. Write GUI	3.1. Employ GUI framework or text windowing interface appropriate to the chosen language 3.2. Demonstrate use of standard GUI components 3.3. Use the facilities within the language for GUI objects to respond to user and program generated events
4. Debug application	4.1. Use standalone debugging tools or tools provided by integrated development environment to examine variables and trace running code 4.2. Use debugger to detect logical and coding errors 4.3. Use tracing of code and examination of variable contents during execution to detect and correct errors
5. Test application	5.1. Design and document limited tests of code 5.2. Undertake limited testing of produced code to ensure program specification is complied with 5.3. Capture and document test results
6. Create and maintain documentation	6.1. Read and interpret supplied design document to create code 6.2. Create and maintain program documentation

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Interpreting program specifications
- Translating requirements from problem space to machine space
- Integrated development environment usage
- Programming techniques
- Internal (code) documentation techniques

REQUIRED SKILLS AND KNOWLEDGE

- Debugging techniques
- Testing techniques
- Documentation techniques
- Reporting and bug tracking

Required knowledge

- Object-oriented programming concepts
- Small size application development
- Using a GUI to interact with operator
- Object-oriented programming language
- Medium size application development
- Data structures
- Documentation techniques

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

Evidence of the following is essential:

- Assessment must confirm that application programs are designed and built from a problem scenario and program specification.
- Evidence for this competency includes tool usage, documentation, debugging and testing techniques in support of the programming activities and includes database and files.
- Design and code documentation must be generated. Testing must confirm that created application meets original specification and solves original problem.

Context of and specific resources for assessment

Programming in object-oriented languages is a software development methodology that offers the programmer standard reusable software modules (components), rather than requiring the developer to write custom

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	programming code each time. Using standard components reduces development time (because the writing and testing of those components has already been done by other programmers), and ensures a standard look and feel for programs using the same components. Object-oriented languages are an important feature of software development processes world-wide. The breadth, depth and complexity covering planning and initiation of alternative approaches to skills or knowledge applications across a broad range of technical and/or management requirements, evaluation and coordination would be characteristic. Assessment must ensure: • The demonstration of competency may also require self-directed application of knowledge and skills, with substantial depth in some areas where judgement is required in planning and selecting appropriate equipment, services and techniques for self and others. • Applications involve participation in development of strategic initiatives as well as personal responsibility and autonomy in performing complex technical operations or organising others. It may include participation in teams including teams concerned with planning and evaluation functions. Group or team coordination may also be involved.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated

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	environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. An individual demonstrating this competency would be able to: - Demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas - Analyse and plan approaches to technical problems or management requirements - Transfer and apply theoretical concepts and/or technical or creative skills to a range of situations - Evaluate information, using it to forecast for planning or research purposes - Take responsibility for own outputs in relation to broad quantity and quality parameters - Take some responsibility for the achievement of group outcomes - Maintain knowledge of industry products and services

Range Statement

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.

<i>Integrated development environment</i> may include but is not limited to:	• Visual C++ • Visual Studio suite • Eclipse • J-Edit • Code Warrior
<i>Collections of data</i> may include but is not limited to:	• lists • trees • hash tables • sets • stacks • queues
<i>Coding standards</i> may include:	• Java coding standard • GNU coding standard
<i>Language</i> may include but is not limited to:	• Java • C++ • Small Talk • VB.net • C#.net
<i>Database</i> may be:	• relational • object
<i>GUI components</i> may include:	• buttons • check boxes • option buttons • drop-down lists • text input fields, etc.
<i>Documentation</i> may include but is not limited to:	• user manuals • design documents • requirement documents • test documents • release documents • in-code documentation • code comments • internal module documentation

RANGE STATEMENT

	• architecture documentation • design document

Unit Sector(s)

Unit sector	Build

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAB5226B Apply advanced object-oriented language skills

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to undertake advanced programming tasks using an object-oriented programming language. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		
	ICAB5223B	Apply intermediate object-oriented language skills

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. Develop client/server application	1.1. Build and test simple client server applications 1.2. Make use of the features of the language that enable inter-process communication through at least one <i>mechanism</i> 1.3. Make use of the features of the language that enable remote procedure calls (RPC) using a class that is based on multiple inheritances 1.4. Build programs using classes that are based on nested classes
2. Develop GUI	2.1. Use the facilities within the target language to implement advanced GUI features, including but not limited to drag and drop, help files and 2D graphics
3. Build webenabled applications	3.1. Code within an existing <i>architectural framework</i> 3.2. Implement <i>server side code</i> to run a simple web-enabled application that includes data transfer between client and server and is standard for the object-oriented target language 3.3. Implement the necessary <i>client side code</i> to run a simple web-enabled application that includes data transfer between client and server and is standard for the object-oriented target language 3.4. Describe the concept of design patterns that the

ELEMENT	PERFORMANCE CRITERIA
	architectural framework uses
4. Debug code	4.1. Use standalone debugging tools or tools provided by <i>integrated development environment</i> to examine running code 4.2. Detect logical and coding errors using debugger 4.3. Use tracing of code and examination of variable contents during execution to detect and correct errors
5. Test application	5.1. Design and document tests to be undertaken 5.2. Undertake limited testing of produced code to ensure program specification is complied with 5.3. Document test results
6. Document system	6.1. Demonstrate adherence to guidelines for developing maintainable code and company or institutional <i>coding standards</i> 6.2. Read and interpret supplied design documents to create code 6.3. Create and maintain program documentation 6.4. Ensure that user documentation in the form of on-line help is built into applications

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Reading and interpreting design specifications, translating requirements from problem space to machine space
- Writing a GUI to effectively interacts with operator
- Web-enabled application development
- Client-server application development
- Integrated development environment usage
- Programming techniques
- Internal (code) documentation techniques
- Debugging techniques
- Documentation techniques

REQUIRED SKILLS AND KNOWLEDGE**Required knowledge**

- Architecture of a framework for web-enabled application development
- Inter-process communication
- Large size application development
- Use of third-party supplied code
- Testing techniques as applied to distributed application development
- Documentation techniques

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

Evidence of the following is essential:

- Assessment must confirm that application programs are designed and built from a provided problem scenario and set of specifications.
- Design and code documentation must be generated. Testing must confirm that created application meets original specification and solves original problem.
- Evidence for this competency includes tool usage, documentation, debugging and testing techniques in support of the programming activities.

To demonstrate competency in this unit the person will require access to:

- Software development environment
- Access to web server
- Technical requirements

Context of and specific resources for assessment

Programming in object-oriented languages is a software development methodology that offers the programmer standard reusable software modules (components), rather than requiring the developer to write custom

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	programming code each time. Using standard components reduces development time (because the writing and testing of those components has already been done by other programmers), and ensures a standard look and feel for programs using the same components. Object-oriented languages are an important feature of software development processes world-wide. The breadth, depth and complexity covering planning and initiation of alternative approaches to skills or knowledge applications across a broad range of technical and/or management requirements, evaluation and coordination would be characteristic. Assessment must ensure: • The demonstration of competency may also require self-directed application of knowledge and skills, with substantial depth in some areas where judgement is required in planning and selecting appropriate equipment, services and techniques for self and others. • Applications involve participation in development of strategic initiatives as well as personal responsibility and autonomy in performing complex technical operations or organising others. It may include participation in teams including teams concerned with planning and evaluation functions. Group or team coordination may also be involved.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated

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	environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Assessment must confirm competency in all areas of the software development cycle. • Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. An individual demonstrating this competency would be able to: • Demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas • Analyse and plan approaches to technical problems or management requirements • Transfer and apply theoretical concepts and/or technical or creative skills to a range of situations • Evaluate information, using it to forecast for planning or research purposes • Take responsibility for own outputs in relation to broad quantity and quality parameters • Take some responsibility for the achievement of group outcomes • Maintain knowledge of industry products and services

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.

Integrated development environment may include but is not limited to:

- Visual C++
- Visual Studio suite
- WebSphere
- Eclipse
- J-Edit
- Code Warrior
- JBuilder

Mechanism may include but is not limited to:

- sockets
- pipes

Server side code may include:

- ASP
- servlets
- JSP
- PHP etc.

Client side code

- Web Forms, Applets, Javascript etc.

Architectural framework may include:

- J2EE
- NET

Coding standards may include:

- Java coding standard
- GNU coding standard

Unit Sector(s)

Unit sector	Build

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAB5227B Apply advanced programming skills in another language

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to undertake advanced programming tasks using a selected choice of another programming language. The second language may be an object-oriented language. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		
	ICAB4229B	Apply intermediate programming skills in another language

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. Code using advanced data structures	1.1.Design, 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 2.2.Consider and record the advantages and disadvantages of at least three sorting algorithms 2.3.Code at least one sorting algorithm 2.4.Code advanced searching techniques for use with complex data structures
3. Write simple multi-process application	3.1.Demonstrate use of the features of the language that enable inter-process communication through at least one <i>mechanism</i> 3.2.Demonstrate use of 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 4.2.Reference third-party documentation 4.3.Use procedural techniques to write an application to work within a GUI environment
5. Debug code	5.1.Use an <i>integrated development environment</i>

ELEMENT	PERFORMANCE CRITERIA
	debugging facilities or a standalone debugger 5.2. Use program debugging techniques to detect and resolve errors of syntactical, logical and design origin
6. Document activities	6.1. Demonstrate use of source code version control 6.2. Demonstrate adherence to guidelines for developing maintainable code and to a set of provided <i>coding standards</i> 6.3. Apply internal documentation suitable for consumption by peers to all code created and utilising documentation tools available in the target <i>language</i>
7. Test code	7.1. Design and document tests to be undertaken 7.2. Undertake limited testing of produced code to ensure program specification is complied with 7.3. Capture test results
8. Create an application	8.1. Develop a solution from a program specification design document 8.2. Design the algorithm, construct and test applications in response to a problem description and <i>language</i>

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Reading and interpreting program specifications
- Development environment usage
- Working with version control
- Programming techniques
- Documentation techniques
- Advanced debugging techniques
- Advanced testing techniques

Required knowledge

- Selected programming language

REQUIRED SKILLS AND KNOWLEDGE

- Large size application development
- Developing in a GUI environment
- Complex data structures
- Use of third-party supplied library

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

Evidence of the following is essential:

- Assessment must confirm that application programs are designed and built from a provided problem scenario and program specification.
- Design and code documentation must be generated. Testing must confirm that created application meets original specification and solves original problem.
- Evidence for this competency includes tool usage, documentation, debugging and testing techniques in support of the programming activities.
- Assessment must confirm competency in all areas of the software development cycle. Code-only solutions are not acceptable.

To demonstrate competency in this unit the person will require access to:

- Software development environment
- Technical requirements

Context of and specific resources for assessment

Programming languages form the underpinning software infrastructure of all computer data processing.

It is important that the stages of the development methodology are followed within the scope of any

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	project or scenario, and the relevant supporting documentation produced. The breadth, depth and complexity covering planning and initiation of alternative approaches to skills or knowledge applications across a broad range of technical and/or management requirements, evaluation and coordination would be characteristic. Assessment must ensure: • The demonstration of competency may also require self-directed application of knowledge and skills, with substantial depth in some areas where judgement is required in planning and selecting appropriate equipment, services and techniques for self and others. • Applications involve participation in development of strategic initiatives as well as personal responsibility and autonomy in performing complex technical operations or organising others. It may include participation in teams including teams concerned with planning and evaluation functions. Group or team coordination may also be involved.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency.

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	Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. An individual demonstrating this competency would be able to: - Demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas - Analyse and plan approaches to technical problems or management requirements - Transfer and apply theoretical concepts and/or technical or creative skills to a range of situations - Evaluate information, using it to forecast for planning or research purposes - Take responsibility for own outputs in relation to broad quantity and quality parameters - Take some responsibility for the achievement of group outcomes - Maintain knowledge of industry products and services Additionally, an individual demonstrating this competency would be able to: - Understand development methodologies and their application in a broad context of programming - Demonstrate advanced theoretical knowledge of language development models - Support development methodology related to a programming project - Thoroughly document all aspects of the programming methodology.

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.	
<i>Integrated development environment</i> may include but is not limited to:	• C • VB • Visual C++ • Visual Studio suite • Eclipse • J-Edit • Code Warrior
<i>Coding standards</i> may include:	• C coding standard • GNU coding standard
<i>Mechanism</i> may include:	• sockets • pipes
<i>Language</i> may include but is not limited to:	• C • VB • Java • C++ • Small Talk • VB.net

Unit Sector(s)

Unit sector	Build

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAB5228B Maintain functionality of legacy code programs

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to maintain the functionality of legacy code programs. The following unit is linked and forms an appropriate cluster: • ICAB5320B Maintain custom software No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		
	ICAB4222C	Apply introductory programming skills in another language

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. Determine functional changes required	1.1.Consult user to determine and document the functional change required 1.2.Clarify impact of changes with operational personnel, to ensure understanding
2. Review legacy language	2.1.Identify the basic structures of the legacy language 2.2.Review the data storage of the legacy language with regard to global variables, modularisation, cohesion and coupling 2.3.Review the basic algorithms of the legacy language
3. Identify and isolate change	3.1.Review the technical documentation for the system to determine modules to change 3.2.Review source code to determine program logic and flow 3.3.Update the technical documentation to reflect current state of program
4. Determine framework for change	4.1.Determine the change approach to be used to implement the change 4.2.Ascertain and detail the risks for each approach 4.3.Determine the personnel who will make the changes

ELEMENT	PERFORMANCE CRITERIA
5. Design change	5.1. Develop the changes required , considering the impact of the changes on other parts of the system 5.2. Document the changes in accordance with change management standards
6. Code change	6.1. Identify and obtain appropriate hardware and software for the change 6.2. Write code in accordance with programming standards 6.3. Compile and unit test the changes 6.4. Document the changes in accordance with programming standards
7. Test change	7.1. System test the changes and record outcomes 7.2. Perform user acceptance testing and record outcomes 7.3. Sign off change request
8. Archive system	8.1. Create new version of software in accordance with configuration management standards 8.2. Archive the development system, including source code, compilers and test data

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Intermediate analysis in relation to a software design
- Decision making in relation to areas of software design
- Problem solving skills
- Clear and precise communication
- Interpretation of user manuals and help functions
- Interpretation of organisational standards and procedures

Required knowledge

- Technical terminology in relation to reading help files and manuals
- Operational procedures on the required operating system
- Organisational standards for software development

REQUIRED SKILLS AND KNOWLEDGE

- Security, viruses, privacy legislation, copyright
- Types of software

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

Evidence of the following is essential:

- Assessment must ensure the ability to read legacy language, identify and isolate the change, and implement the change via the chosen technique.

To demonstrate competency in this unit the person will require access to:

- Access to documents detailing organisational standards for software development

Context of and specific resources for assessment

The breadth, depth and complexity covering planning and initiation of alternative approaches to skills or knowledge applications across a broad range of technical and/or management requirements, evaluation and coordination would be characteristic.

Assessment must ensure:

- The demonstration of competency may also require self-directed application of knowledge and skills, with substantial depth in some areas where judgement is required in planning and selecting appropriate equipment, services and techniques for self and others.
- Applications involve participation in development of strategic initiatives as well as personal responsibility

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	and autonomy in performing complex technical operations or organising others. It may include participation in teams including teams concerned with planning and evaluation functions. Group or team coordination may also be involved. Work is carried out with limited supervision.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. - Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. - Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: ICAB5230B Maintain custom software An individual demonstrating this competency would be

EVIDENCE GUIDE

able to:

- Demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas
- Analyse and plan approaches to technical problems or management requirements
- Transfer and apply theoretical concepts and/or technical or creative skills to a range of situations
- Evaluate information, using it to forecast for planning or research purposes
- Take responsibility for own outputs in relation to broad quantity and quality parameters
- Take some responsibility for the achievement of group outcomes
- Maintain knowledge of industry products and services

Additionally, an individual demonstrating this competency would be able to:

- Demonstrate knowledge by recall of key design alternatives
- Demonstrate practical skills in analysis relevant to the change
- Modify programs in the legacy language
- Compile and test programs under the relevant operating system
- Follow procedures for change management and configuration management

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.

RANGE STATEMENT	
User may include:	• a person within a department • a department within the organisation • a third party
Technical documentation may include:	• project specifications • reports • help references • technical manuals • training materials and self-paced tutorials • on-line help • user guides • brochures
Change approach may include:	• implementing the changes in the legacy language • implementing a new layer (or replacing an existing layer) to the architecture of the system • implementing wrappers to the legacy code
Hardware may include but is not limited to:	• workstations • personal computers • modems and other connectivity devices • networks • remote sites • servers • DSL modems
Software may include but is not limited to:	• commercial software applications; organisation-specific software, packaged software, in-house or customised software

Unit Sector(s)

Unit sector	Build

Co-requisite units

Co-requisite units	

Co-requisite units		

Competency field

Competency field	

ICAB5230B Maintain custom software

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to maintain software so that it continues to meet client user requirements. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		
	ICAB4222C	Apply introductory programming skills in another language

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. Determine software fault to be corrected	1.1. Collect and review software fault details from sources 1.2. Obtain technical data from software traces, memory dumps, error messages and other information to assist in identifying the problem 1.3. Clarify the nature of the problem with <i>appropriate person</i> where necessary
2. Identify and isolate fault	2.1. Review program documentation for specific modules in order to pinpoint problem areas 2.2. Review source code for logic errors 2.3. Read manuals, help files, 'read me files' to determine if there is a known fix 2.4. Undertake additional testing to correctly identify or duplicate fault 2.5. Escalate difficult faults that cannot be identified
3. Design fix for fault	3.1. Ensure requirements to fix the fault are understood by client 3.2. Consider alternative options and choose the most effective solution 3.3. Consider the possible impact of the fix on other parts of the system 3.4. Document changes in line with organisational

ELEMENT	PERFORMANCE CRITERIA
	guidelines
4. Carry out fix to software	4.1. Identify and obtain access to appropriate software development tools, correct source code and libraries 4.2. Construct appropriate code to correct the fault in accordance with organisational and programming standards 4.3. Compile/regenerate code for changed programs and associated modules 4.4. Correct and resubmit code until error-free 4.5. Document all changes in accordance with organisational and programming standards
5. Test 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 5.2. Request users to perform acceptance testing and record outcomes
6. Hand over to systems operations area	6.1. Update documentation to reflect all changes made 6.2. Confirm acceptance by systems operations and arrange for sign-off in accordance with procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Customer service skills in relation to maintenance procedures
- Programming skills in relation to customising and adapting software packages
- Adherence to standards and procedures in programming

Required knowledge

- Concepts of testing of software systems
- Current industry-accepted hardware and software products, with knowledge of general features and capabilities
- Knowledge of the system's current functionality
- Concepts of system performance

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	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: - Assessment must confirm the ability to effectively maintain custom software including the application of a fix that works and the deployment of a possible range of solutions to produce the same results. Assessment must confirm the knowledge of the impact of changes on applications and systems. To demonstrate competency in this unit the person will require access to: - Fault logs, help desk reports - Software documentation - Software development environment - Source code and libraries - Software development tools
Context of and specific resources for assessment	Organisations may use either software that has been developed in-house or from off-the-shelf packages. Some customisation generally occurs with off-the-shelf packages. It is important that all changes made to standard software products are documented. Changes may be made in response to user requests or organisation requirements. The breadth, depth and complexity covering planning and initiation of alternative approaches to skills or knowledge applications across a broad range of technical and/or management requirements, evaluation and coordination would be characteristic. Assessment must ensure:

EVIDENCE GUIDE	
	• The demonstration of competency may also require self-directed application of knowledge and skills, with substantial depth in some areas where judgement is required in planning and selecting appropriate equipment, services and techniques for self and others. • Applications involve participation in development of strategic initiatives as well as personal responsibility and autonomy in performing complex technical operations or organising others. It may include participation in teams including teams concerned with planning and evaluation functions. Group or team coordination may also be involved.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for	Holistic assessment with other units relevant to the

EVIDENCE GUIDE**assessment**

industry sector, workplace and job role is recommended.

An individual demonstrating this competency would be able to:

- Demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas
- Analyse and plan approaches to technical problems or management requirements
- Transfer and apply theoretical concepts and/or technical or creative skills to a range of situations
- Evaluate information, using it to forecast for planning or research purposes
- Take responsibility for own outputs in relation to broad quantity and quality parameters
- Take some responsibility for the achievement of group outcomes
- Maintain knowledge of industry products and services

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.

Documentation may follow:

- ISO/IEC/AS standards
- audit trails
- naming standards
- version control
- project management templates and report writing
- maintaining equipment inventory; client training and satisfaction reports

RANGE STATEMENT

<i>Appropriate person</i> may include:	• supervisor • teacher • authorised business representative • client

Unit Sector(s)

Unit sector	Build

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAB5237B Build a high performance security perimeter

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to build high performance failure resistant security perimeters. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

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. Configure advanced features of firewall appliance to provide additional network services	1.1. Match business requirements and <i>policies</i> for multimedia and advanced network services and <i>asset</i> protection with firewall appliance capabilities 1.2. Configure advanced attack guards and intrusion detection 1.3. Secure advanced network features 1.4. Monitor and manage advanced services both on-site and remotely
2. Configure network devices to provide secure failover and redundancy	2.1. Configure firewall appliance 2.2. Configure routers and switches 2.3. Configure related services 2.4. Configure monitoring software and hardware 2.5. Document distribution of failover and redundancy tasks and settings of related network elements
3. Test, verify and benchmark secure failover and redundancy performance	3.1. Identify measurable secure failover and redundancy parameters 3.2. Design test procedures to measure parameters 3.3. Measure parameters, modify, correct and debug 3.4. Document and securely store settings

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Ability to develop enterprise policies, strategies and procedures
- Ability to undertake a network security risk assessment
- Ability to implement security strategies and configure network security software and hardware
- Implementing LAN, WLAN, VPN and WAN solutions
- Cost-benefit comparison
- Troubleshooting and debugging

Required knowledge

- Security threats, including eavesdropping, data interception, data corruption, data falsification, authentication issues
- Organisational issues surrounding security
- Security perimeters and their functions
- Types of VPNs, including site-to-site, user-to-site internet traffic and extranets
- The function and operation of virtual private networking (VPN) concepts, including encryption, firewalls, packet tunnelling and authentication
- Common VPN issues, including, bandwidth, dynamic security environment
- Network protocols and operating systems
- Security protocols, standards and data encryption
- Configuring routers and switches
- Cryptography
- LAN, WLAN and WAN solutions
- TCP/IP protocols and applications
- Auditing and penetration testing techniques
- Screened subnets
- Virus detection software
- Audit and intrusion detection systems

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

EVIDENCE GUIDE	
Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: - Assessment must confirm the ability to develop, implement and maintain basic security functionality for either VPN, LANs or WLANs. To demonstrate competency in this unit the person will require access to: - Network technical requirements - Network infrastructure, including servers and security hardware and software
Context of and specific resources for assessment	This competency can be assessed in the workplace or in a simulated environment. Assessment of this unit of competency will usually include observation of real or simulated work processes and procedures, quality projects, questioning on underpinning Knowledge and skills. The breadth, depth and complexity covering planning and initiation of alternative approaches to skills or knowledge applications across a broad range of technical and/or management requirements, evaluation and coordination would be characteristic. Assessment must ensure: - The demonstration of competency may also require self-directed application of knowledge and skills, with substantial depth in some areas where judgement is required in planning and selecting appropriate equipment, services and techniques for self and others. - Applications involve participation in development of strategic initiatives as well as personal responsibility and autonomy in performing complex technical operations or organising others. It may include participation in teams including teams concerned with planning and evaluation functions. Group or

EVIDENCE GUIDE	
	team coordination may also be involved.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. - Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. - Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. An individual demonstrating this competency would be able to: - Demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas - Analyse and plan approaches to technical problems or management requirements - Transfer and apply theoretical concepts and/or technical or creative skills to a range of situations - Evaluate information, using it to forecast for planning

EVIDENCE GUIDE

	or research purposes • Take responsibility for own outputs in relation to broad quantity and quality parameters • Take some responsibility for the achievement of group outcomes • Maintain knowledge of industry products and services

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.

<i>Asset</i>	• data and information • intellectual property • physical assets
<i>Policies</i> may include:	• incident response procedures • network intrusion detection systems • audit systems

Unit Sector(s)

Unit sector	Build

Co-requisite units

Co-requisite units	

Co-requisite units		

Competency field

Competency field	

ICAB5238B Build a highly secure firewall

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to build high level security and network functionality into a network by configuring a firewall appropriately. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

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. Establish match between firewall appliance and business needs	1.1. Match features and capabilities of firewall appliance to business security needs and <i>asset</i> protection 1.2. Match features and capabilities of firewall appliance to business accounting needs and <i>asset</i> protection 1.3. Match features and capabilities of firewall device to remote access needs and <i>asset</i> protection 1.4. Monitor and manage firewall appliance logs, reports and performance both on-site and remotely
2. Configure firewall appliance	2.1. Configure attack guards and intrusion detection 2.2. Identify and apply IPSec configuration tasks 2.3. Test and verify VPN configuration
3. Secure perimeter using firewall appliance	3.1. Configure appropriate access-defined and access control lists using objects and nested objects as appropriate 3.2. Apply filtering of traffic in line with security requirements 3.3. Configure <i>authentication, authorisation and accounting (AAA)</i> services supporting remote access protocols in line with security requirements 3.4. Document and securely store settings

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Ability to develop enterprise policies, strategies and procedures
- Ability to undertake a network security risk assessment
- Ability to implement security strategies and configure network security software and hardware
- Implementing LAN, VPN, WLAN and WAN solutions
- Cost-benefit comparison
- Troubleshooting/debugging

Required knowledge

- Security threats, including eavesdropping, data interception, data corruption, data falsification, authentication issues
- Organisational issues surrounding security
- Security perimeters and their functions
- Types of VPNs, including site-to-site, user-to-site internet traffic and extranets
- The function and operation of virtual private networking (VPN) concepts, including encryption, firewalls, packet tunnelling and authentication
- Common VPN issues, including, bandwidth, dynamic security environment
- Network protocols and operating systems
- Security protocols, standards and data encryption
- Configuring routers and switches
- Cryptography
- LAN, WLAN and WAN solutions
- TCP/IP protocols and applications
- Auditing and penetration testing techniques
- Screened subnets
- Virus detection software
- Audit and intrusion detection systems

Evidence Guide

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	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: - Assessment must confirm the ability to develop, implement and maintain basic security functionality for either VPN, LANs or WLANs. To demonstrate competency in this unit the person will require access to: - Network technical requirements - Network infrastructure including servers and security hardware and software
Context of and specific resources for assessment	The breadth, depth and complexity covering planning and initiation of alternative approaches to skills or knowledge applications across a broad range of technical and/or management requirements, evaluation and coordination would be characteristic. Assessment must ensure: - The demonstration of competency may also require self-directed application of knowledge and skills, with substantial depth in some areas where judgement is required in planning and selecting appropriate equipment, services and techniques for self and others. - Applications involve participation in development of strategic initiatives as well as personal responsibility and autonomy in performing complex technical operations or organising others. It may include participation in teams including teams concerned with planning and evaluation functions. Group or team coordination may also be involved.
Method of assessment	The purpose of this unit is to define the standard of

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	performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. An individual demonstrating this competency would be able to: • Demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas • Analyse and plan approaches to technical problems or management requirements • Transfer and apply theoretical concepts and/or technical or creative skills to a range of situations • Evaluate information, using it to forecast for planning or research purposes • Take responsibility for own outputs in relation to broad quantity and quality parameters

EVIDENCE GUIDE

	• Take some responsibility for the achievement of group outcomes • Maintain knowledge of industry products and services

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.

Assets may include:	• data and information • intellectual property • physical assets
Authentication, Authorisation and Accounting (AAA)	• Remote access security approach that controls network access by requiring user identification and restricting access to only particular resources, and maintains records of use for billing and network audit

Unit Sector(s)

Unit sector	Build

Co-requisite units

Co-requisite units	

Co-requisite units		

Competency field

Competency field	

ICAD2003B Receive and process oral and written communication

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to receive, clarify and document client information and refer for action. There may be benefit in concurrent learning with the following units: • ICAW2001B Work effectively in an IT environment • ICAW2002B Communicate in the workplace • ICAW2011B Work individually or in a team to achieve organisational goals The following units are linked and form an appropriate cluster: • ICAW2001B Work effectively in an IT environment • ICAW2002B Communicate in the workplace • ICAW2011B Work individually or in a team to achieve organisational goals No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

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. Receive and process oral communication from clients	1.1. Demonstrate the accommodation of <i>cultural differences</i> in communication 1.2. Receive and clarify oral messages in a courteous manner 1.3. Log a written message according to <i>organisational guidelines</i> 1.4. Send the message to the required person using an appropriate method

ELEMENT	PERFORMANCE CRITERIA
2. Receive and process written communication	2.1.Receive and process written communication , from clients 2.2.Demonstrate the use of equipment to manage messages
3. Respond to incoming telephone calls	3.1.Answer telephone calls promptly according to the organisational requirements 3.2.Determine and confirm the callers' requests and next actions 3.3.Record messages according to the organisational guidelines 3.4.Maintain records of documentation and reports associated with incoming calls
4. Make telephone calls	4.1.Look up client details for the correct telephone number 4.2.Call the client using the appropriate greeting 4.3.Deliver the message to the client and finalise the telephone call appropriately

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Basic customer service in relation to obtaining information
- Negotiation skills in relation to other team members and applied to a defined range of predictable problems
- Low-level decision making skills
- Ability to convey meaning clearly, concisely and coherently
- Literacy skills in regard to basic workplace documentation
- Use of various recording and reporting media
- Plain English literacy and communication skills in relation to dealing with clients and colleagues
- Telephone answering skills
- Computer use and email receipt and response skills

Required knowledge

REQUIRED SKILLS AND KNOWLEDGE

- Basic knowledge of acceptable work practices and working environment
- Basic office procedures
- Basic understanding of organisational systems
- Organisational guidelines on communications, response times and protocols

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

Evidence of the following is essential:

- Assessment must confirm the ability to use clear and concise communication to record and process messages according to organisational requirements; clarify and document client information and refer to correct area of responsibility for action.

To demonstrate competency in this unit the person will require access to:

- Personal computer
- Incoming and outgoing telephone facilities
- Email and word processing facilities

Context of and specific resources for assessment

The breadth, depth and complexity of knowledge and skills in this competency would prepare a person to perform in a range of varied activities or knowledge applications where there is a clearly defined range of contexts in which the choice of actions required is usually clear. There would generally be limited complexity in the range of operations to be applied.

Assessment must ensure:

- Performance of a prescribed range of functions involving known routines and procedures and some

EVIDENCE GUIDE	
	accountability for the quality of outcomes would be characteristic. Applications may include some complex or non-routine activities involving individual responsibility or autonomy and/or collaboration with others as part of a group or team.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. - Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. - Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: - ICAW2001B Work effectively in an IT environment - ICAW2002B Communicate in the workplace - ICAW2011B Work individually or in a team to achieve organisational goals An individual demonstrating this competency would be able to:

EVIDENCE GUIDE

	• Demonstrate basic operational knowledge in a moderate range of areas • Apply a defined range of skills • Apply known solutions to a limited range of predictable problems • Perform a range of tasks where choice between a limited range of options is required • Assess and record information from varied sources • Take limited responsibility for own outputs in work and learning • Maintain knowledge of industry products and services

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.

Organisational guidelines may include but are not limited to:

- guidelines that include telephone documentation procedures
- written documentation procedures
- organisation manuals
- policy on client liaison

Cultural differences may include but are not limited to:

- the way people interact with each other
- content, style and design of emails
- business documents

Organisational requirements may include but are not limited to:

- personal use of emails and internet access
- content of emails
- downloading information and accessing particular websites
- opening mail with attachments
- virus risk
- dispute resolution
- document procedures and templates

RANGE STATEMENT	
	• communication methods • response times • financial control mechanisms
Written communication	• Written communication may include but is not limited to letters, email, memos
Equipment may include but is not limited to:	• workstations • personal computers • modems and other connectivity devices • printers • DSL modems • hard drives • monitors • switches • hubs • personal digital assistant (PDA) • other peripheral devices
Client may include but is not limited to:	• internal departments • external organisations • individual people and including colleagues • internal employees
Documentation and reports	• May include audit trails, naming standards, version control, project management templates and report writing styles will vary according to organisational approach. Information gathering processes may have associated templates

Unit Sector(s)

Unit sector	Documentation

Co-requisite units

Co-requisite units	

Co-requisite units		

Competency field

Competency field	

ICAD2012B Design organisational documents using computing packages

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to produce organisational documents using application software within organisational guidelines, procedures and policies. There may be benefit in concurrent learning of the following unit: • ICAU2006B Operate computing packages The following units are linked and form an appropriate cluster: • ICAD2003B Receive and process oral and written communication • ICAU2006B Operate computing packages • ICAU2013B Integrate commercial computing packages No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		
	ICAU1128B	Operate a personal computer

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. Design documents to meet organisational needs	1.1. Use <i>applications</i> to design and configure document templates for use in a business environment 1.2. Demonstrate the implementation of design guidelines 1.3. Select appropriate <i>software</i> 1.4. Use <i>software</i> as per specifications to design documents 1.5. Store documents for access and editing as required 1.6. Obtain approval of design of documents from <i>appropriate person</i>
2. Access, retrieve, manipulate and save	2.1. Use <i>software</i> as per specification

ELEMENT	PERFORMANCE CRITERIA
data	2.2. Locate and open <i>files</i> 2.3. Amend designs according to requirements 2.4. Exit <i>applications</i> successfully without loss of <i>data</i>

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Basic decision making skills
- General customer service skills in relation to internal customers
- Questioning and active listening
- Problem solving skills for basic application troubleshooting
- Literacy and numeracy skills in regard to general workplace documentation design, usage and improvement

Required knowledge

- Knowledge of organisational documentation and style guides
- Organisational storage and retrieval procedures
- Broad knowledge of features for application packages
- General OH&S regulations
- Current business practices in relation to preparing reports
- Use of input/output devices (e.g. scanners, laser printers)
- Organisational procedures for document design

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

EVIDENCE GUIDE	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: • Competency must be demonstrated by building several workplace documents, without explicit instruction on their design from end-user or supervisor. • A range of features of software applications are accessed and employed successfully to produce a workplace document.
Context of and specific resources for assessment	Organisational documents allow an organisation to generate and capture important data in a meaningful format. Determining the requirements and a template for the documents enables an organisation to maintain consistency across different levels and departments. The breadth, depth and complexity of knowledge and skills in this competency would prepare a person to perform in a range of varied activities or knowledge applications where there is a clearly defined range of contexts in which the choice of actions required is usually clear. There would generally be limited complexity in the range of operations to be applied. Assessment must ensure: • Performance of a prescribed range of functions involving known routines and procedures and some accountability for the quality of outcomes would be characteristic. • Applications may include some complex or non-routine activities involving individual responsibility or autonomy and/or collaboration with others as part of a group or team.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should be assessed using

EVIDENCE GUIDE

	summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • ICAD2003B Receive and process oral and written communication • ICAU2006B Operate computing packages • ICAU2013B Integrate commercial computing packages An individual demonstrating this competency would be able to: • Demonstrate basic operational knowledge in a moderate range of areas • Apply a defined range of skills • Apply known solutions to a limited range of predictable problems • Perform a range of tasks where choice between a limited range of options is required • Assess and record information from varied sources • Take limited responsibility for own outputs in work and learning • Maintain knowledge of industry products and services

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.

<i>Applications</i> may include:	• database programs • word processors • email programs • internet browsers • system browsers • image programs • presentation programs • spreadsheets
<i>Software</i> may include but is not limited to:	• commercial software applications; organisation-specific software, word processing packages, spreadsheet applications, databases, graphics packages, communication packages and presentation applications
<i>Appropriate person</i> may include:	• supervisor • teacher • authorised business representative • client
<i>Files</i> may include but is not limited to:	• HTML pages • pdf files • word files • spreadsheet files • database files • pictures • email messages
<i>Data</i> may include:	• text or graphics added to the document

Unit Sector(s)

Unit sector	Documentation

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAD3218B Create user documentation

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to create user documentation that is clear to the target audience and is easy to navigate. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

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. Determine documentation standards and requirements	1.1.Determine documentation requirements 1.2.Investigate documentation and industry standards for requirements and determine appropriate application to user documentation 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 2.2.Gather existing technical, design or user specifications and supporting documentation 2.3.Create user documentation based on template to record the operation of the subject system, program, network or application
3. Review and obtain signoff	3.1.Submit user documentation to target audience for review 3.2.Gather and analyse feedback 3.3.Make changes to user documentation 3.4.Submit user documentation to appropriate person for approval

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Selecting and using appropriate software and tools
- Identifying target audiences
- Analysing audience needs
- Identifying relevant content
- Determining appropriate content, formats and styles
- Writing content

Required knowledge

- Content features, such as clarity and readability
- Instructional design principles
- Functions and features of templates and style guides
- Document design, web design and usability

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

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

Evidence of the following is essential:

- Assessment must confirm the ability to create user documentation that meets business requirements, caters for a diverse readership, is clear to the target audience and easy to navigate

To demonstrate competency in this unit the person will require access to:

EVIDENCE GUIDE	
	• Documentation standards • Software tools for effecting documentation • Access to information about system, platform, network or application being documented
Context of and specific resources for assessment	The breadth, depth and complexity of knowledge and skills in this competency would cover selecting, adapting and transferring skills and knowledge to new environments and providing technical advice and some leadership in resolution of specified problems. This would be applied across a range of roles in a variety of contexts with some complexity in the extent and choice of options available. Assessment must ensure: • Performance of a defined range of skilled operations, usually within a range of broader related activities involving known routines, methods and procedures, where some discretion and judgement is required in the selection of equipment, services or contingency measures and within known time constraints would be characteristic. • Applications may involve some responsibility for others. Participation in teams including group or team coordination may be involved.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Assessment will usually include observation of real or simulated work processes and procedures and/or

EVIDENCE GUIDE	
	performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended An individual demonstrating this competency would be able to: • Demonstrate some relevant theoretical knowledge • Apply a range of well-developed skills • Apply known solutions to a variety of predictable problems • Perform processes that require a range of well-developed skills where some discretion and judgement is required • Interpret available information, using discretion and judgement • Take responsibility for own outputs in work and learning • Take limited responsibility for the output of others • Maintain knowledge of industry products and services

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.	
<i>Documentation</i> may include but	• user manuals and procedure manuals

RANGE STATEMENT	
are not limited to:	• training materials in either hard copy • electronic copy • on-line help • internet/intranet • design specifications
Standards	• May include but are not limited to policy relating to cataloguing, sign-off, storage, distribution, revision • May include ISO/IEC/AS standards, organisational standards, project standards. For further information refer to the Standards Australia website at: www.standards.com.au
Software may include but is not limited to:	• commercial software applications; organisation-specific software, word processing packages, graphics packages, presentation applications, multimedia authoring tools and help file creation software
Appropriate person may include:	• supervisor • teacher • authorised business representative • client
User documentation	• User documentation can include project specifications, reports, help references, user manuals, training materials and self-paced tutorials, on-line help, user guides, brochures

Unit Sector(s)

Unit sector	Documentation

Co-requisite units

Co-requisite units	

Co-requisite units		

Competency field

Competency field	

ICAD4043B Develop and present a feasibility report

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to research and present a range of feasible scenarios to the client. The following units are linked and form an appropriate cluster: • ICAA4041C Determine and confirm client business expectations and needs • ICAA4047B Determine project specifications and secure client agreement No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units	

Prerequisite units		

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. Confirm client requirements	1.1. Analyse <i>client requirements</i> to determine <i>project scope</i> , and the problem context or opportunity faced by the business 1.2. Document client requirements, <i>project scope</i> , <i>related problems</i> and <i>sources of information</i> 1.3. Confirm requirements and scope with the <i>client</i>
2. Develop high level alternative scenarios	2.1. Compare future <i>client requirements</i> with current requirements 2.2. Develop and document feasible solutions for <i>client requirements</i> 2.3. Explore and document the <i>feasibility</i> of each <i>solution</i> 2.4. Examine alternatives against project <i>constraints</i>
3. Prepare and publish feasibility report	3.1. Develop a <i>feasibility</i> report that describes <i>client requirements</i> , <i>project scope</i> , analysis of alternative

ELEMENT	PERFORMANCE CRITERIA
	scenarios, and recommendations 3.2. Submit feasibility report to <i>appropriate person</i> for project approval

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Project planning skills in relation to scope, time, cost, quality, communications and risk management (e.g. when preparing and/or publishing feasibility report)
- Research skills for identifying, analysing and evaluating broad features of a particular business domain and best practice in system development
- Financial modelling skills for identifying, analysing and evaluating a range of solutions (e.g. when examining alternatives against budget constraints)
- Plain English literacy and communication skills in relation to analysis, evaluation and presentation of information (e.g. when describing alternative scenarios, articulating assumptions and presenting preferences, and for presenting summary to higher authorities and/or client for project approval)
- Report writing skills for business requiring depth in analysis and evaluation of information in a defined range of areas (e.g. when preparing and/or publishing feasibility report)
- Questioning and active listening skills (e.g. when establishing reasons for change and detailing scope and function of proposed system)

Required knowledge

- Client business domain (e.g. when ensuring the proposed solution is the best reasonable fit)
- Two or more current industry systems development methodologies
- Role of stakeholders and the degree of stakeholder involvement (e.g. when considering solutions for clients)
- Detailed knowledge of the system's current functionality (e.g. when comparing and analysing future business process requirements with current requirements)

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

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

Evidence of the following is essential:

- Assessment must confirm sufficient knowledge of the client requirements and the business context as well as an ability to present solutions.

To demonstrate competency in this unit the person will require access to:

- Client requirements
- Report writing template
- Client expectations brief
- Information on a range of IT business solutions
- Future organisational business processes
- Budgets for scenarios

There will need to be access to the outcomes of the business analysis process

Context of and specific resources for assessment

The breadth, depth and complexity of knowledge and skills in this competency would cover a broad range of varied activities or application in a wider variety of contexts most of which are complex and non-routine. Leadership and guidance would be involved when organising activities of self and others as well as contributing to technical solutions of a non-routine or contingency nature.

Assessment must ensure:

- Performance of a broad range of skilled applications including the requirement to evaluate and analyse current practices, develop new criteria and procedures for performing current practices and provision of some leadership and guidance to others in the application and planning of the skills would be characteristic.

EVIDENCE GUIDE	
	• Applications may involve responsibility for, and limited organisation of, others.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • ICAA4041C Determine and confirm client business expectations and needs • ICAA4047B Determine project specifications and secure client agreement An individual demonstrating this competency would be able to: • Demonstrate understanding of a broad knowledge base incorporating some theoretical concepts • Apply solutions to a defined range of unpredictable problems

EVIDENCE GUIDE

	• Identify and apply skill and knowledge areas to a wide variety of contexts, with depth in some areas • Identify, analyse and evaluate information from a variety of sources • Take responsibility for own outputs in relation to specified quality standards • Take limited responsibility for the quantity and quality of the output of others • Maintain knowledge of industry products and services

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.

Client requirements may be in reference to:

- problems with or opportunities for a business
- system
- applications
- network
- business opportunities
- people in the organisation

Appropriate person may include:

- supervisor
- teacher
- authorised business representative
- client

Project scope may include but is not limited to:

- time
- budget
- resource
- hardware
- software
- policy
- legal constraints
- features

RANGE STATEMENT	
Sources of information may invoice:	• change management plans • project management plans • current systems design plans • business strategic plans
Client may include but is not limited to:	• internal departments • external organisations • clubs • individual people • internal employees
Related problems refer to:	• routine or non-routine problems that may affect the immediate work environment or project outcome, particularly in relation to meeting client requirements
Feasibility includes but is not limited to:	• technical feasibility • operational feasibility • economic and schedule feasibility as well as the principal inputs/outputs • expected improvements/impacts • revenue/cost-benefits • risks • physical requirements of each solution
Constraints may include but is not limited to:	• time • budget • resource • hardware • software • policy • legal constraints
Project may include:	• projects involving a business undertaking a total organisational change • a systems-only change • a business improvement process • an e-business solution involving the total organisation or part of the organisation
Solution may include but is not limited to:	• new hardware • hardware upgrades • new software • software upgrades • user training • implementing a new system

Unit Sector(s)

Unit sector	Documentation

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAD4190B Maintain information standards

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to establish and maintain information standards in the context of information stored on client websites. The primary focus of this unit relates to the merchant/customer e-commerce relationship and the accuracy and usability of the organisation's website information and processes. The following units are linked and form an appropriate cluster: • ICAB4135B Create a simple mark up language document to specification • ICAS4201B Transfer content to a website using commercial packages • ICAT4184B Ensure site usability for full range of users • ICAT4194B Ensure basic website security No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		
	ICAD4217B	Create technical documentation

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. Ensure that organisational website content is approved for display and made accessible on website	1.1. Validate organisational information and seek approval prior to uploading to a website 1.2. Ensure specific <i>details</i> of the organisation are made available on the website 1.3. Ensure privacy, security and liability statements are correctly displayed on the website and conform to <i>legislative</i> requirements and <i>web development standards</i> 1.4. Develop and make available a policy on how information gathered on website <i>users</i> by the website will be handled 1.5. Develop and make available notation on website

ELEMENT	PERFORMANCE CRITERIA
	indicating when the site was last updated 1.6. Display copyright notice on website if required 1.7. Display information on the website to notify the website user of which country the website is located in 1.8. Display on website those local laws applicable to transactions that may be conducted 1.9. Develop and make available information with regard to licences or qualifications/memberships needed by potential users of the website
2. Ensure access to information and payment options	2.1. Ensure website users have navigation links to access appropriate information regardless of where they are located within the website 2.2. List various payment options on the website
3. Ensure disclosure of policies and services	3.1. Present a clear website statement outlining all charges 3.2. Present warranty information on appropriate screen, prior to finalising orders 3.3. Provide after-sales support and services information and direct website user to its location 3.4. Ensure website contains policies regarding cancellations, returns and refunds, and associated conditions
4. Communicate product/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 4.2. Ensure the website provides facilities to confirm orders and cancellations as quickly as possible 4.3. Ensure the website provides facilities to communicate back orders, hold-ups or errors with goods or services ordered or cancelled, to the client, with information about changed costs or adjustments and expected date of arrival made available with minimum delay
5. Ensure customer service support	5.1. Explain service standards and make them available to all potential and current website users 5.2. Ensure website users have a method for providing feedback on aspects of information held on the website 5.3. Ensure acknowledgements of complaints are transmitted to website users lodging complaints, with a description of what will take place within the

ELEMENT	PERFORMANCE CRITERIA
	organisation to address issues raised

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- HTML code writing
- Basic policy comprehension skills
- Website analysis
- Website publishing
- Archiving

Required knowledge

- Electronic commerce modelling language
- Privacy legislation
- Consumer protection legislation
- Information architecture
- Obligations of merchants and service providers

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

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

Evidence of the following is essential:

- Assessment must confirm the ability to ensure that relevant information provided on a platform accessible to a variety of customers via electronic communication, meets all the requirements for an

EVIDENCE GUIDE	
	effective and efficient e-commerce interaction. To demonstrate competency in this unit the person will require access to: • A range of organisational policies, procedures, guidelines, general data, customer service manuals, appropriate organisational structures and individual roles and responsibilities
Context of and specific resources for assessment	Information standards are important for legislative and organisational requirements. Meeting information needs would cover a broad range of varied activities or applications in a variety of contexts, most of which are basic and subject to guidance by the organisation. The breadth, depth and complexity of knowledge and skills in this competency would cover a broad range of varied activities or application in a wider variety of contexts most of which are complex and non-routine. Leadership and guidance would be involved when organising activities of self and others as well as contributing to technical solutions of a non-routine or contingency nature. Assessment must ensure: • Performance of a broad range of skilled applications including the requirement to evaluate and analyse current practices, develop new criteria and procedures for performing current practices and provision of some leadership and guidance to others in the application and planning of the skills would be characteristic. • Applications may involve responsibility for, and limited organisation of, others.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1.

EVIDENCE GUIDE

	- Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. - Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: - ICAB4135B Create a simple mark-up language document to specification - ICAS4201B Transfer content to a website using commercial packages - ICAT4184B Ensure site usability for full range of users - ICAT4194B Ensure basic website security An individual demonstrating this competency would be able to: - Demonstrate understanding of a broad knowledge base incorporating some theoretical concepts - Apply solutions to a defined range of unpredictable problems - Identify and apply skill and knowledge areas to a wide variety of contexts, with depth in some areas - Identify, analyse and evaluate information from a variety of sources - Take responsibility for own outputs in relation to specified quality standards

EVIDENCE GUIDE

	• Take limited responsibility for the quantity and quality of the output of others • Maintain knowledge of industry products and services

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.

<i>Details</i> may include:	• physical address • contact details • web presence information • virtual details for on-line communications
<i>Legislative</i> may include:	• privacy legislation • copyright • liability statements
<i>User</i> may include:	• a person within a department • a department within the organisation • a third party
<i>Web development standards</i> may include:	• Web content accessibility guidelines 1.0 (WCAG) • Authoring tool accessibility guidelines 1.0 (ATAG) • User agent accessibility guidelines 1.0 (UAAG)
<i>Charges</i> may include:	• product/service costs • shipping and handling charges and taxes to the customer prior to finalising orders
<i>Warranty information</i> may include:	• length of warranty • what is covered • what is not covered • who administers the warranty

RANGE STATEMENT	
	time limits on warranty coverage
<i>After-sales support</i> may include:	- the nature of service and support - the duration of service and support - who is responsible for it - under what circumstances it is provided, is made available
<i>Standards</i> may include:	- ISO/IEC/AS standards - organisational standards - project standards (for further information refer to the Standards Australia website at: www.standards.com.au)

Unit Sector(s)

Unit sector	Documentation

Co-requisite units

Co-requisite units	

Competency field

Competency field	

ICAD4198B Develop guidelines for uploading information to a website

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to support the effective operation of a website by establishing content upload guidelines and procedures in the context of site policies. The following units are linked and form an appropriate cluster: • ICAA4142C Design a website to meet technical requirements • ICAS4191B Maintain website performance No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units	

Prerequisite units		
	ICAD4217B	Create technical documentation
	ICAD3218B	Create user documentation

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. Develop site policies	1.1. Develop and disseminate policies on acceptable usage, security, privacy and copyright issues based on technical security and privacy requirements 1.2. Develop and disseminate roles and responsibilities for updating and loading content and removing redundant information 1.3. Document and disseminate information about the nature of content able to be updated and loaded 1.4. Establish upload documentation and disseminate the processes and procedures for update, loading or removal of content on the site 1.5. Implement automatic and/or routine updating and archiving procedures
2. Establish updating	2.1. Allocate and make available to contributors

ELEMENT	PERFORMANCE CRITERIA
and loading procedures	directory space to update and load new site content 2.2. Identify and make available for use authoring guides and resources based on cascading style sheet (CSS) and business style guides 2.3. Develop and make available new content templates to be applied by authors for use based on cascading style sheet (CSS) parameters 2.4. Allocate and monitor server permissions 2.5. Identify preferred file transfer protocol client based on best fit with technical environment and make available for use 2.6. Customise file transfer protocol client to meet requirements 2.7. Identify and develop authoring support tools, such as help files and links 2.8. Disseminate authoring support tools, such as help files and links as necessary
3. Document guidelines	3.1. Develop documentation for loading information, taking into consideration security and privacy requirements 3.2. Document and make available links to recommended support tools 3.3. Automate details of recent updates and loading of information, such as the time, the author, location and title of new files and document on the site

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Website analysis
- Website publishing
- Archiving
- File transfer
- Directory maintenance
- Information architecture

REQUIRED SKILLS AND KNOWLEDGE

- Use of website design software

Required knowledge

- Website architecture and business process design with an understanding how e-business sites fit into corporate strategy
- Use of cascading style sheets and content templates
- How to locate and use authoring guides
- Maintaining and administering a website
- Using file transfer protocol (FTP) to move data or other files, such as help files or links
- Policy writing, dissemination and documenting technical specification
- Copyright and intellectual property issues
- Internet protocols

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

Evidence of the following is essential:

- Assessment must confirm the ability to develop uploading and removal procedures that reflect the strategic intent of the site while maintaining site security and privacy standards.
- The procedures will include content that is updated regularly, automatically or by authors. Updating, loading and removal of redundant content includes the requirement to advise users of old data being archived and new content that has been posted.

To demonstrate competency in this unit the person will require access to:

- Servers
- E-business website

EVIDENCE GUIDE	
	• File Transfer Protocol (FTP) software
Context of and specific resources for assessment	One of the main advantages of on-line information over hardcopy, is the ease with which it can be updated. However, there are potential pitfalls in the updating process. Users may access the site at any time and so by changing data unannounced, users could be inconvenienced. This unit deals with the processes of carrying out updates in a secure and convenient manner. The breadth, depth and complexity of knowledge and skills in this competency would cover a broad range of varied activities or application in a wider variety of contexts most of which are complex and non-routine. Leadership and guidance would be involved when organising activities of self and others as well as contributing to technical solutions of a non-routine or contingency nature. Assessment must ensure: • Performance of a broad range of skilled applications including the requirement to evaluate and analyse current practices, develop new criteria and procedures for performing current practices and provision of some leadership and guidance to others in the application and planning of the skills would be characteristic. • Applications may involve responsibility for, and limited organisation of, others.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must

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	closely reflect the workplace to enable full demonstration of competency. Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: - ICAA4142C Design a website to meet technical requirements - ICAS4191B Maintain website performance An individual demonstrating this competency would be able to: - Demonstrate understanding of a broad knowledge base incorporating some theoretical concepts - Apply solutions to a defined range of unpredictable problems - Identify and apply skill and knowledge areas to a wide variety of contexts, with depth in some areas - Identify, analyse and evaluate information from a variety of sources - Take responsibility for own outputs in relation to specified quality standards - Take limited responsibility for the quantity and quality of the output of others Additionally, an individual demonstrating this competency would be able to: - Demonstrate understanding of the major elements of website design - Identify, analyse and evaluate procedures and tools from a variety of sources, such as authoring tools and updating procedures

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	• Take responsibility for procedures in relation to quality standards for the updating process and data • Maintain knowledge of industry products and services

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.

Documentation may follow:

- ISO/IEC/AS standards
- audit trails
- naming standards
- version control
- project management templates
- report writing principles

Requirements may be in reference to:

- business
- system
- application
- network
- people in the organisation

Content may include:

- information and interactive features, such as product information, company information, copyright and disclaimer notices, site map, frequently asked questions, what's new, customer-specific information, customer only information, error messages, instructions, feedback mechanisms, reference pages, forms, background articles, ratings/rankings/testimonials/quotes from reviews, hyperlink titles

Server may include:

- Application/web servers
- BEA Weblogic servers
- IBM VisualAge and WebSphere

RANGE STATEMENT	
	• Novell NDS servers • Email servers • File and print servers • FTP servers • Firewall servers • Proxy/cache servers
<i>File transfer protocol client</i> may include:	• AxY FTP for Windows, Linux and Unix • Cftp for Unix • Curl for Unix supports FTP, HTTP, Telnet, etc • gFTP with GUI for Unix supports FTP, HTTP and SSH • Lftp command line FTP for Solaris, IRIX, HP-UX, Digital UNIX and Linux • Lukemftp command-line FTP supports FTP and HTTP URLs • NcFTP Client command-line FTP and HTTP URLs for Solaris, FreeBSD, AIX, Linux

Unit Sector(s)

Unit sector	Documentation

Co-requisite units

Co-requisite units	

Competency field

Competency field	

ICAD4209B Write content for web pages

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to write concise, clear and relevant content for web pages on behalf of a client. The following units are linked and form an appropriate cluster: • ICAA4142C Design a website to meet technical requirements • ICAW4027B Relate to clients on a business level • ICAI4189B Ensure website content meets technical protocols and standards • ICAT4194B Ensure basic website security • ICAT4195B Ensure dynamic website security No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

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. Determine site content requirements	1.1. Identify customer information needs with reference to audience, site functionality and client requirements 1.2. Confirm site purpose and functionality with reference to <i>client</i> specification 1.3. Identify content channels and format as part of <i>client requirements</i> 1.4. Identify relevant templates and style guides 1.5. Identify relevant content and analyse with reference to audience needs, maintenance requirements, information architecture, and site design and functionality

ELEMENT	PERFORMANCE CRITERIA
	1.6.Negotiate alterations to site design, as required by the content and <i>client requirements</i>
2. Write site content	2.1.Generate content in accordance with content and <i>client requirements</i> 2.2.Ensure that content is easily and conveniently accessible and visible and that information is clear, understandable and flows in a logical pattern or is grouped logically 2.3.Edit content with reference to audience needs, site functionality, content and <i>client requirements</i>
3. Upload content	3.1.Log into server site using either administrative or anonymous file transfer protocol in preparation for upload 3.2.Launch transfer <i>file transfer protocol client</i> and navigate to destination directory, either graphically or by using a command line interface 3.3.Store and order files according to logical design and user needs, using accepted file extension scheme 3.4.Demonstrate operation in closed contention mode

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Writing in a concise and logical manner applying principles of plain English
- Identifying and understanding potentially diverse target audience needs
- Writing with consideration for a variety of cultures
- Writing with consideration for people with special needs
- Analysing audience needs
- Identifying relevant content
- Determining appropriate content channels and formats
- Awareness of, and ability to manage, design elements (e.g. visual composition) in order to heighten the impact on or promote effective communication with, the intended audience

Required knowledge

REQUIRED SKILLS AND KNOWLEDGE

- Content features, such as clarity, ease of viewing (e.g. how much scrolling is required to view the site), readability and how intuitive or logical the navigation is from one content detail to the next
- The functions and features of micro-content elements (e.g. headings, highlighted words, link text)
- Relationship between content and site design (e.g. giving the website a look in harmony with or adopting the corporate style)
- Functions and features of style guides (e.g. using cascading style sheets)
- Web design and usability (e.g. finding a balance between visual impact elements and speed of downloads)
- Copyright and intellectual property legislation and application principles (e.g. adopting the Harvard method for content/document referencing or the protocols for seeking permission to use from authors and sources)

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

Evidence of the following is essential:

- Assessment must confirm the ability to develop and upload quality content for a website that meets audience and client needs.

To demonstrate competency in this unit the person will require access to:

- Style guides and templates where they exist
- Website specifications
- Copy edit resources
- Culturally reviewed content
- Word processing and web development software

Context of and specific resources for assessment

Writing for an internet-based audience is different from traditional writing for local, state or national wide

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	audiences. Visitors to a website may be from other countries and these readers may have different perspectives and interpretations on website information offered than more local audiences. Care should be particularly exercised when determining content and style to avoid offering offensive or culturally insensitive content. Writing for the internet entails the examination of proposed content for the website, gathering feedback on content and making judgements on content suitability. Depending on complexity of content, basic knowledge and skills would prepare a person to perform in a range of activities where there is a clearly defined range of contexts for the website. The breadth, depth and complexity of knowledge and skills in this competency would cover a broad range of varied activities or application in a wider variety of contexts most of which are complex and non-routine. Leadership and guidance would be involved when organising activities of self and others as well as contributing to technical solutions of a non-routine or contingency nature. Assessment must ensure: • Performance of a broad range of skilled applications including the requirement to evaluate and analyse current practices, develop new criteria and procedures for performing current practices and provision of some leadership and guidance to others in the application and planning of the skills would be characteristic. • Applications may involve responsibility for, and limited organisation of, others.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the

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	implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • ICAA4142C Design a website to meet technical requirements • ICAW4027B Relate to clients on a business level • ICAI4189B Ensure website content meets technical protocols and standards • ICAT4194B Ensure basic website security • ICAT4195B Ensure dynamic website security An individual demonstrating this competency would be able to: • Demonstrate understanding of a broad knowledge base incorporating some theoretical concepts • Apply solutions to a defined range of unpredictable problems • Identify and apply skill and knowledge areas to a

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	wide variety of contexts, with depth in some areas • Identify, analyse and evaluate information from a variety of sources • Take responsibility for own outputs in relation to specified quality standards • Take limited responsibility for the quantity and quality of the output of others Additionally, an individual demonstrating this competency would be able to: • Write in a manner which recognises cultural differences, diversity and people with special needs • Demonstrate some theoretical knowledge of website content creation • Apply a range of well-developed skills in communication and negotiation • Apply known solutions to a variety of predictable problems • Perform a range of writing skills where some discretion and judgement is required • Interpret available information using discretion and judgement • Take responsibility for culturally sensitive writing • Maintain knowledge of industry products and services

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.

Client requirements may be in reference to:

- business
- system
- application

RANGE STATEMENT	
	• style • organisational policies • network • people in the organisation
<i>File transfer protocol client</i> may include but is not limited to:	• commercial software applications • organisation-specific software • packaged software • in-house or customised software
<i>Client</i> may include but is not limited to:	• internal departments • external organisations • individual people • internal employees

Unit Sector(s)

Unit sector	Documentation

Co-requisite units

Co-requisite units	

Competency field

Competency field	

ICAD4217B Create technical documentation

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to create technical documentation that is clear to the target audience and easy to navigate. The following units are linked and form an appropriate cluster: • ICAA4041C Determine and confirm client business expectations and needs • ICAW4027B Relate to clients on a business level No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

Prerequisite units		

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 analyse documentation needs	1.1. Consult with the <i>client</i> to identify documentation <i>requirements</i> 1.2. Interpret and evaluate documentation <i>requirements</i> and confirm details with the <i>client</i> 1.3. Investigate industry and <i>documentation standards</i> for requirements 1.4. Define and document the scope of work to be produced 1.5. Consult with the <i>client</i> to validate and confirm the scope of work
2. Design documentation	2.1. Identify information <i>requirements</i> with reference to layout and document structure 2.2. Create document templates and style guides consistent with information <i>requirements</i> 2.3. Conduct a review of the <i>system</i> in order to

ELEMENT	PERFORMANCE CRITERIA
	understand its functionality 2.4.Extract content that meets information requirements in accordance with relevant copyright restrictions 2.5.Develop the structure of the technical documentation giving focus to the flow of information, style, tone and content format 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 3.2. Translate technical terminology into plain English where appropriate 3.3. Apply content format and style in accordance with relevant documentation standards and templates
4. Evaluate and edit documentation	4.1. Submit technical documentation to appropriate person for review 4.2. Gather and analyse feedback 4.3. Incorporate alterations into the technical documentation 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 5.2. Submit the technical documentation to appropriate person for approval 5.3. Prepare the technical documentation for publication and distribution utilising appropriate channels

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- The use of word processing software and multimedia authoring tools
- Identifying target audiences

REQUIRED SKILLS AND KNOWLEDGE

- Analysing audience needs
- Identifying relevant content
- Determining appropriate content, formats and styles
- Writing content

Required knowledge

- Content features, such as clarity and readability
- Instructional design principles
- Functions and features of templates and style guides
- Document design, web design and usability

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

Evidence of the following is essential:

- Assessment must confirm the ability to create technical documentation that meets business requirements, caters for a diverse readership, is clear to the target audience and easy to navigate

To demonstrate competency in this unit the person will require access to:

- Technical specifications
- Documentation standards

Context of and specific resources for assessment

Technical documentation provides a record of the functionality and processing of a system, program, network or application. The technical documentation should document how the system, program, network or application is structured, how it works and changes that have been made to it.

EVIDENCE GUIDE

	The breadth, depth and complexity of knowledge and skills in this competency would cover a broad range of varied activities or application in a wider variety of contexts most of which are complex and non-routine. Leadership and guidance would be involved when organising activities of self and others as well as contributing to technical solutions of a non-routine or contingency nature. Assessment must ensure: • Performance of a broad range of skilled applications including the requirement to evaluate and analyse current practices, develop new criteria and procedures for performing current practices and provision of some leadership and guidance to others in the application and planning of the skills would be characteristic. • Applications may involve responsibility for, and limited organisation of, others.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors,

EVIDENCE GUIDE	
	subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • ICAA4041CDetermine and confirm client business expectations and needs • ICAW4027B Relate to clients on a business level An individual demonstrating this competency would be able to: • Demonstrate understanding of a broad knowledge base incorporating some theoretical concepts • Apply solutions to a defined range of unpredictable problems • Identify and apply skill and knowledge areas to a wide variety of contexts, with depth in some areas • Identify, analyse and evaluate information from a variety of sources • Take responsibility for own outputs in relation to specified quality standards • Take limited responsibility for the quantity and quality of the output of others • Maintain knowledge of industry products and services

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

RANGE STATEMENT	
regional contexts) may also be included.	
Client may include but is not limited to:	• internal departments • external organisations • individual people • internal employees
Requirements may be in reference to:	• business • system • application • organisational policies • network • people in the organisation
System may include but is not limited to:	• network • application • software • business • computers • financial system • management system • information system
Technical documentation may include:	• system or project specifications • system design • system functionality • reports • help references • technical manuals • operational procedures • training materials • self-paced tutorials • on-line help • user guides • brochures
Appropriate person may include:	• supervisor • teacher • authorised business representative • client
Channels may include:	• text • audio • animation and graphics provided through books • manuals

RANGE STATEMENT	
	• CD-ROMs • DVDs • computer-based tutorials • help screens • the world wide web
<i>Content</i> may include information and interactive features, such as:	• product information • company information • copyright and disclaimer notices • site map • frequently asked questions • what's new • customer-specific information • customer only information • error messages • instructions • feedback mechanisms • reference pages • forms • background articles • ratings/rankings/testimonials/quotes from reviews • hyperlink titles
<i>Documentation standards</i>	• May include but are not limited to policy relating to sign-off, storage, distribution, revision. • May include ISO/IEC/AS standards, organisational standards, audit trails, naming conventions, version control, project management templates and report writing principles (for further information refer to the Standards Australia website at: www.standards.com.au)

Unit Sector(s)

Unit sector	Documentation

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAD5092B Update and document operational procedures

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to assess, update and document the operational procedures required to use the system. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		
	ICAD4217B	Create technical documentation
	ICAD3218B	Create user documentation

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. Assess technical and user documentation	1.1. Review current versions of <i>technical and user documentation</i> 1.2. Compare accuracy of <i>technical and user documentation</i> with current <i>system</i> functionality 1.3. Identify and document inaccuracies in the documentation
2. Update procedures	2.1. Determine operational procedure requirements using review outcomes 2.2. Develop/update operating procedures for the <i>system</i> 2.3. Submit proposed operating procedures to <i>appropriate person</i>
3. Update documentation	3.1. Review feedback and make appropriate changes 3.2. Update <i>technical and user documentation</i> to incorporate changes 3.3. Submit <i>technical and user documentation</i> to appropriate person for final approval 3.4. Distribute <i>technical and user documentation</i> as agreed with <i>appropriate person</i>

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Plain English literacy and communication skills in relation to analysis, evaluation and presentation of information (e.g. when validating documentation, and when specific procedures are identified and reviewed with front-line staff using techniques appropriate to the project or company requirements)
- Teamwork skills that involve the contribution to solutions and goals of a non-routine or contingency nature (e.g. when specific procedures are identified and reviewed with front-line staff using techniques appropriate to the project or company requirements)
- Report writing skills for business, requiring depth in some areas, and analysis and evaluation of information in a defined range of areas
- Media development application skills (e.g. when documentation is distributed to the operational area in accordance with organisation standards and procedures)

Required knowledge

- Documentation standards and tools (e.g. when determining procedural areas to document)
- Client business domain (e.g. when determining procedural areas to document)
- Role of stakeholders and the degree of stakeholder involvement (e.g. when possible areas requiring new and/or revised procedures are identified with system developers and/or client users)
- Current industry-accepted hardware and software products, with broad knowledge of general features and capabilities and detailed knowledge in some areas
- Current business practices in relation to preparing reports (e.g. when validating documentation)

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

EVIDENCE GUIDE	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: - Assessment must confirm ability to manage the production of clear, easy-to-read procedures conforming with required standards for the utilisation of the specified system. To demonstrate competency in this unit the person will require access to: - System or project related documentation - Staffing resources - Documentation tools
Context of and specific resources for assessment	Operational procedures underpin the performance of an organisation. Without operational procedures the risk of system breakdown is increased and even increased if the system connects to wide area network or the internet. The breadth, depth and complexity covering planning and initiation of alternative approaches to skills or knowledge applications across a broad range of technical and/or management requirements, evaluation and coordination would be characteristic. Assessment must ensure: - self-directed application of knowledge and skills, with substantial depth in some areas where judgement is required in planning and selecting appropriate equipment, services and techniques for self and others. - Applications involve participation in development of strategic initiatives as well as personal responsibility and autonomy in performing complex technical operations or organising others. It may include participation in teams including teams concerned with planning and evaluation functions. Group or team coordination may also be involved.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to

EVIDENCE GUIDE	
	this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended An individual demonstrating this competency would be able to: • Demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas • Analyse and plan approaches to technical problems or management requirements • Transfer and apply theoretical concepts and/or technical or creative skills to a range of situations • Evaluate information, using it to forecast for planning or research purposes • Take responsibility for own outputs in relation to broad quantity and quality parameters • Take some responsibility for the achievement of group outcomes

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	• Maintain knowledge of industry products and services

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.

Technical and user documentation may include:

- system or project specifications
- system design
- system functionality
- reports
- help references
- technical manuals
- operational procedures
- training materials and self-paced tutorials
- on-line help
- user guides
- brochures

System may include but is not limited to:

- networks
- software
- databases
- applications
- servers
- operating systems
- gateways

Appropriate person may include:

- supervisor
- teacher
- authorised business representative
- client

Unit Sector(s)

Unit sector	Documentation

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAD5210B Analyse information and assign meta-tags

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to analyse material and assign metatags to ensure the accurate and consistent retrieval of information by users. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

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 requirements for meta-tags	1.1. Identify scope and uses of material from previous and existing business and <i>stakeholder</i> requirements process 1.2. Determine appropriate type and structure of meta-tags, taking into account identified <i>client</i> needs, requirements and expectations 1.3. Identify and incorporate new or contemporary <i>client</i> requirements and expectations
2. Analyse material	2.1. Use analysis and description tools, standards, precedents and techniques that are appropriate, given the nature of the material 2.2. Ensure analysis of subject content of the material reflects the expected <i>client</i> usage requirements 2.3. Clearly distinguish significant information from minor information 2.4. Ensure concepts derived from analysis of material are appropriate to the business requirements and intended use
3. Create meta-tags	3.1. Develop meta-tags using appropriate <i>software</i> 3.2. Ensure meta-tags represent concepts appropriately, depending on the overall purpose and intended use of the material

ELEMENT	PERFORMANCE CRITERIA
	3.3. Ensure meta-tags conform to general conventions and business rules 3.4. Develop reference structure of descriptors, where required to display relationships to assist <i>clients</i> 3.5. Enhance meta-tags to meet identified <i>client</i> needs
4. Test and monitor meta-tagging practices and procedures	4.1. Test meta-tagging of material and make changes, if necessary 4.2. Regularly review meta-tagging practices and procedures to ensure that <i>client</i> needs are being met 4.3. Regularly review industry developments in meta-tagging and take appropriate action to improve practices 4.4. Check meta-tags regularly for internal consistency and compliance with established structure, rules and authorities

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Utilising meta-tag tools
- Communicating with clients
- Modelling of data processes
- HTML writing
- Analysis skills

Required knowledge

- Data modelling in relation to developing the conceptual data model
- Business operating systems in relation to data sources
- Decision support systems in relation to knowledge management strategies
- Functions and features of databases
- OH&S principles and responsibilities in regard to self and others
- DBMS fundamentals in relation to overall unit of competency
- Meta-standards (e.g. Dublin core, simple HTML ontology extensions)
- Document indexing and search engines

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

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

Evidence of the following is essential:

- Assessment must confirm the ability to analyse information and then assign clear meta-tags for easy retrieval of information.

To demonstrate competency in this unit the person will require access to:

- Information and materials
- Business requirements
- Metadata software

Context of and specific resources for assessment

The breadth, depth and complexity covering planning and initiation of alternative approaches to skills or knowledge applications across a broad range of technical and/or management requirements, evaluation and coordination would be characteristic.

Assessment must ensure:

- self-directed application of knowledge and skills, with substantial depth in some areas where judgement is required in planning and selecting appropriate equipment, services and techniques for self and others.
- Applications involve participation in development of strategic initiatives as well as personal responsibility and autonomy in performing complex technical operations or organising others. It may include participation in teams including teams concerned with planning and evaluation functions. Group or

EVIDENCE GUIDE	
	team coordination may also be involved.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. - Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. - Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended An individual demonstrating this competency would be able to: - Demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas - Analyse and plan approaches to technical problems or management requirements - Transfer and apply theoretical concepts and/or technical or creative skills to a range of situations - Evaluate information, using it to forecast for planning

EVIDENCE GUIDE

	or research purposes • Take responsibility for own outputs in relation to broad quantity and quality parameters • Take some responsibility for the achievement of group outcomes • Maintain knowledge of industry products and services

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.

<i>Stakeholder</i> may include:	• sponsor • user • development team • project team
<i>Client</i> may include but is not limited to:	• internal departments • external organisations • individual people • internal employees
<i>Software</i> may include:	• Tag master • Meta Builder 2

Unit Sector(s)

Unit sector	Documentation

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAI2015B Install software applications

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to install or upgrade basic software applications using a commercial applications program. There may be benefit in concurrent learning with the following units: • ICAU2005B Operate computer hardware • ICAU2006B Operate computing packages • ICAU2231B Use computer operating system The following units are linked and form an appropriate cluster: • ICAS2016B Record client support requirements • ICAS2017B Maintain system integrity • ICAU2005B Operate computer hardware • ICAU2006B Operate computing packages • ICAU2231B Use computer operating system

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Not Applicable

Pre-Requisites

Prerequisite units		

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. Determine software or software upgrade requirements	1.1. Document <i>client</i> requirements and report to <i>appropriate person</i> 1.2. Act on instructions to meet <i>client</i> requirements in line with <i>organisational requirements</i>
2. Obtain software or software upgrade	2.1. Investigate and select an <i>application program</i> that best conforms to requirements and organisational policies 2.2. Obtain <i>application program</i> under instruction from <i>appropriate person</i> 2.3. Determine <i>licensing requirements</i> and record in line with organisational guidelines 2.4. Ensure target <i>computer</i> conforms to the minimum

ELEMENT	PERFORMANCE CRITERIA
	hardware and <i>operating system</i> requirements of the <i>application program</i>
3. Install or upgrade software	3.1. Install new or upgraded <i>software</i> in accordance with <i>appropriate person</i> or organisational instructions 3.2. Complete the installation process efficiently and effectively to minimise disruption 3.3. Carry out testing and acceptance in line with corporate guidelines, paying particular attention to possible <i>impact</i> on other systems 3.4. Ensure client requirements are satisfied 3.5. Refer outstanding <i>client</i> issues to <i>appropriate person</i> as necessary

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- General customer service
- Decision making in a limited range of options
- Problem solving of known problems in routine procedures
- Plain English literacy and communication skills in relation to the presentation of information
- Report writing skills for business requiring some analysis and evaluation of information in a defined range of areas

Required knowledge

- Organisational guidelines for purchasing
- Broad general knowledge of licensing arrangements and responsibilities
- Broad general knowledge of software copyright responsibilities
- Broad general knowledge of operating systems supported by the organisation
- Broad general knowledge of hardware storage devices
- Broad general knowledge of input/output devices
- Broad general knowledge of the client business domain

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

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

Evidence of the following is essential:

- Assessment must confirm the ability to install software applications through operating system instructions and to configure computer to accept new software or upgrade.

To demonstrate competency in this unit the person will require access to:

- Organisation's applications needs
- Appropriate software

Context of and specific resources for assessment

The breadth, depth and complexity of knowledge and skills in this competency would prepare a person to perform in a range of varied activities or knowledge applications where there is a clearly defined range of contexts in which the choice of actions required is usually clear. There would generally be limited complexity in the range of operations to be applied.

Assessment must ensure:

- Performance of a prescribed range of functions involving known routines and procedures and some accountability for the quality of outcomes would be characteristic.
- Applications may include some complex or non-routine activities involving individual responsibility or autonomy and/or collaboration with others as part of a group or team.

Method of assessment

The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility

EVIDENCE GUIDE

	practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. - Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. - Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: - ICAU2005B Operate computer hardware - ICAU2006B Operate computing packages - ICAU2231B Use computer operating system - ICAS2016B Record client support requirements - ICAS2017B Maintain system integrity An individual demonstrating this competency would be able to: - Demonstrate basic operational knowledge in a moderate range of areas - Apply a defined range of skills - Apply known solutions to a limited range of predictable problems - Perform a range of tasks where choice between a limited range of options is required - Assess and record information from varied sources

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	• Take limited responsibility for own outputs in work and learning • Maintain knowledge of industry products and services

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.

Appropriate person may include:

- supervisor
- teacher
- authorised business representative
- client

Organisational requirements may include but are not limited to:

- guidelines
- corporate purchasing
- licensing arrangements
- budget

Application program may include:

- database programs
- word processors
- email programs
- internet browsers
- system browsers
- spreadsheets

Licensing requirements may include:

- type of licence
- cost of licence
- support provided
- number of licences required

Client may include but is not limited to:

- internal departments
- external organisations
- individual people
- internal employees

RANGE STATEMENT	
Computer may include:	• laptops • workstations • servers
Hardware may include:	• Workstations, personal computers • Modem or other connectivity device, including DSL modems • Networks • Remote sites • Servers
Operating System may include but is not limited to:	• Linux 7.0 or above • Windows 2000 or above • Apple OS X or above
Software may include but is not limited to:	• commercial software applications • organisation-specific software
Impact may be in relation to:	• installation time • effect on normal business • problems • data entry

Unit Sector(s)

Unit sector	Implement

Co-requisite units

Co-requisite units	

Competency field

Competency field	

ICAI3020B Install and optimise operating system software

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to install operating system software and to make adjustments as a means of optimising the system to accommodate business and client needs. The following units are linked and form an appropriate cluster: • ICAS3024B Provide basic system administration • ICAT3025B Run standard diagnostic tests

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Not Applicable

Pre-Requisites

Prerequisite units		

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. Determine function of operating systems	1.1. Identify and demonstrate understanding of the purposes of the <i>operating system</i> 1.2. Distinguish between batch system, real-time system, multi-tasking system 1.3. Identify and demonstrate understanding of the basic functions of <i>operating system</i> , including file system, memory management, process scheduling 1.4. Identify and demonstrate management of virtual memory
2. Obtain operating system	2.1. Contact <i>operating system</i> vendors to obtain technical specifications and system requirements 2.2. Document adjustment recommendations and provide to <i>appropriate person</i> 2.3. Determine and apply knowledge of licensing, hardware and security requirements
3. Install, configure and optimise operating system	3.1. Install, configure and test the <i>operating system software</i> in accordance with installation procedures and <i>organisational requirements</i> 3.2. Optimise the system to meet <i>organisational requirements</i> 3.3. Document the system according to <i>organisational requirements</i>

ELEMENT	PERFORMANCE CRITERIA
	3.4. 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 4.2. Obtain client evaluation about new system to ensure requirements are met, using appropriate feedback mechanism

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Problem solving skills for a defined range of predictable problems
- Plain English literacy and communication skills in relation to analysis, evaluation and presentation of information
- Report writing skills for business, requiring depth in some areas, analysis and evaluation of information in a defined range of areas
- Strong interpersonal skills for team work and responsible workplace interactions
- Software installation and configuration
- Questioning and active listening for conveying and clarifying information
- Literacy skills in regard to interpretation of technical computer installation manuals
- Use of diagnostic tools

Required knowledge

- Organisational and technical systems
- Detailed knowledge of the system's current functionality
- Functions and features of operating systems used by the organisation
- Set-up and configuration procedures
- Current industry-accepted hardware and software products, with broad knowledge of general features and capabilities and detailed knowledge in some areas
- Software packages supported by the organisation
- Prerequisites for system software installation
- Vendor specifications and requirements for installation
- Broad knowledge of incorporating systems software
- Broad general knowledge of systems diagnostic software

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	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: - Assessment must confirm the ability to install and improve system performance with minimum disruption to clients. To demonstrate competency in this unit the person will require access to: - Personal computer/workstation Operating System software and technical documentation
Context of and specific resources for assessment	The breadth, depth and complexity of knowledge and skills in this competency would cover selecting, adapting and transferring skills and knowledge to new environments and providing technical advice and some leadership in resolution of specified problems. This would be applied across a range of roles in a variety of contexts with some complexity in the extent and choice of options available. Assessment must ensure: - Performance of a defined range of skilled operations, usually within a range of broader related activities involving known routines, methods and procedures, where some discretion and judgement is required in the selection of equipment, services or contingency measures and within known time constraints would be characteristic. - Applications may involve some responsibility for others. Participation in teams including group or team

EVIDENCE GUIDE	
	coordination may be involved.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. - Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. - Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: - ICAS3024B Provide basic system administration - ICAT3025B Run standard diagnostic tests An individual demonstrating this competency would be able to: - Demonstrate some relevant theoretical knowledge - Apply a range of well-developed skills - Apply known solutions to a variety of predictable problems - Perform processes that require a range of

EVIDENCE GUIDE

	well-developed skills where some discretion and judgement is required • Interpret available information, using discretion and judgement • Take responsibility for own outputs in work and learning • Take limited responsibility for the output of others • Maintain knowledge of industry products and services

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.

<i>Operating System</i> may include but is not limited to:	• Linux 7.0 or above • Windows 2000 or above • Apple OS X or above
<i>Appropriate person</i> may include:	• supervisor • teacher • authorised business representative • client
<i>Software</i> may include but is not limited to:	• operating systems, including standalone personal computer systems and network operating systems; commercial software applications; organisation-specific software; word processing, spreadsheet, database, graphic, mail, communication packages and presentation functionalities
<i>Feedback mechanism</i> may include:	• surveys • questionnaires • interviews • meetings
<i>Organisational requirements</i> may	• Availability of system to be optimised

RANGE STATEMENT	
include but are not limited to:	• Level of complexity of technical manuals • In-house or vendor; contracting arrangements relating to IT purchasing • Client support documentation • IT policy and procedures relating to service levels and installation
Client may include:	• a person within a department • a department within the organisation • a third party

Unit Sector(s)

Unit sector	Implement

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAI3021B Connect internal hardware components

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to modify and connect system hardware components according to client and user requirements. The following units are linked and form an appropriate cluster: • ICAS3115B Maintain equipment and software in working order • ICAT3025B Run standard diagnostic tests

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Not Applicable

Pre-Requisites

Prerequisite units		

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. Determine new components required	1.1. Identify and clarify user <i>component</i> requirements according to <i>organisation guidelines</i> 1.2. Organise and record user <i>component</i> requirements, pass onto <i>appropriate person</i> for evaluation and vendor selection
2. Obtain components	2.1. Contact vendors to obtain technical specifications for the proposed <i>components</i> 2.2. Assess the options and provide recommendations to the <i>appropriate person</i> for final analysis 2.3. Obtain <i>components</i> in preparation for installation
3. Install components	3.1. Develop plans, with prioritised tasks and contingency arrangements, for the installation of selected <i>components</i> with minimum disruption to <i>clients</i> 3.2. Liaise with <i>appropriate person</i> to obtain approval for the plans 3.3. Install and configure <i>components</i> according to plan, in accordance with installation procedures and <i>organisational requirements</i> 3.4. Test <i>components</i> for error-free performance, utilising available technology 3.5. Identify and resolve identified problems

ELEMENT	PERFORMANCE CRITERIA
	3.6. Test and enhance system performance, using knowledge of the system, to meet organisational benchmarks 3.7. Document the installation and configuration process according to organisation guidelines
4. Provide instruction on use of modified system	4.1. Undertake one-to-one instruction on use of modified system with client or user in a manner that is appropriate to the audience
5. Evaluate modified system	5.1. Collect client or user feedback and analyse against client requirements 5.2. Correct identified shortcomings in the system and record actions

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Problem solving skills for a defined range of unpredictable problems
- Language, literacy and communication skills necessary to process and present written and verbal information to a diverse range of people
- Interpersonal skills
- Report writing skills for business
- Investigation skills for determining requirements
- Analysis and evaluation of information in a defined range of areas
- Questioning and active listening for a range of client/vendor levels
- Customer service for internal and external clients
- Ability to undertake one-to-one instruction
- Literacy skills in regard to interpretation of technical computer installation manuals

Required knowledge

- Detailed knowledge of the system's current functionality
- Current industry-accepted hardware and software products, with broad knowledge of general features and capabilities and detailed knowledge in some areas
- Vendor specifications and requirements for component installation
- Set-up and configuration procedures
- Detailed knowledge of areas of the operating system relevant to configuration and

REQUIRED SKILLS AND KNOWLEDGE

testing

- Detailed knowledge of installation procedures
- Broad knowledge of systems diagnostic software

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

Evidence of the following is essential:

- Assessment must confirm the ability to ascertain and meet client requirements for modification of a system's hardware.
- An ability to plan the modification and to connect the internal hardware components according to vendor and technical specifications is essential.
- Installation of components must be across a variety of situations and include unexpected contingencies.

To demonstrate competency in this unit the person will require access to:

- Hardware components
- Hardware system (e.g. subject personal computer, for installation of hardware components)
- Technical manuals and tools

Context of and specific resources for assessment

The careful planning and promotion of hardware upgrades and changes is critical to the effective support of business functions. Hardware modifications need to be risk managed similar to other business processes. The effective management and execution of the component maintenance and replacement process may significantly determine the amount of down time a company encounters.

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	The breadth, depth and complexity of knowledge and skills in this competency would cover selecting, adapting and transferring skills and knowledge to new environments and providing technical advice and some leadership in resolution of specified problems. This would be applied across a range of roles in a variety of contexts with some complexity in the extent and choice of options available. Assessment must ensure: • Performance of a defined range of skilled operations, usually within a range of broader related activities involving known routines, methods and procedures, where some discretion and judgement is required in the selection of equipment, services or contingency measures and within known time constraints would be characteristic. • Applications may involve some responsibility for others. Participation in teams including group or team coordination may be involved.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Evidence for assessment from industry or vendor certified training may be presented for the whole or

EVIDENCE GUIDE	
	part of this unit depending on the range of variables and performance criteria. Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: - ICAS3115B Maintain equipment and software in working order - ICAT3025B Run standard diagnostic tests An individual demonstrating this competency would be able to: - Demonstrate some relevant theoretical knowledge - Apply a range of well-developed skills - Apply known solutions to a variety of predictable problems - Perform processes that require a range of well-developed skills where some discretion and judgement is required - Interpret available information, using discretion and judgement - Take responsibility for own outputs in work and learning - Take limited responsibility for the output of others - Maintain knowledge of industry products and services Additionally, an individual demonstrating this competency would be able to: - Install hardware components safely

EVIDENCE GUIDE

	• Keep appropriate records of changes to hardware • Apply hardware solutions to a variety of predictable problems • Interpret available information from hardware vendors and request clarification where needed • Take responsibility for hardware-related outputs

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.

Components may include:	• Motherboards • CMOS battery • central processing unit (CPU) • CD and DVD drives • interface cards • drives • fax/modem cards • RAM upgrades • CPU upgrades
Organisational guidelines may include but are not limited to:	• personal use of emails and internet access • content of emails • downloading information and accessing particular websites • opening mail with attachments • virus risk • dispute resolution • document procedures and templates • communication methods • financial control mechanisms
Organisational requirements may include but is not limited to:	• how and what the organisation wants in regard to work environment

RANGE STATEMENT	
	• problem solution processes • preventative maintenance and diagnostic policy • roles and technical responsibilities in the IT department • vendor and product service-level support agreements
<i>Appropriate person</i> may include:	• supervisor • teacher • authorised business representative • client
<i>Client</i> may include:	• a person within a department • a department within the organisation • a third party

Unit Sector(s)

Unit sector	Implement

Co-requisite units

Co-requisite units	

Competency field

Competency field	

ICAI3101B Install and manage network protocols

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to install and manage network protocols in a networking environment. The following units are linked and form an appropriate cluster: • ICA3121B Administer network peripherals • ICAS3031B Provide advice to clients • ICAS3024B Provide basic system administration • ICAS3032B Provide network systems administration • ICAS3120C Configure and administer a network operating system • ICAT3025B Run standard diagnostic tests

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Not Applicable

Pre-Requisites

Prerequisite units	

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. Install and manage network protocols	1.1. Select, test and validate appropriate network protocol services 1.2. Design a network addressing system, with subnet and host IDs, including appropriate devices 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 protocol applications	2.1. Identify a range of well-known network protocol applications 2.2. Evaluate client user requirement and recommend network protocol services 2.3. Apply IP addressing scheme according to approved policies and procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Plain English literacy and communication skills in relation to dealing with clients and team members
- Problem solving skills for a defined range of network functions, problems involving participation in developing strategic initiatives (e.g. when designing a network addressing system with subnet and host IDs, and when using appropriate devices, such as gateways, routers or emulations)
- Report writing skills for business, requiring depth in some areas, analysis and evaluation of information in a defined range of areas
- Project planning skills in relation to set benchmarks and identified scope (e.g. when designing network addressing system with subnet and host IDs, using appropriate devices, such as gateways, routers or emulations)

Required knowledge

- Current industry-accepted hardware and software products, with broad knowledge of general features and capabilities
- Broad general knowledge of the client business domain, business function and organisation (e.g. when installing network protocol applications)
- Communications technologies, with broad knowledge of general features and capabilities incorporating substantial depth in some areas
- Substantial knowledge of network protocols (e.g. when installing and configuring network protocol environment)
- Broad knowledge of vendor product range and development directions

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

Critical aspects for assessment and evidence required to demonstrate

Evidence of the following is essential:

- Assessment must confirm knowledge of network

EVIDENCE GUIDE	
competency in this unit	protocols and how this knowledge can be used internally and to facilitate interconnectivity. - Assessment must confirm the ability to install and manage network protocols in a network, including troubleshooting procedures. To demonstrate competency in this unit the person will require access to: - Live network - Networked computers
Context of and specific resources for assessment	The breadth, depth and complexity of knowledge and skills in this competency would cover selecting, adapting and transferring skills and knowledge to new environments and providing technical advice and some leadership in resolution of specified problems. This would be applied across a range of roles in a variety of contexts with some complexity in the extent and choice of options available. Assessment must ensure: - Performance of a defined range of skilled operations, usually within a range of broader related activities involving known routines, methods and procedures, where some discretion and judgement is required in the selection of equipment, services or contingency measures and within known time constraints would be characteristic. - Applications may involve some responsibility for others. Participation in teams including group or team coordination may be involved.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1.

EVIDENCE GUIDE

	- Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. - Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: - ICAS3121B Administer network peripherals - ICAS3031B Provide advice to clients - ICAS3024B Provide basic system administration - ICAS3032B Provide network systems administration - ICAS3120C Configure and administer a network operating system - ICAT3025B Run standard diagnostic tests An individual demonstrating this competency would be able to: - Demonstrate some relevant theoretical knowledge - Apply a range of well-developed skills - Apply known solutions to a variety of predictable problems - Perform processes that require a range of well-developed skills where some discretion and judgement is required - Interpret available information, using discretion and judgement - Take responsibility for own outputs in work and

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	learning • Take limited responsibility for the output of others • Maintain knowledge of industry products and services

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.

<i>Devices</i> may include but is not limited to:	• gateways • routers • emulators
<i>Network</i> may include but is not limited to:	• large and small local area networks (LANs) • wide area networks (WANs) • Virtual Private Networks (VPNs) • wireless local area networks (WLANs)
<i>Applications</i> may include but are not limited to:	• secure shell • Telnet (not secure) • file transfer protocol (FTP) • simple mail transfer protocol (SMTP) • hypertext transfer protocol (HTTP) • hypertext transfer protocol secure (HTTPS) • secure socket layer (SSL)
<i>Network protocol services</i>	Some organisations may use a wide range of protocols while others a few or none at all, though more and more companies are using a large number of protocols: • TCP/IP • Hypertext transfer protocol (HTTP) • Simple network management protocol (SNMP) • H.323 protocol

RANGE STATEMENT

	• Internet protocol (IP) • Electronic mail protocols • Address resolution protocol (ARP) • Wireless application protocol (WAP) • Dynamic host configuration protocol (DHCP) • Simple object access protocol (SOAP) • Internet protocol version 6 (IPv6) • File transfer protocol (FTP)

Unit Sector(s)

Unit sector	Implement

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAI3110C Implement system software changes

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to implement system software changes and to handover the modified system to the client's operational area. The following units are linked and form an appropriate cluster: • ICAI4029C Install network hardware to a network • ICAS3034B Determine and action network problems • ICAS3121B Administer network peripherals

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Not Applicable

Pre-Requisites

Prerequisite units		
	ICAI3020B	Install and optimise operating system software

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. Determine system changes required	1.1. Determine and record the required changes to system 1.2. Ensure that documentary evidence exists to support changes and evaluate changes required 1.3. Complete all documentation required in accordance with maintenance methodologies 1.4. Clarify and confirm the nature of the changes with the client 1.5. Obtain technical data from reliable sources and request other resources that may be required to complete the changes
2. Carry out system changes	2.1. Plan the procedure to effect intended changes 2.2. Confer with colleagues and users involved in the proposed changes and agree a mutually acceptable timeline and method of implementation 2.3. Copy initialisation or configuration files prior to implementation 2.4. Create a roll-back path in the event of failure 2.5. Ensure that changes required in software are made according to project or organisational guidelines 2.6. Test and verify that the changes have been made according to implementation guides and organisational standards

ELEMENT	PERFORMANCE CRITERIA
3. Present changes to client	3.1. Demonstrate changes to the client and explain the impact of these changes 3.2. Work towards making these changes acceptable to the client if changes are rejected, or making further modifications if required 3.3. Update documentation and repositories in accordance with standards and update modifications made to the change management system
4. Perform handover to client's operational	4.1. Update documentation and client procedures to reflect changes made 4.2. Secure sign off of acceptance documents by client 4.3. Facilitate handover of modified system to client's operational area

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- System software installation and configuration
- Problem solving skills for a defined range of unpredictable problems
- Plain English literacy and communication skills in relation to analysis, evaluation and presentation of information
- Report writing skills for business requiring depth in some areas, analysis and evaluation of information in a defined range of areas
- Change management skills in relation to maintaining the continuity of IT operations and business functions
- Risk analysis skills in relation to reviewing change procedures
- Basic training needs analysis skills
- Basic programming skills

Required knowledge

- Broad knowledge of vendor software services
- Broad knowledge of emerging standards for data and voice communications
- Current industry-accepted hardware and software products, with basic knowledge of general features and capabilities and detailed knowledge in some areas
- Broad general knowledge of the client business domain

REQUIRED SKILLS AND KNOWLEDGE

- Detailed knowledge of the system's current functionality
- Basic knowledge incorporating some change control procedures
- Detailed knowledge of the system under modification, including policies and procedures of the organisation
- Business scheduling requirements

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

Evidence of the following is essential:

- Assessment must confirm the ability to implement changes to the system with minimum disruption to the system and client users. All changes are to be documented.
- Whilst this competency is primarily about software implementation, a competent individual needs to demonstrate effective planning and communication skills to ensure client agreement to changes and minimisation of disruption to the business.

To demonstrate competency in this unit the following resources will be needed:

- Technical specifications and documentation
- Organisational requirements
- Live system

Context of and specific resources for assessment

The breadth, depth and complexity of knowledge and skills in this competency would cover selecting, adapting and transferring skills and knowledge to new environments and providing technical advice and some leadership in resolution of specified problems. This would be applied across a range of roles in a variety of contexts with some complexity in the extent and choice

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	of options available. Assessment must ensure: • Performance of a defined range of skilled operations, usually within a range of broader related activities involving known routines, methods and procedures, where some discretion and judgement is required in the selection of equipment, services or contingency measures and within known time constraints would be characteristic. • Applications may involve some responsibility for others. Participation in teams including group or team coordination may be involved. • It may include participation in teams, including those concerned with software changes and planning. Group or team coordination may be involved.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate

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	may provide valuable input to the assessment process.
Guidance information for assessment	The interdependence of units for assessment purposes may vary with the particular project or scenario. Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • ICAI4029C Install network hardware to a network • ICAS3034B Determine and action network problems • ICAS3121B Administer network peripherals An individual demonstrating this competency would be able to: • Demonstrate some relevant theoretical knowledge • Apply a range of well-developed skills • Apply known solutions to a variety of predictable problems • Perform processes that require a range of well-developed skills where some discretion and judgement is required • Interpret available information, using discretion and judgement • Take responsibility for own outputs in work and learning • Take limited responsibility for the output of others • Maintain knowledge of industry products and services Additionally, an individual demonstrating this competency would be able to: • Demonstrate broad knowledge of theoretical concepts, with substantial depth in some areas • Analyse and plan approaches to technical problems and management requirements • Transfer and apply theoretical concepts and technical or creative skills to a range of situations • Evaluate information in relation to implementing software changes • Take responsibility for outputs in relation to broad quantity and quality parameters

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.	
<i>System</i> may include but is not limited to:	• network • application • software • business • computers • mobile equipment • financial system • management system • information system
<i>Documentation</i> for version control may follow:	• ISO/IEC/AS standards • audit trails • naming standards • version control • project management templates and report writing • maintaining equipment inventory • client training • satisfaction reports
<i>Organisational guidelines</i> may include but are not limited to:	• personal use of emails and internet access • content of emails • making voice or video calls • downloading information and accessing particular websites • opening mail with attachments • virus risk • dispute resolution • document procedures and templates • communication methods • financial control mechanisms

RANGE STATEMENT	
Client may include but is not limited to:	• internal departments • external organisations • customers • individual people • internal employees
User may include:	• a person within a department • a department within the organisation • a third party
Implementation may include:	• implementing the entire system • formulating methods for standby operations or contingency plans
Software may include but is not limited to:	• commercial software applications • organisation-specific software, packaged software, in-house or customised software
Organisational standards may include:	• formal procedures that must be adhered to, such as check points and sign-offs with documented procedures and templates • implementation of financial control mechanisms; communication with stakeholders • dispute resolution and modification procedures • processes for determining size and cost

Unit Sector(s)

Unit sector	Implement

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAI4029C Install network hardware to a network

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to plan, manage and install new hardware components in a network.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Not Applicable

Pre-Requisites

Prerequisite units		

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. Determine hardware requirements	1.1. Assess <i>client hardware</i> and cabling requirements, considering compatibility with existing <i>application software</i> and <i>operating system</i> 1.2. Analyse requirements against local area network (LAN), wide area network (WAN), wireless networks, and mobile equipment access design limitations and <i>organisational guidelines</i> 1.3. Evaluate <i>client</i> requirements in line with <i>organisational guidelines</i>, corporate purchasing procedures, licensing arrangements and budget
2. Obtain hardware	2.1. Contact vendors and obtain technical specifications 2.2. Evaluate/test hardware in line with <i>client</i> requirements and <i>organisational guidelines</i> 2.3. Document recommendations and provide copies to <i>appropriate person</i> 2.4. Determine and document licensing requirements and security issues 2.5. Acquire <i>hardware</i> according to recommendations and organisational procedures
3. Install network hardware	3.1. Conduct installation with minimal disruption to <i>clients</i> 3.2. Install <i>hardware</i> in accordance with appropriate installation procedures 3.3. Configure and test the installation to ensure that it meets <i>client</i> needs
4. Provide support for installed products	4.1. Determine and document <i>client</i> instructions and needs 4.2. Provide one-to-one instruction to <i>client</i> and users, as required

ELEMENT	PERFORMANCE CRITERIA
	4.3. Obtain client evaluation and feedback, to ensure that client requirements have been met
5. Determine and provide instruction and support	5.1. Determine and document requirements for group instruction to cater for client and user needs 5.2. Refer group training requirements to appropriate person 5.3. Obtain client and user group evaluation and feedback

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Customer service skills in a range of contexts at various levels (e.g. timely response to requests, providing client instruction when installing new hardware or software)
- Solving unknown problems in a range of contexts (e.g. when installing new hardware or software)
- Interpretation of technical and hardware installation manuals
- Negotiation skills in relation to other team members and applied to a defined range of predictable problems (e.g. planning schedules for installation of network equipment)
- Report writing skills for business, requiring depth in some areas.
- Analysis and evaluation of information in a defined range of areas (e.g. research into the most suitable type of equipment for requirements)
- Ability to manage change, in order to maintain the continuity of network operations and business functions during network installation tasks
- Questioning and active listening skills to convey and clarify complex information
- Using diagnostic software

Required knowledge

- Basic working knowledge of current industry-accepted network protocols
- Basic knowledge of current industry-accepted network hardware and software products, with broad knowledge of general features and capabilities and detailed knowledge in some areas
- Broad knowledge of current industry, data and voice networking, security products, devices and procedures, with broad knowledge of general features and

REQUIRED SKILLS AND KNOWLEDGE

- capabilities and detailed knowledge in some areas
- Detailed knowledge of the operating system (e.g. Mac OS, Linux, Novell, Windows), sufficient to enable basic installation
- LAN capabilities and characteristics, such as network type (e.g. Ethernet, Appletalk) IP addressing, switch/hub operation
- Organisational contracting procedures and responsibilities
- Detailed knowledge of network connections (e.g. types of cables, such as category 5 e, 6 and 7 unshielded twisted pair (UTP), coaxial and terminators, RJ-45, cabling distance limitations (e.g. 100 metres for Ethernet category 5 UTP) and including wireless
- Detailed knowledge of set-up and configuration procedures
- Detailed knowledge of software packages supported by the organisation
- Detailed knowledge of hardware and software installation procedures
- General knowledge of system diagnostic software

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

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

Evidence of the following is essential:

- Assessment must confirm the ability to install a range of hardware, by planning, managing and supporting the installation of new components in a network according to organisational policy and procedures.
- The support person must demonstrate the ability to offer support to the user in adapting to the new equipment.

To demonstrate competency in this unit the following resources will be needed:

- Application software and operating system
- Vendor hardware and software components
- Technical documentation and installation manuals

EVIDENCE GUIDE	
	• Networked computers • Organisational guidelines • Live network
Context of and specific resources for assessment	The breadth, depth and complexity of knowledge and skills in this competency would cover a broad range of varied activities or application in a wider variety of contexts most of which are complex and non-routine. Leadership and guidance would be involved when organising activities of self and others as well as contributing to technical solutions of a non-routine or contingency nature. Assessment must ensure: • Performance of a broad range of skilled applications including the requirement to evaluate and analyse current practices, develop new criteria and procedures for performing current practices and provision of some leadership and guidance to others in the application and planning of the skills would be characteristic. • Applications may involve responsibility for, and limited organisation of, others.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should to be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Assessment will usually include observation of real

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	or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process.
Guidance information for assessment	The interdependence of units for assessment purposes may vary with the particular project or scenario. Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. An individual demonstrating this competency would be able to: • Demonstrate understanding of a broad knowledge base incorporating some theoretical concepts • Apply solutions to a defined range of unpredictable problems • Identify and apply skill and knowledge areas to a wide variety of contexts, with depth in some areas • Identify, analyse and evaluate information from a variety of sources • Take responsibility for own outputs in relation to specified quality standards • Take limited responsibility for the quantity and quality of the output of others • Maintain knowledge of industry products and services

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.

RANGE STATEMENT	
Hardware may include but are not limited to:	• personal computers • peer-to-peer and client-server networks (including LANs but excluding WANs) • wireless networks, mobile equipment, printers, print servers, monitors • Input/Output devices (e.g. extended or non-standard keyboard and mouse), network cards, cables, some simple switches (e.g. not programmable) and CD drives/burners
Application software may include:	• database programs to handle data and voice functionality • word processors • email programs • internet browsers • system browsers • spreadsheets
Operating system may include but is not limited to:	• Linux 6.0 or above • Windows 98 or above • Apple OS 8 or above Note: The use of operating system in this unit is in the context of the pre-existing system and may therefore not be current industry version. Preference is for Linux 7.0 or above, Windows 2000 or above, Apple OS X or above
Organisational guidelines may include but are not limited to:	• personal use of emails and internet access • content of emails • downloading information and accessing particular websites • opening mail with attachments • virus risk • dispute resolution • document procedures and templates • communication methods • financial control mechanisms
Appropriate person may include:	• supervisor • teacher • authorised business representative • client
Client may include but is not	• internal departments

RANGE STATEMENT

limited to:

- external organisations
- clubs
- individual people
- internal employees

Unit Sector(s)**Unit sector**

Implement

Co-requisite units**Co-requisite units**

Competency field**Competency field**

ICAI4030B Install software to networked computers

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to plan, manage and support the installation of new or upgrade software to networked computers according to vendor and organisation specifications. The following units are linked and form an appropriate cluster: • ICAA4041C Determine and confirm client business expectations and needs • ICAD4043B Develop and present a feasibility report • ICAS4023B Provide one to one instruction • ICAS4127B Support system software • ICAS4108B Complete database back up and recovery

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Not Applicable

Pre-Requisites

Prerequisite units		

Prerequisite units		

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. Determine software requirements	1.1. Identify, clarify and organise <i>software requirements</i> following specified guidelines 1.2. Evaluate <i>requirements</i> in line with existing <i>application, operating system, organisational guidelines</i> , corporate purchasing, licensing arrangements and budget
2. Obtain software	2.1. Contact relevant vendors to obtain technical specifications for required <i>software</i> 2.2. Assess the options and provide recommendations to <i>appropriate person</i> for final analysis 2.3. Determine and record relevant licensing <i>requirements</i> and security issues
3. Install software	3.1. Develop plans, with prioritised tasks and contingency arrangements, for the installation of the selected <i>software to network</i> and networked

ELEMENT	PERFORMANCE CRITERIA
	computers with minimum disruption to client, including the management of existing data 3.2. Install and configure the software in accordance with installation procedures, organisational guidelines and plans 3.3. Test the installed software and system for error-free performance, identifying and resolving problems 3.4. Document the installation and configuration process according to organisational guidelines 3.5. Store the software licences and manuals according to organisational guidelines
4. Determine and provide instruction and support	4.1. Identify and document the client instruction requirements 4.2. Undertake one-to-one instruction with the client or user in a manner suitable to the audience 4.3. Refer group training requirements to the appropriate person 4.4. Gather and evaluate client and user feedback to ensure training and support requirements are met

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Using software packages
- Configuring services on networked computers
- Solving problems related to installation of software
- Evaluation and report writing skills
- Literacy in general and technical workplace documentation
- Solving network problems related to installation of software

Required knowledge

- Detailed knowledge of the system's current functionality
- Broad general knowledge of organisational contracting procedures and responsibilities
- Broad knowledge of organisational security procedures

REQUIRED SKILLS AND KNOWLEDGE

- Broad knowledge of network linkages
- Detailed general knowledge of relevant configuration procedures
- Broad knowledge of the operating system, with detailed knowledge in some areas
- Broad knowledge of current industry-accepted network protocols
- Broad knowledge of current industry-accepted network hardware and software products

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

Evidence of the following is essential:

- Assessment must confirm the ability to ascertain and meet client requirements for installation and upgrade of software.
- Assessment must confirm the ability to plan, manage and support the installation of software to networked computers and to sustain network performance according to organisational and technical specifications. Installation and upgrade of software must be across a variety of situations and include unexpected contingencies.

To demonstrate competency in this unit the person will require access to:

- Software to be installed
- Networked computers
- Organisational guidelines
- Live network

Context of and specific resources for assessment

Installing networked software can be complex particularly for specialist areas, such as Linux Terminal Services. Configuration files need to be closely checked for compliance with hardware (e.g. monitors and

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	printers) and other system software. The effective management and support of the software installation process are critical project management tasks in the context of ensuring minimal client disruption and the need for continuing network operation in a business context. The breadth, depth and complexity of knowledge and skills in this competency would cover a broad range of varied activities or application in a wider variety of contexts most of which are complex and non-routine. Leadership and guidance would be involved when organising activities of self and others as well as contributing to technical solutions of a non-routine or contingency nature. Assessment must ensure: • Performance of a broad range of skilled applications including the requirement to evaluate and analyse current practices, develop new criteria and procedures for performing current practices and provision of some leadership and guidance to others in the application and planning of the skills would be characteristic. • Applications may involve responsibility for, and limited organisation of, others.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full

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	demonstration of competency. Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: - ICAA4041C Determine and confirm client business expectations and needs - ICAD4043B Develop and present a feasibility report - ICAS4023B Provide one-to-one instruction - ICAS4127B Support system software - ICAS4108B Complete database back-up and recovery An individual demonstrating this competency would be able to: - Demonstrate understanding of a broad knowledge base incorporating some theoretical concepts - Apply solutions to a defined range of unpredictable problems - Identify and apply skill and knowledge areas to a wide variety of contexts, with depth in some areas - Identify, analyse and evaluate information from a variety of sources - Take responsibility for own outputs in relation to specified quality standards - Take limited responsibility for the quantity and quality of the output of others - Maintain knowledge of industry products and services

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.	
<i>Software</i> may include but is not limited to:	commercial software applications; organisation-specific software; word processing, spreadsheet, database, graphic, mail, communication packages and presentation functionalities; nature of licence
<i>Requirements</i> may be in reference to:	- business - system - application - network - people in the organisation
<i>Application</i>	- May include but is not limited to commercial software applications; organisation-specific software; word processing, spreadsheet, database, graphic, communication packages; and presentation functionalities. - May include presentation applications contained in: Microsoft Office, Lotus Suite, Claris Works, Star Office or other similar applications
<i>Operating System</i> may include but is not limited to:	- Linux 6.0 or above - Windows 98 or above - Apple OS 8 or above Note: The use of operating system in this unit is in the context of the pre-existing system and may therefore not be current industry version. Preference is for Linux 7.0 or above, Windows 2000 or above, Apple OS X or above.
<i>Appropriate person</i> may include:	- supervisor - teacher - authorised business representative - client

RANGE STATEMENT	
Network may include but is not limited to:	• large and small LANs • WANs • the internet • the use of the PSTN for dial-up modems only • private lines • data • voice
Computer may include:	• laptops • workstations • servers • other devices
Organisational guidelines may include but are not limited to:	• personal use of emails and internet access • content of emails • downloading information and accessing particular websites • opening mail with attachments • virus risk • dispute resolution • document procedures and templates • communication methods • financial control mechanisms.
Client may include but is not limited to:	• internal departments • external organisations • individual people • internal employees

Unit Sector(s)

Unit sector	Implement

Co-requisite units

Co-requisite units	

Co-requisite units		

Competency field

Competency field	

ICAI4091B Conduct post-implementation review

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to plan and execute a system review following implementation at a point where the system has been operational for some.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Not Applicable

Pre-Requisites

Prerequisite units		
	ICAA4041C	Determine and confirm client business expectations and needs

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. Schedule review	1.1. Review <i>organisational guidelines</i> and criteria procedures to identify system implementation results 1.2. Convert the review process into specific criteria 1.3. Contact the <i>appropriate person</i> to schedule timing and venue of review 1.4. Prepare work schedule for the review based on <i>organisation guidelines</i> and identify action, items and staff involved 1.5. Contact appropriate vendor and/or other relevant organisation, regarding support or service commitments
2. Carry out review	2.1. Explain the purpose of the review to <i>stakeholders</i> 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 3.2. Distribute review results and related documentation to <i>stakeholders</i> 3.3. Gather feedback from <i>stakeholders</i> about review document 3.4. Schedule additional meetings to discuss review findings with <i>stakeholders</i> 3.5. Finalise recommendations and action items from the review and distribute to <i>appropriate person</i>

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Problem solving skills for a defined range of unpredictable problems involving participation in the development of strategic initiatives (e.g. when suggestions for resolution of problems are made, and actions resulting from audit report are summarised)
- Plain English literacy and communication skills in relation to analysis, evaluation and presentation of information (e.g. when exceptions to results are followed up in order to ensure accurate information gathered and case notes are completed)
- Teamwork skills involve the contribution to solutions and goals of a non-routine or contingency nature (e.g. when purpose of the review, their involvement and what is expected from them is explained to the parties involved)
- Group facilitation and presentation skills in relation to transferring and collecting information and gaining consensus on concepts (e.g. when purpose of the review, their involvement and what is expected from them is explained to the parties involved, and when results and feedback are distributed to relevant parties)
- Project planning skills in relation to scope, time, cost, quality, communications and risk management (e.g. when recommendations and action items are finalised and distributed to management so lessons learnt may be incorporated in future projects and the standards documentation)

Required knowledge

- Knowledge of the role of stakeholders and the degree of stakeholder involvement in a review
- Current industry-accepted hardware and software products, with broad knowledge of general features and capabilities and detailed knowledge in some areas
- Broad knowledge of the client business domain (e.g. when reviewing schedule)
- Detailed knowledge of implementation process and issues (e.g. when carrying out review)
- Broad knowledge of review techniques (e.g. when carrying out review, and documenting or publishing results)

Evidence Guide

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the

EVIDENCE GUIDE	
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 of the following is essential: • Assessment must confirm the ability to comprehensively plan and carry out a review of the system after the implementation has been completed and has been operational for some time. To demonstrate competency in this unit the person will require access to: • operational system and specifications • technical specifications of components installed • documentation tools • success criteria
Context of and specific resources for assessment	The breadth, depth and complexity of knowledge and skills in this competency would cover a broad range of varied activities or application in a wider variety of contexts most of which are complex and non-routine. Leadership and guidance would be involved when organising activities of self and others as well as contributing to technical solutions of a non-routine or contingency nature. Assessment must ensure: • Performance of a broad range of skilled applications including the requirement to evaluate and analyse current practices, develop new criteria and procedures for performing current practices and provision of some leadership and guidance to others in the application and planning of the skills would be characteristic. • Applications may involve responsibility for, and limited organisation of, others.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the

EVIDENCE GUIDE

	implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. An individual demonstrating this competency would be able to: • Demonstrate understanding of a broad knowledge base incorporating some theoretical concepts • Apply solutions to a defined range of unpredictable problems • Identify and apply skill and knowledge areas to a wide variety of contexts, with depth in some areas • Identify, analyse and evaluate information from a variety of sources • Take responsibility for own outputs in relation to specified quality standards • Take limited responsibility for the quantity and quality of the output of others • Maintain knowledge of industry products and

EVIDENCE GUIDE

services

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.

Stakeholders may include:

- sponsor
- user
- development team
- project team

Appropriate person may include:

- supervisor
- teacher
- authorised business representative
- client

Organisational guidelines may include but are not limited to:

- personal use of emails and internet access
- content of emails
- downloading information and accessing particular websites
- opening mail with attachments
- virus risk
- dispute resolution
- document procedures and templates
- communication methods
- financial control mechanisms

Unit Sector(s)**Unit sector**

Implement

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAI4097C Install and configure a network

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to plan and carry out the installation of network hardware and software and initial configuration according to organisational guidelines. The following units are linked and form an appropriate cluster: • ICAI3021B Connect internal hardware components • ICAS4127B Support system software

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Not Applicable

Pre-Requisites

Prerequisite units		
	ICAI3101B	Install and manage network protocols

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. Confirm client requirements and network equipment required	1.1. Identify, clarify and organise requirements of the client relevant to network needs, following organisational requirements 1.2. Evaluate the requirements along with business needs in order to translate into technical requirements 1.3. Review existing network design documentation to ensure it is current and complete 1.4. Identify the components, both hardware, cabling infrastructure, wireless access and software, that are required to be installed to meet the technical requirements 1.5. Contact vendors and service suppliers to obtain specifications and availability of identified components
2. Install hardware	2.1. Develop plans, with prioritised tasks and contingency arrangements, for installation of components with minimum disruption to client 2.2. Liaise with appropriate person to obtain approval for the plans, including security clearance and timing 2.3. Confirm and review supplier documentation that cables and associated components have been installed in accordance with industry standards,

ELEMENT	PERFORMANCE CRITERIA
	organisational requirements and building requirements to meet network traffic projections 2.4. Install and configure server hardware in accordance with organisational and industry standards, following plans 2.5. Install and configure computer and other hardware in accordance with organisational and industry standards, following plans 2.6. Install and configure other hardware or components in accordance with organisational and industry standards, following plans
3. Install software	3.1. Install and configure server software in accordance with organisational procedures and industry standards, following plans 3.2. Install and configure software in accordance with organisational procedures and industry standards, following the plan 3.3. Install and configure other software required for the network to operate, following the plan
4. Configure and test modified network	4.1. Test the installed software and hardware, utilising available technical tools, to ensure that all components are functioning as expected 4.2. Test the network to ensure it is functioning according to specification 4.3. Resolve problems identified in the modified network
5. Document and sign off	5.1. Complete hardware and asset recording document in line with organisational requirements 5.2. Document installation, boot-up and configuration procedures as per organisational requirements 5.3. Secure sign-off from appropriate person

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Understanding network systems and software

REQUIRED SKILLS AND KNOWLEDGE

- Ability to work with hardware
- Plain English literacy and communication skills in relation to dealing with clients
- Report writing skills for business, requiring depth in some areas, analysis and evaluation of information in a defined range of areas (e.g. when hardware and asset recording documentation is completed in line with organisational requirements)
- Research skills for identifying, analysing and evaluating broad features of a particular business domain and best practice in networking technologies (e.g. when network components, both hardware and software that are required to be installed, are identified)
- Project planning skills in relation to set benchmarks and identified scope
- Problem solving skills in a predictable range of network problems

Required knowledge

- Broad knowledge of current industry-accepted hardware and software products
- Broad knowledge of the client business domain, business function and organisation (e.g. when confirming client requirements and network equipment)
- Broad knowledge of networking technologies incorporating substantial depth in some areas (e.g. network operating systems, cabling standards)
- Broad knowledge of data and voice transmission technologies and protocols

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

Evidence of the following is essential:

- Assessment must confirm knowledge of networking technologies and how hardware and software is installed and configured.
- Assessment must confirm the ability to create and follow implementation plans, to install network hardware and software, and to configure and test the network according to specified guidelines, as well as produce appropriate documentation.

EVIDENCE GUIDE

	To demonstrate competency in this unit the following resources will be needed: • Network design documentation • Equipment specifications • Network components, hardware and software • Live network • Organisational guidelines • Networked computers
Context of and specific resources for assessment	Simply defined, a computer network is a group of interconnected computers, databases, and other peripherals and components (both software and hardware) connected by communications lines and capable of exchanging and sharing files and information. Individual working networks can range from a peer-to-peer network connecting a small number of users in an office or department, to a local area network connecting many users over permanently installed cables and dial-up lines. Other networks include wide area networks connecting users on several different networks spread over a wide geographic area as well as various types of wireless networks. It is essential that this unit covers both skills and knowledge aspects of a broad variety of network components both hardware and software, ranging for example from SOHO LANs, business requirements, such as servers, firewalls and gateways to large country-wide WLANs. The breadth, depth and complexity of knowledge and skills in this competency would cover a broad range of varied activities or application in a wider variety of contexts most of which are complex and non-routine. Leadership and guidance would be involved when organising activities of self and others as well as contributing to technical solutions of a non-routine or contingency nature. Assessment must ensure:

EVIDENCE GUIDE

- Performance of a broad range of skilled applications including the requirement to evaluate and analyse current practices, develop new criteria and procedures for performing current practices and provision of some leadership and guidance to others in the application and planning of the skills would be characteristic.
- Applications may involve responsibility for, and limited organisation of, others.

The scope and complexity of knowledge and skills is dependent on the tasks undertaken.

Method of assessment

The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1.

- Competency in this unit should to be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency.
- The assessment of this unit of competency will usually include observation of LAN configuration and equipment selection for a variety of scenarios.
- Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment

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	process.
Guidance information for assessment	The interdependence of units for assessment purposes may vary with the particular project or scenario. Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • ICAI3021B Connect internal hardware components • ICAS4127B Support system software An individual demonstrating this competency would be able to: • Demonstrate understanding of a broad knowledge base incorporating some theoretical concepts • Apply solutions to a defined range of unpredictable problems • Identify and apply skill and knowledge areas to a wide variety of contexts, with depth in some areas • Identify, analyse and evaluate information from a variety of sources • Take responsibility for own outputs in relation to specified quality standards • Take limited responsibility for the quantity and quality of the output of others • Maintain knowledge of industry products and services Additionally, an individual demonstrating this competency would be able to: • Select appropriate software • Configure network components • Select a network component for a particular task • Interpret available information and request clarification where needed • Take responsibility for outputs in work and learning

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.

<i>Client</i> may include but is not limited to:	• internal departments • external organisations • clubs • individual people • internal employees • customers
<i>Network</i> may include but is not limited to:	• large and small LANs • VPNs • national WANs • the internet • the use of the public switched telephone network (PSTN) for dial-up modems only • DSL connections • private lines • data • voice
<i>Requirements</i> may be in reference to:	• business • system • application • network • people in the organisation
<i>Organisational requirements</i> may include but is not limited to:	• how and what the organisation wants in regard to work environment • problem solution processes • preventative maintenance and diagnostic policy, roles and technical responsibilities in the network management • vendor and product service-level support agreements
<i>Documentation</i> may follow:	• ISO/IEC/AS standards • audit trails • naming standards • version control

RANGE STATEMENT	
	• project management templates and report writing • maintaining equipment inventory • client training • satisfaction reports
Components may include:	• motherboards • CMOS battery • central processing unit (CPU) • CD and DVD drives • interface cards • drives • fax/modem cards • RAM upgrades • CPU upgrades
Hardware may include but is not limited to:	• workstations • personal computers • modems and other connectivity devices • networks • DSL modems • remote sites • servers
Software may include but is not limited to:	• mobile equipment • commercial software applications • organisation-specific software • packaged software • in-house or customised software
Appropriate person may include:	• supervisor • teacher • authorised business representative • client
Cables may include but are not limited to:	• to UTP • STP • Cat 5e • Cat 6 • Cat 7 • fibre
Requirements may vary from:	• a simple addition or upgrade to a major new installation
Standards may include:	• ISO/IEC/IEEE/IETF/ITU/AS standards

RANGE STATEMENT	
	- organisational standards - project standards
Computer may include:	- mobile equipment - laptops - workstations - servers - other devices

Unit Sector(s)

Unit sector	Implement

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAI4099B Build an intranet

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to design, build and implement an intranet for a client. It does not however cover aspects relating to passwords, security access permission or firewall settings.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Not Applicable

Pre-Requisites

Prerequisite units		
	ICAI3101B	Install and manage network protocols
	ICAS3120C	Configure and administer a network operating system
	ICAI4029C	Install network hardware to a network

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 and design intranet	1.1. Determine business <i>requirements</i> for intranet 1.2. Design an <i>intranet</i> to meet agreed specifications 1.3. Refer design to <i>appropriate person</i> and secure approval 1.4. Select appropriate <i>hardware</i> and <i>software</i> 1.5. Provide a specification including <i>hardware</i> and <i>software</i> suppliers and installation plan 1.6. Plan and document implementation information, including hostname and IP addressing
2. Install and configure intranet infrastructure	2.1. Install the <i>intranet</i> on selected <i>hardware</i> and <i>software</i> 2.2. Configure <i>intranet</i> services on <i>server</i> 2.3. Install and configure <i>software</i> where applicable to access <i>intranet</i> for <i>client</i> 2.4. Take action to ensure access by internal <i>user</i> 2.5. If applicable enable <i>intranet</i> capability to link to internet and configure <i>client</i> appropriately
3. Install, manage and configure intranet services to meet requirements	3.1. Install <i>software</i> services on the <i>intranet</i> and <i>server</i> 3.2. Test server <i>software</i> for proper operation 3.3. Install other <i>applications</i> as necessary 3.4. Verify that limited access is working as per security

ELEMENT	PERFORMANCE CRITERIA
	needs 3.5. Verify that intranet is operating within specified parameters 3.6. Verify data integrity 3.7. Monitor network traffic to ensure intranet compliance with specifications 3.8. Confirm intranet meets business requirements

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Skills in network applications and configuration
- Web services set-up
- Uploading and downloading software to a server
- Communication skills in relation to dealing with clients
- Basic problem solving skills in a network environment
- Questioning and active listening skills

Required knowledge

- Current industry-accepted hardware and software and its application in business environments
- Intranet services, including software and hardware platforms
- Client business operations
- Communications technologies for interactive web processes
- Intranet technologies, including implementation and capabilities

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

EVIDENCE GUIDE	
Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: • Assessment must verify knowledge of intranet technologies. • Intranet technology (hardware and software system) must be verified as installed and configured correctly. To demonstrate competency in this unit the person will require access to: • Server and workstation hardware and software • Internet connection • Organisational policies and procedures
Context of and specific resources for assessment	Intranets are important corporate communications mechanisms, particularly in larger, complex organisations. Many organisations frequently use internal video, sound and text communication methods in conjunction with their intranet facilities as a means of maximising reach within the organisation. Additionally, some intranets form extranets, that is combinations of intranets linked together by virtual private networks VPNs. It is essential that this unit covers a broad variety of software and hardware, including VPN solutions, PPTP and webDAV. Additionally, it is important to provide for hands-on experience, particularly relating to SOHO and small business needs. The breadth, depth and complexity of knowledge and skills in this competency would cover a broad range of varied activities or application in a wider variety of contexts most of which are complex and non-routine. Leadership and guidance would be involved when organising activities of self and others as well as contributing to technical solutions of a non-routine or contingency nature.

EVIDENCE GUIDE	
	Assessment must ensure: • Performance of a broad range of skilled applications including the requirement to evaluate and analyse current practices, develop new criteria and procedures for performing current practices and provision of some leadership and guidance to others in the application and planning of the skills would be characteristic. • Applications may involve responsibility for, and limited organisation of, others.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.

EVIDENCE GUIDE

	An individual demonstrating this competency would be able to: • Demonstrate understanding of a broad knowledge base incorporating some theoretical concepts • Apply solutions to a defined range of unpredictable problems • Identify and apply skill and knowledge areas to a wide variety of contexts, with depth in some areas • Identify, analyse and evaluate information from a variety of sources • Take responsibility for own outputs in relation to specified quality standards • Take limited responsibility for the quantity and quality of the output of others • Maintain knowledge of industry products and services Additionally, an individual demonstrating this competency would be able to: • Configure and build an intranet • Select appropriate software for a particular scenario • Interpret available information and request clarification • Take responsibility for outputs in work

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.

Intranet may include but is not limited to:

- file and printer sharing
- groupware collaboration
- database access
- shared websites

RANGE STATEMENT	
Requirements may be in reference to:	• business • system • application • network • people in the organisation
Appropriate person may include:	• supervisor • teacher • authorised business representative • client
Hardware may include but is not limited to:	• workstations • personal computers • modems and other connectivity devices • networks • DSL modems • remote sites • servers
Software may include but is not limited to:	• commercial software applications • organisation-specific software • packaged software • in-house or customised software
Client may include but is not limited to:	• internal departments • external organisations • clubs • individual people • internal employees
User may include:	• a person within a department • a department within the organisation • a third party
Applications may include:	• FTP • HTTPS • WebDAV • multimedia • conferencing • CRM • document sharing
Server may include:	• Application/web servers • BEA Weblogic servers • IBM VisualAge and WebSphere • Novell NDS servers

RANGE STATEMENT	
	• Email servers • File and print servers • FTP servers • Firewall servers • Proxy/cache servers
Network may include but is not limited to:	• large and small LANs • national WANs • VPNs • the internet • the use of the PSTN for dial-up modems only • private lines • data • voice

Unit Sector(s)

Unit sector	Implement

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAI4175C Select and install a router

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to select and install a router to meet technical requirements. The following unit is linked and forms an appropriate cluster: ICAA4047B Determine project specifications and secure client agreement

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Not Applicable

Pre-Requisites

Prerequisite units		
	ICAI3101B	Install and manage network protocols

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. Determine router specification	1.1.Determine current and future network capacity, taking into account current and future business requirements 1.2.Identify network topology from technical requirements 1.3.Determine throughput requirements of router 1.4.Determine media access requirements , with reference to current and future requirements 1.5.Determine the actual addressing scheme 1.6.Identify data link layer technologies with reference to current and future requirements 1.7.Determine network management and security requirements , with reference to current and future requirements
2. Select and install appropriate router	2.1.Select a router with appropriate features according to technical requirements 2.2.Choose cable, WAP, WAN connectors and other peripherals according to network and router specification, and WAN protocols 2.3.Install and configure the router , using predetermined configuration 2.4.Test the router for connectivity across the network

ELEMENT	PERFORMANCE CRITERIA
	and for routing protocol functions 2.5. Adapt or modify the predetermined router configuration, depending on outcome of tests 2.6. Review router in line with organisational requirements

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Installing peripheral devices
- Remote access skills using Telnet

Required knowledge

- Basic router commands
- Router configuration, clock rate, routing protocol, password protection of router
- Router-based network architectures
- Effect of a router on delimiting broadcast traffic and on conserving bandwidth
- Providing the network with redundant paths for reliability and the way routers manage these paths
- How dynamic routing algorithms or protocols create and maintain routing tables
- Use of routing tables in intelligent packet routing and switching
- Router firewalls

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

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

Evidence of the following is essential:

- Assessment must confirm the ability to select and install a router using predetermined configuration and tests. Basic configuration capability is essential in demonstrating competency.

To demonstrate competency in this unit the person will require access to:

- Router specifications
- Technical requirements for a network
- Router
- Cabling
- Networked (LAN) computers
- WAN service point of presence (or simulated)

Context of and specific resources for assessment

A router connects networks together, controlling the routing of packets from source to destination and providing alternate paths when necessary. Routers are more sophisticated than bridges, connecting networks of different types and making logical routing decisions on the basis of available data. Typically a router hands off packets to another router along the path until the destination is reached.

In the context of the Internet, a router is a device or, in some cases, software in a computer, that directs information packets to the next point toward their destination. A router is located at any juncture of networks, including each Internet point-of-presence. As such, routers are key to the operation of the Internet.

It is essential that this unit covers a broad variety routers ranging from simple SOHO ADSL/CABLE routers, to complex fibre channel multi-routing units designed for backbone capability. Additionally, it is imperative that routers are provided for hands-on experience, particularly SOHO and Fibre channel routers.

The breadth, depth and complexity of knowledge and skills in this competency would cover a broad range of varied activities or application in a wider variety of

EVIDENCE GUIDE

	contexts most of which are complex and non-routine. Leadership and guidance would be involved when organising activities of self and others as well as contributing to technical solutions of a non-routine or contingency nature. Assessment must ensure: • Performance of a broad range of skilled applications including the requirement to evaluate and analyse current practices, develop new criteria and procedures for performing current practices and provision of some leadership and guidance to others in the application and planning of the skills would be characteristic. • Applications may involve responsibility for, and limited organisation of, others.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • The assessment of this unit of competency will usually include observation of router selection and configuration for a variety of scenarios • Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as

EVIDENCE GUIDE

	questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • ICAA4047B Determine project specifications and secure client agreement An individual demonstrating this competency would be able to: • Demonstrate understanding of a broad knowledge base incorporating some theoretical concepts • Apply solutions to a defined range of unpredictable problems • Identify and apply skill and knowledge areas to a wide variety of contexts, with depth in some areas • Identify, analyse and evaluate information from a variety of sources • Take responsibility for own outputs in relation to specified quality standards • Take limited responsibility for the quantity and quality of the output of others • Maintain knowledge of industry products and services Additionally, an individual demonstrating this competency would be able to: • Configure and debug routers and routing tables • Select a router for a particular task • Interpret available information and request clarification where needed • Take responsibility for outputs in work and learning

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.

Network may include but not limited to:	• large and small LANs • national WANs • the internet • VPNs • the use of the PSTN for dial-up modems only • private lines • data • voice
Router may include:	• Cisco 800 and ISR Series routers • Linksys routers • Cisco wireless access points • Cisco uBR7200 universal broadband routers • 3Com OfficeConnect Remote 810 ADSL • 3Com SuperStack 400 • Netopia routers • D-Link routers • Motorola Vanguard series • Intel Express series
Peripherals may include but are not limited to:	• Printers, scanners, tape cartridges • Speakers, multimedia kits • Personal computer fax, modems • Input equipment may include mouse, touch pad, keyboard, pens • Mobile phones, palmtops and personal digital assistants (PDAs), laptops and desktop computers • Bluetooth devices, universal serial bus (USB), Firewire (IEEE 1394)
Routing protocol may include static and dynamic routing:	• Cisco discovery protocol (CDP) • Enhanced interior gateway routing protocol (EIGRP) • Routing information protocol (RIP) • NetWare link state protocol (NLSP)

RANGE STATEMENT	
	• Open shortest-path first interior gateway protocol (OSPF) • Exterior gateway protocol and border gateway protocol (superseded by BGP)
Organisational requirements may include but is not limited to:	• how and what the organisation wants in regard to work environment • problem solution processes • preventative maintenance and diagnostic policy • roles and technical responsibilities in the IT department • vendor • product service-level support agreements
Requirements may be in reference to:	• business • system • application • network • people in the organisation
WAN protocols may include:	• Transmission of IP datagrams over X.25, Frame Relay or ATM. (X.25 now superseded by such technologies as Frame Relay and Asynchronous Transfer Mode.) • Point to point protocol (PPP) • Synchronous data link control (SDLC) • Binary synchronous control (BSC) • High-level data link control (HDLC) • Advanced data communications protocol (ADCP) Several of these may now be considered as legacy protocols, but, even though they may not be in current use, there is still a need to keep knowledge of the protocols for legacy installations.

Unit Sector(s)

Unit sector	Implement

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAI4188B Install and maintain a server

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to install and maintain a server and monitor its operation.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Not Applicable

Pre-Requisites

Prerequisite units		
	ICAI3020B	Install and optimise operating system software
	ICAI3101B	Install and manage network protocols
	ICAS3120C	Configure and administer a network operating system

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. Develop installation plan	1.1. Assess and document the <i>deployment environment</i> with reference to system capacity, interdependencies and interoperability 1.2. Identify what installation options are required 1.3. Determine, as required, the scale of installation and use of pilot (test) installations 1.4. Identify data migration <i>requirements</i> 1.5. Identify and apply back-up and recovery <i>requirements</i> with reference to organisational policy 1.6. Identify education and training <i>requirements</i> for support staff and in line with <i>client, requirements</i> and relevant enterprise policies 1.7. Identify resource <i>requirements</i> 1.8. Create and document a deployment plan
2. Install server	2.1. Back up and restore local data in preparation for installation 2.2. Advise the <i>user</i> group of deployment and potential down times 2.3. Install and configure <i>servers</i> as required by functional specifications 2.4. Reconnect and reconfigure relevant connectivity devices 2.5. Install and undertake <i>configuration activities</i> relevant <i>operating system</i> and <i>application</i> upgrades 2.6. Implement relevant tests and record, analyse and report results

ELEMENT	PERFORMANCE CRITERIA
	2.7.Repeat the deployment of the pilot installation 2.8.Create documentation for users
3. Monitor server operation	3.1. Identify and determine required service levels and performance benchmarks and monitor the server operation 3.2. Identify and use relevant management tools with reference to server functionality and enterprise policies 3.3. Develop and implement a program of selective independent audits and tests 3.4. Record, analyse and report audit and test programs and their results 3.5. Make and document configuration and operational changes

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Use of relevant server management tools
- Project management skills
- Ability to create technical and user documentation (e.g. for server maintenance and configuration settings)
- Ability to understand user applications and relate user needs when configuring a server
- Ability to analyse server and network operational issues
- Ability to outline server maintenance procedures (e.g. back-up, disk housekeeping, defragmentation)
- Ability to follow specified server maintenance procedures
- Ability to troubleshoot server and network failures

Required knowledge

- Features of current network operating systems (NOS), including Linux OS/2, Novell Netware, Unix Ware, MS Windows NT, MS Windows server 2000/NET
- Features of current server applications, including RedHat Enterprise Server, Linux Terminal Services, Lotus Notes/Novell GroupWise for messaging; Apache/MS IIS

REQUIRED SKILLS AND KNOWLEDGE

for web services; Novel Border Manager/MS Proxy Server (Microsoft Internet Security and Acceleration (ISA) Server) for network services; Oracle/MS SQL Server/IBM DB2 for databases and data warehousing; Novell Directory Services/iPlanet for directory services; HP Openview/Intel LAN desk server manager/CA UniCenter for management; SAP/PeopleSoft/Baan for line of business applications; and MS Terminal Server/Citrix MetaFrame for terminal services

- Desktop applications and operating systems as required
- Knowledge of compatibility issues and resolution procedures
- Knowledge of system back-up procedures
- Enterprise communication/training systems in relation to training and advising staff involved in the deployment

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

Evidence of the following is essential:

- Assessment must confirm the ability to install and monitor server performance and maintain server operation with minimum down time and disruption to the business.

To demonstrate competency in this unit the person will require access to:

- Server on a network
- Policies related to back-up and recovery
- Server or network operating system

Context of and specific resources for assessment

Servers are generally computers or devices on a network that manage network resources. Servers are used in a variety of roles, for example, a file server is a computer and storage device dedicated to storing files. Any user on such a network can store files on the server. A print server is a computer that manages one or more printers,

EVIDENCE GUIDE

whilst a network server is a computer that manages network traffic. Web servers generally store all files related to a website and perform all work necessary for hosting that website.

Modern networks are predominantly of the client-server type. This operating mode offers more efficient operation, easier (centralised) configuration and maintenance than other network models. Due to the large number of installations of this type and the pivotal role of servers in this type of system, the skills necessary to configure and maintain a server are critically important.

The breadth, depth and complexity of knowledge and skills in this competency would cover a broad range of varied activities or application in a wider variety of contexts most of which are complex and non-routine. Leadership and guidance would be involved when organising activities of self and others as well as contributing to technical solutions of a non-routine or contingency nature.

Assessment must ensure:

- Performance of a broad range of skilled applications including the requirement to evaluate and analyse current practices, develop new criteria and procedures for performing current practices and provision of some leadership and guidance to others in the application and planning of the skills would be characteristic.
- Applications may involve responsibility for, and limited organisation of, others.

Method of assessment

The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1.

EVIDENCE GUIDE

	- Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. - Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. An individual demonstrating this competency would be able to: - Demonstrate understanding of a broad knowledge base incorporating some theoretical concepts - Apply solutions to a defined range of unpredictable problems - Identify and apply skill and knowledge areas to a wide variety of contexts, with depth in some areas - Identify, analyse and evaluate information from a variety of sources - Take responsibility for own outputs in relation to specified quality standards - Take limited responsibility for the quantity and quality of the output of others - Maintain knowledge of industry products and services

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.

<i>Deployment environment</i> may include but is not limited to:	• legacy systems • desktop and server specification • time synchronisation services • TCP/IP architecture • the physical and logical network • training requirements
<i>Requirements</i> may be in reference to:	• business • system • application • network • people in the organisation
<i>Client</i> may include but is not limited to:	• internal departments • external organisations • clubs • individual people • internal employees
<i>User</i> may include:	• a person within a department • a department within the organisation • a third party
<i>Servers</i> may include:	• Application/web servers • BEA Weblogic servers • IBM VisualAge and WebSphere • Novell NDS servers • Email servers • File and print servers • FTP servers • Firewall servers • Proxy/cache servers
<i>Configuration</i> - server configuration may include but is not limited to:	• log file rotation • entry cache • database cache • consumers and suppliers

RANGE STATEMENT	
	• large objects • search and write performance • LDAP clients • cache sizes • port numbers • directory configuration • root DN • access control needs • hostnames • IP addresses • DNS • server domains • network connectivity issues • NetBIOS naming
Operating system may include but is not limited to:	• Linux 7.0 or above • Windows 2000 or above • Apple OS X or above
Application	• May include but are not limited to commercial software applications; organisation-specific software; word processing, spreadsheet, database, graphic and communication packages; and presentation functionalities. • May include presentation applications contained in: Microsoft Office, Lotus Suite, Claris Works, Star Office or other similar applications.

Unit Sector(s)

Unit sector	Implement

Co-requisite units

Co-requisite units	

Co-requisite units		

Competency field

Competency field	

ICAI4189B Ensure website content meets technical protocols and standards

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to prepare a range of content for a website in accordance with customer specifications while ensuring that content is compatible with appropriate technical and infrastructure protocols.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Not Applicable

Pre-Requisites

Prerequisite units		

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. Confirm that content meets required standards	1.1. Take action to ensure that text-based content meets client needs and required style standards 1.2. Confirm multimedia-based content meets the business design standards or overall 'look' of the website 1.3. Check that the mix between multimedia- and text-based content provides the required level of interaction identified in the project brief 1.4. Test that content conforms to the client expectations and technology
2. Confirm that technology supports content	2.1. Take action to ensure that the protocols required for multimedia content are available 2.2. Check and confirm that the bandwidth required to support the content is available 2.3. Check and confirm that servers support the content and levels of interaction 2.4. Check and confirm that all plug-ins required to support content are made available 2.5. Test and confirm that compression techniques support delivery of content
3. Test content	3.1. Test and confirm that content displays as intended and according to business requirements, in target browsers 3.2. Test with beta users that content encourages interaction and content interaction performs as intended and record results

ELEMENT	PERFORMANCE CRITERIA
	3.3. Test and confirm that plug-ins download with a minimum of steps, complication and time 3.4. Test that interactive tools are available and provide the expected results

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Website publishing
- File transfer
- Directory maintenance
- Site testing skills

Required knowledge

- Server operating systems
- Server access security procedures
- FTP software protocols
- Privacy principles
- Internet protocols
- Security issues (e.g. denial of service, viruses, hackers)
- Copyright issues
- Streaming technologies
- Compression technologies

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.

EVIDENCE GUIDE	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: - Assessment must confirm the ability to prepare and integrate a mix of content for a website. Content must operate as expected - that is the correct streaming/compression techniques were used. To demonstrate competency in this unit the person will require access to: - Style guides and design brief - Compression and streaming software
Context of and specific resources for assessment	Website design is important for a range contexts, including security, accessibility and legal, moral and ethical issues. The breadth, depth and complexity of knowledge and skills in this competency would cover a broad range of varied activities or application in a wider variety of contexts most of which are complex and non-routine. Leadership and guidance would be involved when organising activities of self and others as well as contributing to technical solutions of a non-routine or contingency nature. Assessment must ensure: - Performance of a broad range of skilled applications including the requirement to evaluate and analyse current practices, develop new criteria and procedures for performing current practices and provision of some leadership and guidance to others in the application and planning of the skills would be characteristic. - Applications may involve responsibility for, and limited organisation of, others.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the

EVIDENCE GUIDE

	implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. In the case of this unit, it could be assessed in a holistic manner with: • ICAA4142C Design a website to meet technical requirements • ICAD4190B Maintain information standards An individual demonstrating this competency would be able to: • Demonstrate understanding of a broad knowledge base incorporating some theoretical concepts • Apply solutions to a defined range of unpredictable problems • Identify and apply skill and knowledge areas to a wide variety of contexts, with depth in some areas • Identify, analyse and evaluate information from a

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	variety of sources • Take responsibility for own outputs in relation to specified quality standards • Take limited responsibility for the quantity and quality of the output of others • Maintain knowledge of industry products and services

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.

Content may include:	• text-based documents • multimedia content such as audio/video streaming • animation • static graphics • sound files
Client may include but ins not limited to:	• internal departments • external organisations • clubs • individual people • internal employees
Standards may include:	• ISO/IEC/AS standards • organisational standards • project standards (for further information refer to the Standards Australia website at: www.standards.com.au)
Servers may include:	• Application/web servers • BEA Weblogic servers • IBM VisualAge and WebSphere • Novell NDS servers • Email servers

RANGE STATEMENT	
	• File and print servers • FTP servers • Firewall servers • Proxy/cache servers
Requirements may be in reference to:	• business • system • application • network • people in the organisation
Browsers may include but is not limited to:	• Netscape Navigator • Internet Explorer • Mozilla • Opera • Galleon • Phoenix • Konqueror • Lynx
User may include:	• a person within a department • a department within the organisation • a third party

Unit Sector(s)

Unit sector	Implement

Co-requisite units

Co-requisite units	

Competency field

Competency field	

ICAI4244A Install and maintain an RFID system

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required for installation and ongoing maintenance of an RFID system according to design specification. <i>No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.</i>

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		
	ICAI3101B	Install and manage network protocols
	ICAI4029C	Install network hardware to a network

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. Install hardware specified for the RFID technical environment	1.1. Identify technical <i>specifications</i> including hardware and software requirements from given designs 1.2. Install interrogators/readers according to given plan. 1.3. Install tags and document the correct procedures for locating and orienting tags
2. Identify and resolve faults	2.1. Troubleshoot problems between interrogators/readers, tags and networks including tuning for <i>optimum performance</i> 2.2. Investigate causes of interference with RFID systems
3. Test the RFID installation according to specification and standards	3.1. Test installation according to <i>specifications</i> and standards including for optimum placement of tags and for data transmission completeness. 3.2. <i>Document</i> the test results
4. Document the installation in compliance with customer requirements	4.1. <i>Document</i> the installation according to the design and customer requirements 4.2. Ensure that client is informed about standards applying to the installation

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Demonstration of installation techniques
- Presentation on use of spectrum analyser
- Demonstration of cable and network testing
- Demonstration of troubleshooting techniques
- Ability to implement and verify RFID operations
- Ability to implement RFID architecture across a secure environment
- Research skills for identifying, analysing and evaluating broad features of a particular business domain and best practice in RFID technologies (e.g. when RFID components, both hardware and software that are required to be installed, are identified)
- Project planning skills in relation to set benchmarks and identified scope
- Problem solving skills in a predictable range of network problems
- Use of relevant management tools
- Project management skills
- Ability to create technical and user documentation
- Ability to understand user applications and relate user needs
- Ability to analyse operational issues
- Ability to outline maintenance procedures
- Ability to follow specified maintenance procedures
- Ability to troubleshoot failures

Required knowledge

- Broad knowledge of current industry-accepted hardware and software products
- Broad knowledge of the client business domain, business function and organisation (e.g. when confirming client requirements and RFID equipment)
- Broad knowledge of RFID technologies incorporating substantial depth in some areas (e.g. network operating systems, interrogators and sensors, wireless technologies, cabling standards)
- Broad knowledge of RFID technologies and protocols
- Enterprise communication/training systems in relation to training and advising staff involved in the deployment
- Desktop applications and operating systems as required
- Knowledge of compatibility issues and resolution procedures
- Knowledge of system procedures
- Enterprise communication/training systems in relation to training and advising staff involved in the deployment

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

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

Evidence of the following is essential:

- Identify technical **specifications** including hardware and software requirements from given designs
- Troubleshoot problems between interrogators/readers, tags and networks including tuning for **optimum performance**
- Test installation according to **specifications** and standards including for optimum placement of tags
- **Document** the installation according to the design and customer requirements

Context of and specific resources for assessment

Generally speaking, an RFID system must provide some, if not all, of the following features and capabilities:

- The ability to encode RFID tags
- The ability to attach encoded RFID tags to items
- The ability to track the movement of tagged items
- The ability to integrate RFID information into business applications
- The ability to produce information that can be shared between businesses
- The ability to develop self-organisation of intelligent devices

Encoding RFID tags is a two-step process.

- The first step is to select an identification scheme to uniquely track the items in question. Once this is done, you can attach those identities to the RFID tags.
- It is important to ensure that the right tags, readers, and antennas are selected and that they are configured and aligned to achieve the required read

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rates.

Most likely, using RFID information will require integration with, and modifications to existing applications. Integrating RFID information with enterprise applications is no different than integrating other data sources. Architectural approaches, technologies, and products available for application integration apply equally well to RFID solutions.

The breadth, depth and complexity of knowledge and skills in this competency would cover a broad range of varied activities or application in a wider variety of contexts most of which are complex and non-routine.

Leadership and guidance would be involved when organising activities of self and others as well as contributing to technical solutions of a non-routine or contingency nature.

Performance of a broad range of skilled applications including the requirement to evaluate and analyse current practices, develop new criteria and procedures for performing current practices and provision of some leadership and guidance to others in the application and planning of the skills would be characteristic.

Applications may involve responsibility for, and limited organisation of, others.

To demonstrate competency in this unit the person will require access to:

- Network design documentation
- Equipment specifications
- Network components (routers, switches, multilayer switches, VoIP devices)
- Live network
- Organisational guidelines
- Networked computers

EVIDENCE GUIDE**Method of assessment**

The purpose of this unit is to define the standard of performance to be achieved in the workplace.

In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1.

The following assessment method is appropriate for this unit:

- Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency.
- Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills.
- The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.

Guidance information for assessment

Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.

An individual demonstrating this competency would be able to:

- Demonstrate understanding of a broad knowledge base incorporating some theoretical concepts
- Apply solutions to a defined range of unpredictable problems
- Identify and apply skill and knowledge areas to a wide variety of contexts, with depth in some areas
- Identify, analyse and evaluate information from a

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	variety of sources • Take responsibility for own outputs in relation to specified quality standards • Take limited responsibility for the quantity and quality of the output of others • Maintain knowledge of industry products and services

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.

Specifications may include site diagram describing:	• interrogation zone locations • cable drops • device mounting locations
Optimum performance may include:	• antenna type • equipment mounting and protection • cable length/loss • interference considerations • tag type (e.g. active, passive, frequency)
Document may include:	• ISO/IEC/AS standards • audit trails • naming standards • version control • project management templates • report writing

Unit Sector(s)

Unit sector	Implement

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAI4249A Implement and evaluate data security

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required for the application of the principles, policies, and procedures necessary to ensure the confidentiality, integrity, availability, and privacy of data in all forms of media (electronic and hardcopy) throughout the data life cycle. <i>No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.</i>

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		
	ICAS3024B	Provide basic system administration
	ICAS4124B	Monitor and administer network security

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. Implement data security	1.1. Perform the data access management process according to established guidelines 1.2. Apply and maintain <i>data security</i> controls and processes in accordance with <i>documentation</i> 1.3. Apply media controls and processes 1.4. Apply and verify <i>data security</i> access controls and privileges 1.5. Address alleged violations of <i>data security</i> and privacy breaches 1.6. Apply and maintain privacy controls in accordance with <i>privacy guidance</i>
2. Evaluate data security	2.1. Assess the effectiveness of the <i>enterprise data security</i> and suggest changes where appropriate 2.2. Evaluate the effectiveness of products and technologies implemented to provide the required protection of data 2.3. Review alleged violations of <i>data security</i> and privacy breaches 2.4. Identify improvement actions required to maintain appropriate level of data protection

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Current industry-accepted hardware and software products, with broad knowledge of general features and capabilities
- Broad knowledge of the client business domain, business function and organisation
- Systems technologies, with broad knowledge of general features and capabilities and substantial depth in some areas
- Risk analysis, with broad knowledge of general features
- Broad knowledge of specific security technology
- Broad knowledge of privacy issues and legislation.

Required knowledge

- Problem solving skills for a defined range of unpredictable problems
- Plain English literacy and communication skills in relation to analysis, evaluation and presentation of information
- Research skills for identifying, analysing and evaluating broad features of a particular business domain and best practice in data security methodologies and technologies
- Report writing skills for business requiring depth in some areas, analysis and evaluation of information in a defined range of areas
- Questioning and active listening skills
- Project planning skills in relation to set benchmarks and identified scope.

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

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

Evidence of the following is essential:

- Assessment must confirm knowledge of data security features available in the operating environment.
- Assessment must confirm the ability to implement

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	and evaluate data security functions on the system.
Context of and specific resources for assessment	Assessment must ensure: • Appropriate performance of the data access management process • Apply and maintain data security controls and privileges • Assess the effectiveness of the enterprise data security • The breadth, depth and complexity of knowledge and skills in this competency would cover a broad range of varied activities or application in a wider variety of contexts most of which are complex and non-routine. Leadership and guidance would be involved when organising activities of self and others as well as contributing to technical solutions of a non-routine or contingency nature. Performance of a broad range of skilled applications including the requirement to evaluate and analyse current practices, develop new criteria and procedures for performing current practices and provision of some leadership and guidance to others in the application and planning of the skills would be characteristic. Applications may involve responsibility for, and limited organisation of, others. To demonstrate competency in this unit the learner will require access to: • Security policies • Standards • Case study scenarios
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the

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	implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. The following assessment method is appropriate for this unit: • Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. • The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. An individual demonstrating this competency would be able to: • Demonstrate understanding of a broad knowledge base incorporating some theoretical concepts • Apply solutions to a defined range of unpredictable problems • Identify and apply skill and knowledge areas to a wide variety of contexts, with depth in some areas • Identify, analyse and evaluate information from a variety of sources • Take responsibility for own outputs in relation to specified quality standards • Take limited responsibility for the quantity and quality of the output of others • Maintain knowledge of industry products and

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services

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.

Data security <i>may include:</i>	• electronic and physical data, i.e. paper-based • stored and transmitted
Documentation may include:	• data security policy • guidelines • business requirements
Privacy guidance may be in accordance with:	• standards • procedures • directives • policies • regulations • laws
Enterprise data security may include:	• policies • processes • and procedures against established standards • guidelines • business requirements

Unit Sector(s)

Unit sector	Implement

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAI4251A Implement and evaluate network and telecommunication security

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required for the application of the principles, policies, and procedures involved in ensuring the security of basic network services and data and in maintaining the hardware layer on which it resides. These practices address perimeter defence strategies, defence-in-depth strategies, and data encryption techniques. <i>No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.</i>

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		
	ICAS4124B	Monitor and administer network security
	ICAS4119B	Monitor and administer system

Prerequisite units		
		security

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. Implement network and telecommunication security	1.1.Prevent and detect intrusions and protect against viruses 1.2.Perform audit tracking and reporting 1.3.Create, develop, apply, control, and manage effective network domain security controls in accordance with <i>organisation policies</i> 1.4.Test strategic network security technologies for effectiveness; incorporate controls that ensure compliance with the <i>organisation policies</i> 1.5.Ensure that messages are confidential and free from tampering and repudiation 1.6.Defend network communications from tampering and/or eavesdropping
2. Assess vulnerabilities and respond	2.1.Gather technical data and monitor and assess network vulnerabilities

ELEMENT	PERFORMANCE CRITERIA
	2.2. Correct network security vulnerabilities in response to problems identified in vulnerability reports 2.3. Provide real-time network intrusion response
3. Evaluate network and telecommunication security	3.1. Perform a network security evaluation, calculate risks to the enterprise, and recommend remediation activities 3.2. Arrange independent verification and validation of the network to assess full satisfaction of functional requirements 3.3. Compile data into measures for analysis and reporting

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Plain English literacy and communication skills in relation to dealing with clients and team members (e.g. when asset/inventory recording documentation is completed in line with organisational requirements)
- Report writing skills for business requiring depth in some areas, analysis and evaluation of information in a defined range of areas (e.g. when procedures are developed to ensure regular network reporting and administration in accordance with organisational policies and procedures)
- Questioning and active listening skills in relation to clients and team members (e.g. when impact of the changes being implemented is conveyed to users)
- Project planning skills
- Problem solving skills for a defined range of unpredictable problems

Required knowledge

- Current industry-accepted hardware and software products, with broad knowledge of features and capabilities
- Broad knowledge of the client business domain, business function and organisation (e.g. when implementing multiple servers)
- Broad knowledge of networking technologies, with substantial depth in some areas
- Broad knowledge of OH&S requirements in relation to work safety, environmental factors and ergonomic considerations
- Broad knowledge of supporting documentation systems (e.g. when procedures are

REQUIRED SKILLS AND KNOWLEDGE

developed to ensure regular network reporting and administration in accordance with organisational policies and procedures)

- Knowledge of the network and telecommunications models

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

Evidence of the following is essential:

- Assessment must confirm knowledge of network and telecommunication security available in the operating environment.
- Assessment must confirm the ability to implement and evaluate network and telecommunication security functions on the system.

Context of and specific resources for assessment

Assessment must ensure:

- Prevent and detect intrusions and protect against viruses
- Create, develop, apply, control, and manage effective network domain security controls
- Gather technical data and monitor and assess network vulnerabilities
- Perform a network security evaluation, calculate risks to the enterprise

The breadth, depth and complexity of knowledge and skills in this competency would cover a broad range of varied activities or application in a wider variety of contexts most of which are complex and non-routine.

Leadership and guidance would be involved when organising activities of self and others as well as

EVIDENCE GUIDE	
	contributing to technical solutions of a non-routine or contingency nature. Performance of a broad range of skilled applications including the requirement to evaluate and analyse current practices, develop new criteria and procedures for performing current practices and provision of some leadership and guidance to others in the application and planning of the skills would be characteristic. Applications may involve responsibility for, and limited organisation of, others. To demonstrate competency in this unit the learner will require access to: • Security policies • Standards • Case study scenarios
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. The following assessment method is appropriate for this unit: • Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as

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	questioning on underpinning knowledge and skills. • The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. An individual demonstrating this competency would be able to: • Demonstrate understanding of a broad knowledge base incorporating some theoretical concepts • Apply solutions to a defined range of unpredictable problems • Identify and apply skill and knowledge areas to a wide variety of contexts, with depth in some areas • Identify, analyse and evaluate information from a variety of sources • Take responsibility for own outputs in relation to specified quality standards • Take limited responsibility for the quantity and quality of the output of others • Maintain knowledge of industry products and services

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.	
Organisation policies may	• enterprise • network

RANGE STATEMENT	
include:	• host-based
Independent may include:	• other persons within organisation or department • outside the organisation but non-government • government regulator • industry-based body

Unit Sector(s)

Unit sector	Implement

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAI5085B Review site in preparation for implementation

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to identify environmental prerequisites prior to commencing system installation.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Not Applicable

Pre-Requisites

Prerequisite units		

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 work area	1.1. Obtain technical and environmental system requirements for equipment to be installed and document site requirements, including OH&S site-specific requirements 1.2. Consider and take action on requirements associated with equipment against installation requirements 1.3. Conduct on-site inspection and audit against site specifications 1.4. Formulate preliminary recommendations for site and assess impact on system installation schedule 1.5. Create a preliminary report specifying recommended changes to the site to meet requirements and submit the report to appropriate person for approval
2. Evaluate environment	2.1. Organise appropriate support staff to facilitate a successful installation 2.2. Install cabling and other environmental equipment to required technical and industry standards 2.3. Manage hardware installation to ensure relevant OH&S standards for hardware installation are adhered to 2.4. Review and test hardware and software to ensure that the system meets client business requirements and system objectives
3. Document recommendations	3.1. Prepare a final report documenting findings and issues relating to site requirements and preparation 3.2. Submit final recommendations to appropriate person for approval

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Problem solving skills for a defined range of unpredictable problems involving participation in the development of strategic initiatives (e.g. when preliminary recommendations for site are formulated and impact on installation schedule assessed)
- Plain English literacy and communication skills in relation to analysis, evaluation and presentation of information (e.g. when a report documenting findings and issues relating to site requirements and preparation is prepared)
- Teamwork skills involving the contribution to solutions and goals of a non-routine or contingency nature (e.g. when support staff are organised to facilitate a successful installation)
- Group facilitation and presentation skills in relation to transferring and collecting information and gaining consensus on concepts (e.g. when changes to site to meet requirements are recommended and submitted for approval, and when final recommendations are submitted for approval)
- Project planning skills in relation to scope, time, cost, quality, communications and risk management (e.g. when technical and environmental system requirements for equipment to be installed are obtained and site requirements are documented, including OH&S site-specific requirements, and when hardware and software is reviewed and tested to ensure that the system meets client business requirements and system objectives)

Required knowledge

- Physical prerequisites needed for system installation
- Vendor equipment specifications and installation requirements
- Possible legislative requirements relating to cabling and building preservation (e.g. when evaluating the environment)
- Current industry-accepted hardware and software products, with broad and detailed knowledge of general features and capabilities of network devices
- Broad knowledge of the role of stakeholders and the degree of stakeholder involvement
- Detailed knowledge of the any current system's functionality
- Broad knowledge of quality assurance practices (e.g. when evaluating the environment)

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

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

Evidence of the following is essential:

- Assessment should confirm knowledge of all aspects of site preparation and relationship to and impact on the installation schedule. Assessment must confirm the ability to identify environmental prerequisites prior to installation commencing. Assessment can cover a number of scenarios, such as LANs incorporating hubs, routers and peripherals.
- Assessment must confirm ability to logically sequence the preparatory steps, taking into account time and budget constraints.

To demonstrate competency in this unit the person will require access to:

- A mock or real customer computer site
- Several different device types to be installed
- Access to staff resources and technical equipment

Context of and specific resources for assessment

The area of activity covered by this unit involves assessing a physical site, to determine its suitability for system installation. Site assessment includes considering limitations imposed by issues such as legislation, site history, environmental matters and OH&S guidelines.

The breadth, depth and complexity covering planning and initiation of alternative approaches to skills or knowledge applications across a broad range of technical and/or management requirements, evaluation and coordination would be characteristic.

When dealing with unexpected problems on the site, an individual would be expected to show leadership and

EVIDENCE GUIDE	
	guidance when organising activities of self and others, as well as being able to contribute to technical solutions of a non-routine or contingency nature. The individual would also be expected to demonstrate performance over a broad range of skilled applications, including running specialised testing tools in evaluating and analysis of the site. Assessment must ensure: • The demonstration of competency may also require self-directed application of knowledge and skills, with substantial depth in some areas where judgement is required in planning and selecting appropriate equipment, services and techniques for self and others. • Applications involve participation in development of strategic initiatives as well as personal responsibility and autonomy in performing complex technical operations or organising others. It may include participation in teams including teams concerned with planning and evaluation functions. Group or team coordination may also be involved.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency.

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	Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. In the case of this unit, it could be assessed in a holistic manner with: - ICAI5086B Scope implementation requirements - ICAI5090B Conduct pre installation audit for software installation An individual demonstrating this competency would be able to: - Demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas - Analyse and plan approaches to technical problems or management requirements - Transfer and apply theoretical concepts and/or technical or creative skills to a range of situations - Evaluate information, using it to forecast for planning or research purposes - Take responsibility for own outputs in relation to broad quantity and quality parameters - Take some responsibility for the achievement of group outcomes - Maintain knowledge of industry products and services

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.

Equipment may include but is not limited to:

- workstations
- personal computers
- modems and other connectivity devices
- printers
- hard drives
- monitors
- switches
- hubs
- DSL modems
- personal digital assistant (PDA)
- other peripheral devices

Appropriate person may include:

- supervisor
- teacher
- authorised business representative
- client

Client may include but is not limited to:

- internal departments
- external organisations
- individual people
- internal employees

Hardware may include but is not limited to:

- workstations
- personal computers
- modems and other connectivity devices
- networks
- remote sites
- servers

Software may include but is not limited to:

- commercial software applications;
organisation-specific software, packaged software, in-house or customised software

Unit Sector(s)

Unit sector	Implement

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAI5086B Scope implementation requirements

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to define boundaries and deliverables of a system installation project in the context of an overall implementation plan. The unit relates to implementation at one location although may involve building wide implementation. It is not intended that this unit include implementation of multiple sites across cities, states or countries.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Not Applicable

Pre-Requisites

Prerequisite units		

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. Confirm scope with parties	1.1. Review <i>project plan</i> and other documentation to determine installation requirements and other implementation issues 1.2. Develop and document preliminary <i>project scope</i> and submit to <i>appropriate person</i> 1.3. Review requests for revision to scope 1.4. Identify areas for further development 1.5. Prepare implementation plan and forward to <i>appropriate person</i>
2. Update plans to account for scope	2.1. Review implementation plan, taking into account the scope of the system 2.2. Review key dates and events to determine if conflicts exist 2.3. Confirm revised plans and documents with <i>appropriate person</i> for final approval and sign-off

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Problem solving skills for a defined range of unpredictable problems involving participation in the development of strategic initiatives (e.g. when implementation areas to be developed further are identified with project team)
- Plain English literacy and communication skills in relation to analysis, evaluation and presentation of information (e.g. when revised plans and documentation are confirmed with client users)
- Teamwork skills involving the contribution to solutions and goals of a non-routine or contingency nature (e.g. when implementation areas to be developed further are identified with project team and when requests for revisions to scope are reviewed/negotiated with client users and system developers)
- Group facilitation and presentation skills in relation to transferring and collecting information and gaining consensus on concepts (e.g. when agreed implementation plan is clarified with implementation team, and project plan and background information is presented and handed over according to project requirements)
- Leadership skills in relation to guidance for achieving outcomes and transferring and collecting information and gaining consensus on concepts (e.g. when project plan and background information is presented and handed over according to project requirements)
- Analysis and risk assessment skills in relation to analysis, evaluation and identification of issues (e.g. when key dates or events are specifically reviewed in terms of conflict with scheduled events, and when implementation plans are reviewed or developed, taking into account the scope of the system)
- Project planning skills in relation to scope, time, cost, quality, communications and risk management (e.g. when project plan and other documentation are reviewed to determine installation requirements and issues, when project plan is signed off, and when technical advice is provided during implementation)

Required knowledge

- General knowledge of IT-related services and issues (e.g. when confirming scope with parties and in handing off to implementation team)
- Specific knowledge of IT installation services and issues (e.g. when handing off to implementation team)
- Broad knowledge of the role of stakeholders and the degree of stakeholder involvement
- Current industry-accepted hardware and software products, with broad knowledge of general features and capabilities and detailed knowledge in some areas
- Broad knowledge of the client business domain (e.g. when confirming scope with stakeholders)
- Prerequisites needed for system installation (e.g. when confirming scope with stakeholders)

REQUIRED SKILLS AND KNOWLEDGE

- Vendor specifications and requirements for installation (e.g. when updating plans to account for scope)
- Possible legislative requirements relating to cabling and building preservation (e.g. when updating plans to account for scope)
- Broad knowledge of vendor product directions (e.g. when confirming scope with parties)

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

Evidence of the following is essential:

- Assessment must confirm the ability to identify and convey a clear understanding of project deliverables, boundaries and roles across all involved parties.
- Part of the assessment must determine the ability to consider, plan and document an implementation approach, having regard to implementation drivers, measures of success, implementation by functional area and coordination.

To demonstrate competency in this unit the person will require access to:

- Project plan
- Client expectations brief
- Required hardware software and the related specifications

Context of and specific resources for assessment

The breadth, depth and complexity covering planning and initiation of alternative approaches to skills or knowledge applications across a broad range of technical and/or management requirements, evaluation and coordination would be characteristic.

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	Assessment must ensure: • The demonstration of competency may also require self-directed application of knowledge and skills, with substantial depth in some areas where judgement is required in planning and selecting appropriate equipment, services and techniques for self and others. • Applications involve participation in development of strategic initiatives as well as personal responsibility and autonomy in performing complex technical operations or organising others. It may include participation in teams including teams concerned with planning and evaluation functions. Group or team coordination may also be involved.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Assessment of this unit of competency should include a review of documents developed by an organisation that relate to implementation approach, implementation drivers, measures of success, implementation by functional area and implementation coordination. • Supplementary questioning may be used during the

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	summative assessment phase, where necessary, to ensure that all issues relating to the scope of the implementation have been considered and appropriate choices made given the implementation approach and measures of success. Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. An individual demonstrating this competency would be able to: - Demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas - Analyse and plan approaches to technical problems or management requirements - Transfer and apply theoretical concepts and/or technical or creative skills to a range of situations - Evaluate information, using it to forecast for planning or research purposes - Take responsibility for own outputs in relation to broad quantity and quality parameters - Take some responsibility for the achievement of group outcomes - Maintain knowledge of industry products and services

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.	
<i>Project plan</i> may include a number of project variables, including:	• parties and their responsibilities • project scope • project objectives • schedule • project budget
<i>Project scope</i> may include but is not limited to:	• Milestones and timeline • Project objectives • Project constraints • Financials • Resources required • Roles of involved parties • Equipment and software to be installed • Description of outcomes (deliverables) • Customer acceptance criteria
<i>Appropriate person</i> may include:	• supervisor • teacher • authorised business representative • client

Unit Sector(s)

Unit sector	Implement

Co-requisite units

Co-requisite units	

Co-requisite units		

Competency field

Competency field	

ICAI5087B Acquire system components

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to identify system components and to follow procedures to purchase those components.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Not Applicable

Pre-Requisites

Prerequisite units		

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. Confirm system components for acquisition	1.1. Confirm client <i>requirements</i> for solution, including <i>software</i> and <i>operating system</i> requirements 1.2. Review technical papers and recommendations that identify required <i>hardware</i> and <i>software</i> components 1.3. Review and clearly identify <i>system components</i> 1.4. Assess and determine the fit with existing technology by consulting with system developer 1.5. Identify and determine the best and current technology fit for each purpose by consulting with system developer 1.6. Develop a list of required <i>system components</i> with <i>specifications</i> and possible suppliers
2. Agree on methods of component acquisition	2.1. Identify and assess the client organisation's preferred <i>acquisition methods</i> and policies 2.2. Evaluate <i>acquisition methods</i> and alternatives for required hardware and/or software components against required service levels, cost constraints, geographic constraints and user preferences 2.3. Discuss and agree <i>acquisition method</i> with client 2.4. Inform users and other stakeholders of <i>acquisition method</i>

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

REQUIRED SKILLS AND KNOWLEDGE

Required skills

- Problem solving skills for a defined range of unpredictable problems involving participation in the development of strategic initiatives (e.g. when the fit with existing technology is assessed with systems developers)
- Plain English literacy and communication skills in relation to analysis, evaluation and presentation of information (e.g. when recommended acquisition method is selected and discussed with client users and management)
- Teamwork skills involving stakeholder cooperation and contribution to solutions and goals of a non-routine or contingency nature
- Facilitation and presentation skills in relation to transferring and collecting information and gaining consensus on concepts (e.g. when recommended acquisition method is selected and discussed with client users and management)
- Negotiation skills in relation to stakeholders and service or product suppliers and applied to a defined range of predictable problems (e.g. when discussing with systems developers the relative merits of two or more competing devices for a purchase agreement)
- Project planning skills in relation to scope, time, procurement, cost, quality, communications and risk management (e.g. when technical papers and recommendations to identify required hardware and software components are reviewed)

Required knowledge

- Broad general knowledge of the client business domain (e.g. when confirming system components to acquire and when agreeing to methods to acquire components)
- Current industry-accepted hardware and software products
- Broad knowledge of vendor product directions (e.g. when best and current technology fit for each purpose is identified with systems developers)
- Broad knowledge of quality assurance practices (e.g. when best and current technology fit for each purpose is identified with systems developers)
- Basic knowledge of information gathering techniques (e.g. when best and current technology fit for each purpose is identified with systems developers, and when recommended acquisition method is selected and discussed with client users and management)
- Broad knowledge of change management systems
- Broad knowledge of risk management
- Broad knowledge of financial management options including leasing arrangements

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

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

Evidence of the following is essential:

- Assessment must confirm the ability to identify correct system components and to follow procurement procedures to purchase those components. The acquisition approach should be consistent with technical and business requirements.
- Evidence may include formal request for tender documentation, evaluation/performance criteria, and comparison checklists.

To demonstrate competency in this unit the person will require access to:

- Current business and IT strategic plans
- Data models
- Functional process descriptions
- User requirements
- Architectures
- Service levels

Context of and specific resources for assessment

The breadth, depth and complexity covering planning and initiation of alternative approaches to skills or knowledge applications across a broad range of technical and/or management requirements, evaluation and coordination would be characteristic.

Assessment must ensure:

- The demonstration of competency may also require self-directed application of knowledge and skills, with substantial depth in some areas where judgement is required in planning and selecting appropriate equipment, services and techniques for self and others.
- Applications involve participation in development of

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	strategic initiatives as well as personal responsibility and autonomy in performing complex technical operations or organising others. It may include participation in teams including teams concerned with planning and evaluation functions. Group or team coordination may also be involved.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Supplementary questioning may be used during the summative assessment phase, where necessary, to ensure that all issues relating to different acquisition methods have been considered and appropriate choices made given organisational policy. • Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.

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In the case of this unit, it could be assessed in a holistic manner with:

- ICAI5086B Scope implementation requirements
- ICAI5088B Evaluate and negotiate vendor offerings
- ICAI5089B Implement and hand over system components
- ICAI5090B Conduct pre installation audit for software installation

An individual demonstrating this competency would be able to:

- Demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas
- Analyse and plan approaches to technical problems or management requirements
- Transfer and apply theoretical concepts and/or technical or creative skills to a range of situations
- Evaluate information, using it to forecast for planning or research purposes
- Take responsibility for own outputs in relation to broad quantity and quality parameters
- Take some responsibility for the achievement of group outcomes
- Maintain knowledge of industry products and services

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.

RANGE STATEMENT	
Requirements may be in reference to:	• business • system • platform • application • database • network • people in the organisation
Software may include but is not limited to:	• commercial software applications • organisation-specific software • packaged software • in-house • customised software
Hardware may include but is not limited to:	• workstations • personal computers • modems and other connectivity devices • networks • DSL modems • remote sites • servers
Components may include:	• Motherboards • CMOS battery • central processing unit (CPU) • CD and DVD drives • interface cards • drives • fax/modem cards • RAM upgrades • CPU upgrades
Specifications may include but is not limited to:	• technical requirements • user problem statement • current system functionality
Client may include but is not limited to:	• internal departments • external organisations • individual people • internal employees
Operating System may include but is not limited to:	• Linux 6.0 or above • Windows 98 or above • Apple OS 8 or above

RANGE STATEMENT	
	Note: The use of operating system in this unit is in the context of the pre-existing system and may therefore not be current industry version. Preference is for Linux 7.0 or above, Windows 2000 or above, Apple OS X or above
System components may include but are not limited to:	• Hardware, such as internal expansion devices and external peripheral devices • PCs, networks, printers • Software, such as applications, utilities, operating systems • Facility management • Integration and/or implementation services
Acquisition method may include but is not limited to:	• purchase • lease • rental • new or refurbished • outsourced Different acquisition methods can be found in IT strategy papers, or through discussions with IT director, finance director, suppliers

Unit Sector(s)

Unit sector	Implement

Co-requisite units

Co-requisite units	

Competency field

Competency field	

ICAI5088B Evaluate and negotiate vendor offerings

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to research, evaluate and recommend a vendor to supply components and to negotiate with the vendor for supply. The following unit is linked and forms an appropriate cluster: • ICAA5150C Evaluate vendor products and equipment

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Not Applicable

Pre-Requisites

Prerequisite units		
	ICAA5150C	Evaluate vendor products and equipment

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. Select method to be used for identifying suitable vendor	1.1. Evaluate organisational purchasing policy as a means of identifying vendors and document outcomes 1.2. Consider and undertake other means of identifying suitable vendors and document outcomes 1.3. Recommend preferred method of vendor selection to <i>client</i> 1.4. Plan and document selection process
2. Review vendor offerings	2.1. Notify vendors of organisation's requirements 2.2. Undertake evaluation process by comparing offers against organisational requirements 2.3. Organise vendor demonstrations and performance benchmark tests 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 <i>appropriate person</i> 3.2. Identify and document delivery arrangements with suppliers 3.3. Clarify installation responsibilities with suppliers 3.4. Review warranty and support requirements with suppliers and service-level agreement

ELEMENT	PERFORMANCE CRITERIA
	3.5. Confirm details with <i>client</i>

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Problem solving skills for a defined range of unpredictable problems involving participation in the development of strategic initiatives (e.g. options such as tender, invitation, etc. are considered, and recommendations on preferred method are made)
- Plain English literacy and communication skills in relation to analysis, evaluation and presentation of information (e.g. when contracts are reviewed and prepared for review by appropriate person)
- Teamwork skills involving the contribution to solutions and goals of a non-routine or contingency nature (e.g. when delivery arrangements are identified with suppliers and are confirmed with client, and installation responsibilities are clarified with suppliers against implementation plan)
- Facilitation and presentation skills in relation to transferring and collecting information and gaining consensus on concepts (e.g. when evaluation and selection based on the vendor's ability to meet specific technical criteria is participated in)
- Negotiation skills in relation to other team members and applied to a defined range of predictable problems (e.g. when vendor demonstrations and performance benchmark tests are organised)
- General financial analysis skills (e.g. when vendor demonstrations and performance benchmark tests are organised, and when evaluation process is undertaken by comparing vendor offerings against company requirements)

Required knowledge

- Broad knowledge of the client business domain (e.g. when selecting methodology to be used for sourcing vendors and reviewing vendor offerings)
- Current industry-accepted hardware and software products, with broad knowledge of general features and capabilities
- Broad knowledge of vendor product trends
- Broad knowledge of quality assurance practices
- Broad knowledge of information gathering techniques
- Broad knowledge of change management systems
- Broad knowledge of risk management

REQUIRED SKILLS AND KNOWLEDGE

- Broad knowledge of financial management and leasing arrangements
- Broad knowledge of benchmarking methodologies
- Broad knowledge of contracts

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

Evidence of the following is essential:

- Assessment must confirm the ability to identify an appropriate vendor to supply components according to organisational requirements.
- The acquisition approach should be consistent with technical and business requirements.
- The acquisition approach should involve clear identification and specification of the business and technical requirements and identification of the selection criteria, and seek to identify the qualifications of vendors invited to submit proposals. The selection of a tender should be made against identified benchmarks.

To demonstrate competency in this unit the person will require access to:

- Current business and IT strategic plans
- User requirements
- Service levels

Context of and specific resources for assessment

The competency reflects the workplace by providing for several approaches and an emphasis on researching and analysing alternative options in dealing with vendors when acquiring IT components. It covers testing, comparisons and evaluations based on the abovementioned elements, plus consideration of such

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	other factors as after-sales service and reliability. The breadth, depth and complexity covering planning and initiation of alternative approaches to skills or knowledge applications across a broad range of technical and/or management requirements, evaluation and coordination would be characteristic. Assessment must ensure: • The demonstration of competency may also require self-directed application of knowledge and skills, with substantial depth in some areas where judgement is required in planning and selecting appropriate equipment, services and techniques for self and others. • Applications involve participation in development of strategic initiatives as well as personal responsibility and autonomy in performing complex technical operations or organising others. It may include participation in teams including teams concerned with planning and evaluation functions. Group or team coordination may also be involved.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Assessment will usually include observation of real

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	or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended for example: • ICAA5150C Evaluate vendor products and equipment An individual demonstrating this competency would be able to: • Demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas • Analyse and plan approaches to technical problems or management requirements • Transfer and apply theoretical concepts and/or technical or creative skills to a range of situations • Evaluate information, using it to forecast for planning or research purposes • Take responsibility for own outputs in relation to broad quantity and quality parameters • Take some responsibility for the achievement of group outcomes • Maintain knowledge of industry products and services

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

RANGE STATEMENT	
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.	
Method of vendor selection may include:	• registration of interest (ROI) • request for information (RFI) • request for proposal (RFP) • by tender or invitation
Appropriate person may include:	• supervisor • teacher • authorised business representative • client
Client may include but is not limited to:	• internal departments • external organisations • individual people • internal employees

Unit Sector(s)

Unit sector	Implement

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAI5089B Implement and hand over system components

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to ensure that the system is operational prior to hand over for client use.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Not Applicable

Pre-Requisites

Prerequisite units		

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. Confirm system integrity	1.1. Check the functioning of system components in both a standalone and integrated environment 1.2. Specify shortcomings or problems and create an action plan 1.3. Review action plan with client 1.4. Document system components in accordance with standards and procedures
2. Provide operation and maintenance guidance	2.1. Identify and document operational issues and procedures 2.2. Discuss maintenance issues with technical support and document outcomes 2.3. Compare maintenance, operational and warranty considerations with service-level agreements and document discrepancies 2.4. Clarify outstanding issues with client
3. Hand over system to client	3.1. Demonstrate installed system to client 3.2. Obtain client sign-off to confirm satisfaction and acceptance of the installed system 3.3. Discuss and confirm short-term implementation support with client 3.4. Discuss and confirm further training needs with client 3.5. Document needs and submit to appropriate person for action

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Negotiation skills in relation to other team members and applied to a defined range of predictable problems (e.g. when shortcomings or problems are reviewed with client and an action plan is formulated)
- Project planning skills in relation to set benchmarks and identified scope (e.g. when shortcomings or problems are reviewed with client and an action plan is formulated)
- Problem solving skills for a defined range of predictable problems (e.g. when installed system is demonstrated to meet the standards identified in the agreed implementation plan, and is complete)
- Plain English literacy and communication skills in relation to analysis, evaluation and presentation of information (e.g. when further action items, training needs, amendments are discussed, documented and are submitted to relevant authority for action)
- Report writing skills for business, requiring depth in some areas, analysis and evaluation of information in a defined range of areas (e.g. when maintenance issues are discussed with the maintenance group and all supporting documentation is completed in accordance with standards and when further action items, training needs, amendments, etc., are discussed, documented and are submitted to appropriate person for action)

Required knowledge

- Current business practices in relation to preparing reports (e.g. when confirming system integrity and handing over system)
- Current industry-accepted hardware and software products, with broad knowledge of general features and capabilities, to enable the person to optimise the value of a supply contract
- Broad knowledge of vendor product directions (e.g. when confirming system integrity or when determining the level of technology and expense to be implemented in a project)
- Broad knowledge of the client business domain (e.g. when shortcomings or problems are reviewed with client and an action plan is formulated according to project requirements)
- Broad knowledge of OH&S requirements in relation to work safety, environmental factors and ergonomic considerations (e.g. when heavy devices are carried into the system project area)
- Broad knowledge of the role of stakeholders and the degree of stakeholder involvement, so that levels of responsibility in a project can be clearly defined
- Broad knowledge of quality assurance practices (e.g. when undertaking thorough, comprehensive checking before confirming system integrity)

REQUIRED SKILLS AND KNOWLEDGE

- A basic knowledge of information gathering techniques (e.g. when confirming system integrity and when providing operation and maintenance guidance)
- Broad general knowledge of change management systems (e.g. when confirming system integrity and when integrating the new system with the pre-existing one)
- Detailed knowledge of project plan, including constraints, guidelines and deadlines
- General operational procedures for IT systems

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

Evidence of the following is essential:

- Assessment must confirm the ability to confirm system integrity and that operational and maintenance procedures are in place and viable.

To demonstrate competency in this unit the person will require access to:

- A customer computer site and system or suitable simulated system and environment
- Project plan
- Service-level agreements
- Implementation plan
- People involved in hand-over

Context of and specific resources for assessment

Formal testing and trials are normally conducted to determine whether or not a system satisfies its acceptance criteria and to enable the client to determine whether or not to accept the system. Testing to determine whether systems or components meet the requirements specified in the contract or by the user is a critical aspect of hand over.

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	User acceptance testing can be a formal, documented process in which users use the new system, verify that it works correctly under operational conditions, and note any errors that need to be fixed. The system implementer will generally undertake a range of processes to ensure the system's integrity and operational match with business requirements and earlier specifications before hand over. This forms part of the on-going customer relationship management process where a continuing relationship is an objective. The breadth, depth and complexity covering planning and initiation of alternative approaches to skills or knowledge applications across a broad range of technical and/or management requirements, evaluation and coordination would be characteristic. Assessment must ensure: • The demonstration of competency may also require self-directed application of knowledge and skills, with substantial depth in some areas where judgement is required in planning and selecting appropriate equipment, services and techniques for self and others. • Applications involve participation in development of strategic initiatives as well as personal responsibility and autonomy in performing complex technical operations or organising others. It may include participation in teams including teams concerned with planning and evaluation functions. Group or team coordination may also be involved.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1.

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	• Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. An individual demonstrating this competency would be able to: • Demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas • Analyse and plan approaches to technical problems or management requirements • Transfer and apply theoretical concepts and/or technical or creative skills to a range of situations • Evaluate information, using it to forecast for planning or research purposes • Take responsibility for own outputs in relation to broad quantity and quality parameters • Take some responsibility for the achievement of group outcomes • Maintain knowledge of industry products and services

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.

System may include but is not limited to:

- databases
- applications
- servers
- operating systems
- gateways
- application service provider
- ISP

Components may include:

- Motherboards
- CMOS battery
- central processing unit (CPU)
- CD and DVD drives
- interface cards
- drives
- fax/modem cards
- RAM upgrades
- CPU upgrades

Service-level agreements

- Service-level agreements (SLAs) exist for many different infrastructure services, including communications carriers, ISPs, ASPs and SLAs for vendor products.
- SLAs should consider business processes and requirements, clearly specify and quantify service levels, identify evaluation or audit of service levels.

Client may include but is not limited to:

- internal departments
- external organisations
- individual people
- internal employees

Appropriate person may include:

- supervisor
- teacher
- authorised business representative
- client

Unit Sector(s)

Unit sector	Implement

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAI5090B Conduct pre-installation audit for software installation.doc

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to identify and appraise critical pre-existing systems or components prior to the installation of software. Establishing compatibility and interoperability is a key success factor which would be useful undertakings to the purchase of software. The following units are linked and form an appropriate cluster: • ICAS5104B Determine maintenance strategy • ICAS5105B Coordinate change requests • ICAS5111B Review and manage delivery of maintenance services • ICAT5081B Perform systems test

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Not Applicable

Pre-Requisites

Prerequisite units		

Prerequisite units		

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. Assess compatibility of existing software	1.1. Confirm details of software loaded on client system from actual system and from existing system documentation 1.2. Identify software prerequisites needed for new software 1.3. Confirm minimum customer requirements with technical specifications 1.4. Confirm and assess compatibility issues against installation plan and cost constraints 1.5. Document recommendations on variances, level and software consistency for consideration by appropriate person
2. Confirm interoperability of software with	2.1. Confirm that there are no conflicts between the new software and previously installed software and hardware

ELEMENT	PERFORMANCE CRITERIA
environment	2.2. Measure the degree of interoperability between software 2.3. Confirm the 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, other specific hardware requirements from investigation of actual system and existing system documentation 3.2. Confirm that the hardware prerequisites needed for new software are met, implications noted and minimum requirements identified 3.3. Confirm and assess capacity issues against installation plan and cost constraints 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 4.2. Present and distribute the audit analysis report according to organisational standards and procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Problem solving skills for a defined range of unpredictable problems involving participation in the development of strategic initiatives (e.g. when software prerequisites needed for new software are identified, implications noted, minimum requirements confirmed and customer requirements matched with technical specifications, and when capacity issues are confirmed and assessed against installation plan and cost constraints)
- Teamwork skills involving the contribution to solutions
- Report writing skills for business requiring depth in some areas, analysis and evaluation of information in a defined range of areas (e.g. when audit/analysis report is presented and distributed)
- Facilitation and presentation skills in relation to transferring and collecting information and gaining consensus on concepts (e.g. when audit/analysis report is

REQUIRED SKILLS AND KNOWLEDGE

- presented and distributed according to company and project procedure).
- Use of system diagnostics and utilities (e.g. when details of current system memory, disk, available disk storage, other specific hardware requirements are obtained from investigation of actual system and existing system documentation)
 - Project planning skills in relation to scope, time, cost, quality, communications and risk management (e.g. determining the timeline for the installation of new software and presenting findings, recommendations and impact on project in a clear, concise and timely manner)

Required knowledge

- Detailed knowledge of the system's current functionality (e.g. assessing compatibility of existing software when assessing system's capacity to install ordered software)
- Current industry-accepted hardware and software products, with broad knowledge of general features and capabilities and detailed knowledge in some areas
- Broad knowledge of the client business domain (e.g. assessing compatibility of existing software)
- Broad knowledge of the role of stakeholders and the degree of stakeholder involvement (e.g. assessing possible effects on the client if the installation does not go according to plan)
- Broad knowledge of quality assurance practices (e.g. when confirming interoperability of software with environment)
- Broad knowledge of risk management (e.g. when preparing and distributing audit report or when testing the new software for compatibility with the old)

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

Evidence of the following is essential:

- Assessment must confirm sufficient ability to guide clients about which specific components are required prior to commencement of installation. Clear recommendations and assignment of responsibility for missing components must be evident.

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	Additionally, the person must be able to determine the impact and risks associated with either continuing or discontinuing implementation. To demonstrate competency in this unit the person will require access to: • Operational system and system specifications • Technical specifications of software to be installed • Documentation tools
Context of and specific resources for assessment	Pre-installation planning and audit stages are important to the success of software installation and upgrade projects. Data collected and analyses undertaken through these processes inform the implementation plan by clearly establishing environmental and technical prerequisites and may assist in avoiding costly mistakes in software choice and lost revenue or productivity. The breadth, depth and complexity covering planning and initiation of alternative approaches to skills or knowledge applications across a broad range of technical and/or management requirements, evaluation and coordination would be characteristic. Assessment must ensure: • The demonstration of competency may also require self-directed application of knowledge and skills, with substantial depth in some areas where judgement is required in planning and selecting appropriate equipment, services and techniques for self and others. • Applications involve participation in development of strategic initiatives as well as personal responsibility and autonomy in performing complex technical operations or organising others. It may include participation in teams including teams concerned with planning and evaluation functions. Group or team coordination may also be involved.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In

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	undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. - Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. - Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: - ICAS5104B Determine maintenance strategy - ICAS5105B Coordinate change requests - ICAS5111B Review and manage delivery of maintenance services - ICAT5081B Perform systems test An individual demonstrating this competency would be able to: - Demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas - Analyse and plan approaches to technical problems or management requirements

EVIDENCE GUIDE

	• Transfer and apply theoretical concepts and/or technical or creative skills to a range of situations • Evaluate information, using it to forecast for planning or research purposes • Take responsibility for own outputs in relation to broad quantity and quality parameters • Take some responsibility for the achievement of group outcomes • Maintain knowledge of industry products and services

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.

Hardware may include but is not limited to:

- workstations
- personal computers
- modems and other connectivity devices
- networks
- DSL modems
- remote sites
- servers

Client may be:

- a department within the organisation
- a third party, so the relationship and ease of access will vary

Appropriate person may include:

- supervisor
- teacher
- authorised business representative
- client

Constraints may include but is not limited to:

- time
- budget
- resource
- hardware

RANGE STATEMENT	
	• software • policy • legal constraints
Software may include but is not limited to:	• commercial software applications; organisation-specific software, packaged software, in-house or customised software

Unit Sector(s)

Unit sector	Implement

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAI5096B Complete data transition

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to undertake manipulation, migration and conversion of data between systems or databases while maintaining data integrity. The following units are linked and form an appropriate cluster: • ICAB5062B Perform data conversion • ICAB5063B Monitor and support data conversion

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Not Applicable

Pre-Requisites

Prerequisite units		

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. Perform data transition	1.1. Identify and document the data that is to be migrated, transferred or archived 1.2. Collect required data, target database requirements and implementation details 1.3. Clean up data to match new data structures and rules 1.4. Write and test conversion programs if required by the implementation plan, or use conversion tools 1.5. Ensure clean data take-on by re-keying or converting according to database requirements and conversion plan 1.6. Migrate data to target environment 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 2.2. Run production or specialised programs against data to confirm control totals 2.3. Check referential integrity and data constraints and requirements against database requirements and conversion plan 2.4. Verify that data transition has been completed in accordance with requirements and plans

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Plain English literacy and communication skills in relation to analysis, evaluation and presentation of information
- Problem solving skills for a defined range of predictable problems
- Low-level programming skills
- Change management skills in relation to a defined scope

Required knowledge

- Broad knowledge of the client business domain (e.g. when checking data transition)
- Broad knowledge of the client's data management and data security policies and procedures
- Current industry-accepted hardware and software products, with broad knowledge of general features and capabilities and detailed knowledge in some areas
- Broad knowledge of database structures
- Broad knowledge of system data requirements
- Broad knowledge of software tools
- Detailed knowledge of the system's current functionality (e.g. when performing data transition)
- Broad knowledge of quality assurance practices (e.g. when checking data integrity)
- Broad general knowledge of change management systems (e.g. when performing data transition and checking data integrity)

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

EVIDENCE GUIDE	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: • Assessment must confirm the ability to produce consistency in results, database verification, integrity and security of data. Assessment must confirm sufficient knowledge of the organisation's record keeping arrangements and security and access level procedures. To demonstrate competency in this unit the person will require access to: • Data conversion plan • Implementation plan • Conversion program, if necessary • Database(s) to store data
Context of and specific resources for assessment	Data transition processes are important when organisations need to move information from one application or database to another, including migration from older to newer systems. Without effective quality checks in place data integrity may be compromised. The breadth, depth and complexity covering planning and initiation of alternative approaches to skills or knowledge applications across a broad range of technical and/or management requirements, evaluation and coordination would be characteristic. Assessment must ensure: • The demonstration of competency may also require self-directed application of knowledge and skills, with substantial depth in some areas where judgement is required in planning and selecting appropriate equipment, services and techniques for self and others. • Applications involve participation in development of strategic initiatives as well as personal responsibility and autonomy in performing complex technical operations or organising others. It may include participation in teams including teams concerned with planning and evaluation functions. Group or

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	team coordination may also be involved.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. - Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. - Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: - ICAB5062B Perform data conversion - ICAB5063B Monitor and support data conversion An individual demonstrating this competency would be able to: - Demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas - Analyse and plan approaches to technical problems or management requirements

EVIDENCE GUIDE

	• Transfer and apply theoretical concepts and/or technical or creative skills to a range of situations • Evaluate information, using it to forecast for planning or research purposes • Take responsibility for own outputs in relation to broad quantity and quality parameters • Take some responsibility for the achievement of group outcomes • Maintain knowledge of industry products and services

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.

Database may include but is not limited to:

- relational databases
- object-relational databases
- proprietary databases
- commercial off-the-shelf (COTS) database packages

Conversion tools may include:

- tools that analyse data quality (e.g. QDB/Analyze, WizRule, and Unitech Systems Inc)
- tools for extraction and transformation (e.g. ETI Extract, Passport, Warehouse Manager, InfoPump, InfoHub, InfoRefiner and InfoSuite)
- tools for cleansing data (e.g. Integrity, Enterprise/Integrator)
- data mart management tools

Unit Sector(s)

Unit sector	Implement

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAI5098C Install and manage complex networks

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to install and manage networks consisting of multiple components and connectivity options. The following units are linked and form an appropriate cluster: • ICAS5122C Identify and resolve network problems • ICAS5123C Manage network security

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Not Applicable

Pre-Requisites

Prerequisite units		
	ICAI4097C	Install and configure a network

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. Implement multiple servers	1.1. Review client and organisational requirements in order to assess the benefits of employing multiple servers to provide required services 1.2. Design network topology that makes use of multiple servers, acting individually or in concert, to meet organisational requirements 1.3. Develop plans, with prioritised tasks and contingency arrangements, for the implementation of the network design, with minimum disruption to client 1.4. Liaise with relevant personnel to obtain approval for the plans, and revise plans if necessary 1.5. Notify the user of the expected impact of the planned changes 1.6. According to plan, implement and configure the multiple servers in accordance with vendor and organisation-specifications 1.7. Test network configuration and performance to ensure the expected services are provided to the user and appropriate security is maintained
2. Install and configure devices to extend network reach	2.1. Review user and organisational requirements in order to assess the need for network communication devices and remote access services

ELEMENT	PERFORMANCE CRITERIA
	2.2. Plan, install and configure network communication devices to provide network services to meet user requirements, in accordance with vendor and organisation-specifications 2.3. Check and install cabling and associated components in accordance with industry standards 2.4. Plan, install and configure remote access services to meet user requirements, in accordance with vendor and organisation-specifications
3. Manage different levels of security	3.1. Gather data about user network access needs for work requirements and organisational approval for user access 3.2. Evaluate user access data to determine and implement user access levels for network resources 3.3. Investigate the need for firewalls, as per security requirements 3.4. Plan and implement the required firewalls 3.5. Undertake ongoing monitoring of the viability and reliability of the network security, through testing and the use of technical tools 3.6. Continually monitor internal and external network access for security breaches 3.7. Develop and maintain appropriate documentation on the security policy for technicians and the user
4. Connect to a host computer	4.1. Review user and organisational requirements for host connection 4.2. Evaluate current system hardware, cabling, components and software in terms of requirements necessary to enable host connection to meet user needs 4.3. Obtain, install and configure the hardware, cabling and software required to update the system to provide host connectivity 4.4. Test the updated system and the host connectivity options, and reconfigure if necessary
5. Integrate and manage network resources with network utilities	5.1. Identify and evaluate appropriate network management tools to assist in the administration of the complex network 5.2. Select and install network management tools in accordance with industry and organisational standards 5.3. Test tools to ensure they are operational

ELEMENT	PERFORMANCE CRITERIA
	5.4. Gather and analyse user feedback about using the changed system 5.5. Prepare and deliver relevant training in a manner appropriate to the audience 5.6. Develop and maintain procedures to ensure regular network reporting and administration in accordance with organisational policies and procedures 5.7. Complete documentation of complex network, in line with organisational requirements

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Plain English literacy and communication skills in relation to dealing with clients and team members (e.g. when asset/inventory recording documentation is completed in line with organisational requirements)
- Report writing skills for business requiring depth in some areas, analysis and evaluation of information in a defined range of areas (e.g. when procedures are developed to ensure regular network reporting and administration in accordance with organisational policies and procedures)
- Questioning and active listening skills in relation to clients and team members (e.g. when impact of the changes being implemented is conveyed to users)
- Project planning skills
- Problem solving skills for a defined range of unpredictable problems

Required knowledge

- Current industry-accepted hardware and software products, with broad knowledge of features and capabilities
- Broad knowledge of the client business domain, business function and organisation (e.g. when implementing multiple servers)
- Broad knowledge of networking technologies, with substantial depth in some areas
- Broad knowledge of OH&S requirements in relation to work safety, environmental factors and ergonomic considerations
- Broad knowledge of supporting documentation systems (e.g. when procedures are developed to ensure regular network reporting and administration in accordance with organisational policies and procedures)

REQUIRED SKILLS AND KNOWLEDGE

- Knowledge of the Open Systems Interconnection OSI reference model

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

Evidence of the following is essential:

- Assessment must confirm the ability to install, configure and test components in a complex network.
- Assessment must confirm the ability to manage a complex network that consists of multiple components and connectivity options.

To demonstrate competency in this unit the following resources will be needed:

- Network design documentation
- Equipment specifications
- Live network
- Hardware and software components for complex networks

Context of and specific resources for assessment

The installation and management of complex networks is a critical business function. As organisations rely more heavily on electronic internal communications, commercial e-business transactions with customers and virtual supplier partnerships, complex networks which enable and support such relationships are critical. The uninterrupted, efficient and secure operation of ICT networks is a primary objective of network specialists working to support business objectives. The breadth, depth and complexity covering planning and initiation of alternative approaches to skills or knowledge applications across a broad range of technical and/or management requirements, evaluation and coordination

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	would be characteristic. The demonstration of competency may also require self-directed application of knowledge and skills, with substantial depth in some areas where judgement is required in planning and selecting appropriate equipment, services and techniques for self and others. Assessment must ensure: • Applications involve participation in development of strategic initiatives as well as personal responsibility and autonomy in performing complex technical operations or organising others. It may include participation in teams including teams concerned with planning and evaluation functions. Group or team coordination may also be involved.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should to be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process.

EVIDENCE GUIDE**Guidance information for assessment**

The interdependence of units for assessment purposes may vary with the particular project or scenario. Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example:

- ICAS5122C Identify and resolve network problems
- ICAS5123C Manage network security

An individual demonstrating this competency would be able to:

- Demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas
- Analyse and plan approaches to technical problems or management requirements
- Transfer and apply theoretical concepts and/or technical or creative skills to a range of situations
- Evaluate information, using it to forecast for planning or research purposes
- Take responsibility for own outputs in relation to broad quantity and quality parameters
- Take some responsibility for the achievement of group outcomes
- Maintain knowledge of industry products and services

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.

Servers may include:

- Application/web servers
- BEA Weblogic servers
- IBM VisualAge and WebSphere

RANGE STATEMENT	
	• Novell NDS servers • Email servers • File and print servers • Voice servers • FTP servers • Firewall servers • Proxy/cache servers
Client may include but is not limited to:	• internal departments • external organisations • clubs • individual people • internal employees
Organisational requirements may include but is not limited to:	• how and what the organisation wants in regard to work environment • problem solution processes • preventative maintenance and diagnostic policy • roles and technical responsibilities in network management • vendor and product service-level support agreements
Documentation may follow:	• ISO/IEC/AS standards • audit trails • naming standards • version control • project management templates and report writing • maintaining equipment inventory • client training • satisfaction reports
User may include:	• a person within a department • a department within the organisation • a third party
Cabling may include but is not limited to:	• UTP • STP • Category 5e, 6, 7 • fibre
Network may include but is not limited to:	• large and small LANs • national WANs • VPNs • the internet

RANGE STATEMENT	
	• the use of the PSTN for dial-up modems only • private lines • data • voice
Network topology may include:	• cabled ring • star • bus • hierarchical and hybrid or wireless networks
Firewalls may include:	• hardware appliances • proxy servers • individual PC solution • also: varying functionality, including network address translation (NAT)/IP Masquerading, routing to specific machines as well as Stateful Packet Inspection (SPI), Denial of Service (DOS) detection and blocking, spoofing, unauthorised associations
Components may include:	• motherboards • CMOS battery • central processing unit (CPU) • CD and DVD drives • interface cards • drives • fax/modem cards • RAM upgrades • CPU upgrades
Hardware may include but is not limited to:	• mobile equipment • workstations • personal computers • modems • wireless access points and other connectivity devices • networks • DSL modems • remote sites • servers
Tools may include but are not limited to:	• network performance software • data and voice integration measurements • policing and shaping tools • frequency analysers

RANGE STATEMENT	
	• cable testing • equipment testing • carrier connection tests
Security may include but is not limited to:	• IPSec • LEAP • WEP • WPA • AAA • Diameter • tokens • smart cards
Standards may include:	• ISO/IEC/IEEE/IETF/ITU/AS standards, • organisational standards • project standards
Software may include but is not limited to:	• commercial software applications • organisation-specific software, packaged software, in-house or customised software

Unit Sector(s)

Unit sector	Implement

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAI5100C Build an internet infrastructure

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to design and implement an infrastructure for internet services.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Not Applicable

Pre-Requisites

Prerequisite units		
	ICAB5160C	Build and configure a server

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 and design internet infrastructure to meet business requirements	1.1. Select internet infrastructure in line with business and end-user requirements, within budget limitations 1.2. Evaluate the internet service for satisfactory performance and confirm that the service meets business and end-user requirements 1.3. Ensure that hardware, software, network and security requirements are in accordance with agreed business and end-user specifications 1.4. Research internet to source suppliers, technologies, delivery schedules and replacement parts and document findings 1.5. Evaluate internet service providers and establish their capability to deliver the required connection service 1.6. Determine internet protocol address allocation based on the number of addresses needed
2. Install and configure internet infrastructure to meet business requirements	2.1. Install and test cables, where appropriate 2.2. Build and test servers 2.3. Install, configure and test switches 2.4. Install, configure and test firewalls 2.5. Install and test broadband hardware with selected internet service provider 2.6. Install workstation software and configure access to services 2.7. If required, install the necessary hardware and software to connect the internet to intranets or

ELEMENT	PERFORMANCE CRITERIA
	network 2.8. Configure domain names, internet protocol addresses and network address translation settings to make internet access possible
3. Install and configure internet services to meet business requirements	3.1. Set up software to provide services as required 3.2. Install and configure software that provides internet links with existing databases, documents, files 3.3. Develop templates and style guides for internet documents 3.4. Configure security access levels to safeguard data, making use of appropriate tools
4. Test security and internet access	4.1. Test and verify security access levels 4.2. Monitor and evaluate capability and reliability of security systems 4.3. Make changes to system to ensure protection against known and potential threats
5. Ensure that user accounts are verified for security access and monitored	5.1. Verify user settings to ensure that they conform to security policies 5.2. Have legal notices displayed at appropriate locations for system users 5.3. Check passwords in accordance with business policies and verify with software utility tools 5.4. Plug well-known security gaps with appropriate hardware and/or software
6. Manage and support the internet	6.1. Assist management in developing procedures and policies for maintaining the internet infrastructure 6.2. Obtain, install and use management tools to assist in internet administration 6.3. Monitor traffic, appropriateness of broadcasts, content access and hits over the internet 6.4. Create logs and other reports required to manage and support the internet 6.5. Optimise internet performance

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Communication skills in relation to dealing with clients and team members (e.g. when internet specifications are produced to meet client user requirements and budget constraints)
- Basic report writing skills for business, including analysis and evaluation
- Ability to create and use logs for examining and reporting, required to manage and support the internet service on the organisation's LAN
- Problem solving skills involving participation of other users and management.
- Basic research skills for identifying, analysing and evaluating broad features of a particular business and sound skills in internet security patching and monitoring
- Questioning and active listening skills in relation to clients and team members
- Ability to participate in project planning activities, in relation to scope, time, cost, quality, communications and risk management

Required knowledge

- Current and developing industry hardware and software (e.g. routers, servers, switches and modems), with broad knowledge of general features and capabilities (e.g. LAN or WAN application, network traffic management)
- General knowledge of the organisation's business needs and functions
- General understanding of LAN-based communications technologies
- Knowledge of internet (WAN-based) technologies, with general understanding of features and capabilities, incorporating depth in some areas, for example, being able to consider the various WAN technologies when managing and supporting the internet (e.g. ADSL, ISDN, PRI (primary rate interface) and BRI (basic rate interface), ATM, frame relay, leased line)
- General knowledge of OH&S requirements in relation to working in a safe manner; environmental aspects of work that is undertaken and basic and ergonomic considerations relating in particular to the workstation environment
- Security knowledge, with broad understanding of general features and capabilities, with limited depth in some areas (e.g. when monitoring security and internet access)
- Broad knowledge of vendor product and vendor directions (e.g. when installing and configuring internet infrastructure to meet business requirements (e.g. current trends are self-configuring ADSL or cable modem-router-switches, however, these apply to the simpler LANs, such as SOHO (Small Office, Home Office), where LAN configurations are relatively simple)
- Broad knowledge of open source options and software (e.g. Linux-based systems) as well as proprietary software (e.g. Microsoft based systems)

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

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

Evidence of the following is essential:

- Assessment must verify knowledge of internet technologies and that internet technology (both hardware and software) is installed and configured correctly.

To demonstrate competency in this unit the person will require access to:

- Server hardware and software
- Security policy guidelines
- Networking hardware (e.g. switches, cables)

Context of and specific resources for assessment

The choice of LAN/WAN technologies has increased notably in recent years. Two important aspects accompany these many alternatives: the affordable cost and the emerging trend to automated set-up predominantly for the home or small business market.

This unit is geared for medium to large LAN/WAN designs rather than the automatic set-up approach and accordingly requires a more rigorous level of configuration. The breadth, depth and complexity covering planning and initiation of alternative approaches to skills or knowledge applications across a broad range of technical and/or management requirements, evaluation and coordination would be characteristic.

Assessment must ensure:

- The demonstration of competency may also require self-directed application of knowledge and skills, with substantial depth in some areas where judgement is required in planning and selecting appropriate equipment, services and techniques for

EVIDENCE GUIDE	
	self and others. Applications involve participation in development of strategic initiatives as well as personal responsibility and autonomy in performing complex technical operations or organising others. It may include participation in teams including teams concerned with planning and evaluation functions. Group or team coordination may also be involved.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. - Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. - Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. An individual demonstrating this competency would be able to:

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	• Demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas • Analyse and plan approaches to technical problems or management requirements • Transfer and apply theoretical concepts and/or technical or creative skills to a range of situations • Evaluate information, using it to forecast for planning or research purposes • Take responsibility for own outputs in relation to broad quantity and quality parameters • Take some responsibility for the achievement of group outcomes • Maintain knowledge of industry products and services

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.

Hardware may include but is not limited to:	• workstations • personal computers • modems and other connectivity devices • networks • DSL modems • remote sites • servers
Network may include but is not limited to:	• large and small LANs • national WANs • the internet • VPNs • the use of the PSTN for dial-up modems only • private lines

RANGE STATEMENT	
	• data • voice
Services may include:	• newsgroups • email • file transfer protocol facilities • multimedia • conferencing • general access to internal website HTML files
Servers may include:	• Application/web servers • BEA Weblogic servers • IBM VisualAge and WebSphere • Novell NDS servers • Email servers • File and print servers • FTP servers • Firewall servers • Proxy/cache servers
Software may include but is not limited to:	• commercial software applications • organisation-specific software • packaged software • in-house or customised software
Databases may include:	• Oracle • Sybase • Microsoft SQL Server • Ingres • DB2 • Informix • mSQL • MySQL • SQL server
Threats may include:	• eavesdropping • manipulation • impersonation • penetration • denial of service and by-pass • hackers • viruses

Unit Sector(s)

Unit sector	Implement

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAI5152B Implement risk management processes

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to implement procedures that identify, analyse, evaluate and monitor risks involving ICT systems and technology. This includes the development and management of contingency plans. The following unit is linked and forms an appropriate cluster: ICAA5156B Review and plan to minimise risk to business solutions

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Not Applicable

Pre-Requisites

Prerequisite units		

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. Establish risk context	1.1. Review and document the organisational and technical environment 1.2. Establish and document risk boundaries according to the business operating and strategic environment
2. Identify risk factors	2.1. Develop or acquire a measurement scale for project risk which includes importance, complexity, time and resources required 2.2. Identify project risks based on the measurement scale developed and document according to business requirements 2.3. Identify the 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 3.2. Identify measurable benchmarks to track the treatment of risks, to the new system 3.3. Identify risk management intervention points according to benchmarked performance tolerances 3.4. Demonstrate use of phased implementation and piloting to reduce risk factors

ELEMENT	PERFORMANCE CRITERIA
4. Monitor, update and report risk profile	4.1. Conduct regular risk updates to add new risks and remove old risks 4.2. Update contingency plans when appropriate to incorporate new information 4.3. Conduct risk reviews at major project milestones and document outcomes 4.4. Establish feedback processes to provide warning of potential new risks according to business requirements

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Capacity planning
- Technology transfer
- Information architecture
- Use of site design software and hardware
- Project management

Required knowledge

- Technology updating guidelines
- Business process design
- Maintaining and administering a site
- Understanding how business sites fit into corporate strategy
- Policy writing and dissemination
- Documenting technical specifications
- Understanding the business supply chain
- Understanding user analysis and the CRM
- Copyright and intellectual property
- Relevant privacy legislation
- Australian Computer Society Code of Ethics

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

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

Evidence of the following is essential:

- Assessment must confirm the ability to implement procedures that identify where risk occurs and what measures need to be taken to handle the risk. Contingency planning is an integral part of demonstrating competency.
- Effective implementation procedures include preventative considerations, such as establishing warning systems and establishing an ongoing process that includes regular or programmed reviews to the risk profile.
- Risk management must include managing those factors that may have an adverse effect on an external party, such as an business website customer or supplier. Consequently, risk management may need to be a collaborative process that involves users and commercial partners.

To demonstrate competency in this unit the person will require access to:

- Web servers
- Business website
- Site server
- Site server software
- Analysis software
- Requirements documentation
- Risk management plan
- User analysis
- Updated or new technology
- Software applications
- Networks

Context of and specific resources for assessment

The breadth, depth and complexity covering planning and initiation of alternative approaches to skills or knowledge applications across a broad range of technical

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	and/or management requirements, evaluation and coordination would be characteristic. Assessment must ensure: • The demonstration of competency may also require self-directed application of knowledge and skills, with substantial depth in some areas where judgement is required in planning and selecting appropriate equipment, services and techniques for self and others. • Applications involve participation in development of strategic initiatives as well as personal responsibility and autonomy in performing complex technical operations or organising others. It may include participation in teams including teams concerned with planning and evaluation functions. Group or team coordination may also be involved.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment

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	process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • ICAA5156B Review and plan to minimise risk to business solutions An individual demonstrating this competency would be able to: • Demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas • Analyse and plan approaches to technical problems or management requirements • Transfer and apply theoretical concepts and/or technical or creative skills to a range of situations • Evaluate information, using it to forecast for planning or research purposes • Take responsibility for own outputs in relation to broad quantity and quality parameters • Take some responsibility for the achievement of group outcomes • Maintain knowledge of industry products and services Additionally, an individual demonstrating this competency would be able to: • Demonstrate knowledge of risk management processes, incorporating some theoretical concepts • Apply solutions to a defined range of unpredictable problems • Identify and apply skill and knowledge areas to a wide variety of contexts, with depth in some areas • Identify and evaluate information • Take responsibility for the quality of risk assessment and contingency planning

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.	
<i>Business requirements</i> may be in reference to:	• business • system • application • network • people in the organisation
<i>System</i> may include but is not limited to:	• databases • applications • servers • operating systems • gateways • application service provider • ISP
<i>Contingency plans</i> will vary in format and content detail, but will typically:	• Identify weaknesses and provide for the implementation of a disaster prevention program • Minimise disruption to business operations • provide a coordinated approach to the disaster recovery process

Unit Sector(s)

Unit sector	Implement

Co-requisite units

Co-requisite units		

Co-requisite units		

Competency field

Competency field	

ICAI5172B Implement backbone technologies in a local area network

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to implement core layer (backbone) connectivity in a LAN for applications between floors in a multi-storey building or between separate buildings. The following unit is linked and forms an appropriate cluster: • ICAI5152B Implement risk management processes

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Not Applicable

Pre-Requisites

Prerequisite units		

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. Define network	1.1. Identify current and future network requirements based on the organisation's business and technical requirements 1.2. Design an appropriate structure to meet client requirements, such as video, audio or data application services 1.3. Design a network addressing system with subnet and host identities (IP addressing) and virtual LANs (VLANs) 1.4. Identify and document resource requirements in accordance with network design
2. Install configure network backbone	2.1. Install and configure switches and routers according to network requirements and resources 2.2. Install network protocol suites using configurations on switch uplink ports as required by network design specifications 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 all relevant segments or VLANs 3.2. Make adjustments as required 3.3. Validate and document network performance

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Implementing optic fibre and Ether-Channel technologies
- Installation of Ethernet switches with gigabit and 10 gigabit interfaces
- Configuring trunking on uplink ports
- Basic cabling

Required knowledge

- OSI layer model
- LAN and WAN network topologies (three-layer LAN hierarchy: core distribution and access)
- Routers
- Ethernet switches
- Bandwidth limitations, measuring and testing
- NICs (Fast Ethernet, gigabit and 10-gigabit Ethernet (token ring is less common))
- Ethernet switch functions (frame switching: store-and-forward, fast-forward, fragment-free)
- Virtual LANs
- Internetworking protocol suites, such as TCP/IP, IPX, DECnet, AppleTalk, IPV6
- MAC addresses, network layer protocols

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

Critical aspects for assessment and evidence required to demonstrate

Evidence of the following is essential:

- Assessment must confirm the ability to build an

EVIDENCE GUIDE	
competency in this unit	ATM LAN that provides the required services and communication standards. To demonstrate competency in this unit the person will require access to: • Local area network infrastructure • Switches with various interfaces: fast-, one-, 10 gigabit- Ethernet
Context of and specific resources for assessment	This Unit focuses on configuring high-speed (high-bandwidth) channels between high-end switches. The two main methods in current use are to use One- or 10-Gigabit Ethernet connections and Ether-Channel architecture, in which up to eight Fast Ethernet or Gigabit channels (cables), are configured or trunked as a single logical channel. The breadth, depth and complexity covering planning and initiation of alternative approaches to skills or knowledge applications across a broad range of technical and/or management requirements, evaluation and coordination would be characteristic. Assessment must ensure: • The demonstration of competency may also require self-directed application of knowledge and skills, with substantial depth in some areas where judgement is required in planning and selecting appropriate equipment, services and techniques for self and others. • Applications involve participation in development of strategic initiatives as well as personal responsibility and autonomy in performing complex technical operations or organising others. It may include participation in teams including teams concerned with planning and evaluation functions. Group or team coordination may also be involved.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to

EVIDENCE GUIDE

	this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • ICAI5152B Implement risk management processes An individual demonstrating this competency would be able to: • Demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas • Analyse and plan approaches to technical problems or management requirements • Transfer and apply theoretical concepts and/or technical or creative skills to a range of situations • Evaluate information, using it to forecast for planning or research purposes • Take responsibility for own outputs in relation to

EVIDENCE GUIDE

	broad quantity and quality parameters • Take some responsibility for the achievement of group outcomes • Maintain knowledge of industry products and services Additionally, an individual demonstrating this competency would be able to: • Demonstrate understanding of ATM transfer modes, with depth in some areas • Apply solutions to a clearly defined range of problems • Identify and apply skill and knowledge to install and configure ATM infrastructure • Identify, analyse and evaluate information related to ATM • Take responsibility for outputs in relation to ATM configuration

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.

Client may include but is not limited to:	• internal departments • external organisations • clubs • individual people • internal employees
Technical requirements may be in reference to:	• business • system • platform • application

RANGE STATEMENT	
	• database • network • people in the organisation
Network may include but is not limited to:	• large and small LANs • the use of the PSTN for dial-up modems only • private lines • VPNs • Data • voice
Network protocol suites may include:	• TCP/IP (IPX/SPX, DECnet, AppleTalk are legacy protocols) • IPV6 (layer 3 protocol only)

Unit Sector(s)

Unit sector	Implement

Co-requisite units

Co-requisite units	

Competency field

Competency field	

ICAI5173B Install and configure a single-segment local area network switch

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to select, install and test a single switch on one segment of a local area network (LAN). The following units are linked and form an appropriate cluster: • ICAA5144B Determine best fit topology for a local network • ICAI5174B Install high end switches in multi switched local area networks • ICAI5176C Install and configure router

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Not Applicable

Pre-Requisites

Prerequisite units		
	ICAI2015B	Install software applications
	ICAI3101B	Install and manage network protocols

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. Determine specifications for switch	1.1.Determine and document the <i>topology</i> of the LAN 1.2.Investigate and determine current and future network <i>capacity</i> according to current and future business requirements 1.3.Determine the number and type of <i>switch</i> required, with reference to current and future network requirements 1.4.Determine the requirements for network management and security, as prescribed by organisational policy
2. Select appropriate hardware	2.1.Select the <i>switch</i> and switch operating system software version with the appropriate features according to required specifications 2.2.Choose <i>computers</i> and consider what effect on traffic servers, routers and other network devices will have, when implemented according to network requirements
3. Install switch and supporting	3.1.Assemble and mount in rack for physical security and connect <i>switch</i> and <i>peripherals</i>, in accordance

ELEMENT	PERFORMANCE CRITERIA
peripherals	with manufacturer requirements 3.2.Connect switches 3.3.Connect user to access points using cable that meets the appropriate standard 3.4.Connect power to the switch, power it up and check operation
4. Configure switch	4.1.Establish a valid network connection with other network devices 4.2.Configure a network address for the switch 4.3.Install and/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 4.4.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 4.5.Manually configure the user access ports of the switch for speed and for full- or half-duplex operation
5. Test and troubleshoot switch and network	5.1.Test the switch and other network devices in accordance with manufacturer requirements and organisational guidelines 5.2.Ensure that there is connectivity across the network 5.3.Test SNMP by unplugging some machines from the switch or powering down a switch and observe whether the SNMP management software reports these events 5.4.Make adjustments to the network, depending on test and troubleshooting results

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

REQUIRED SKILLS AND KNOWLEDGE

- Methods for troubleshooting switches (e.g. knowing how to stop user access ports 'flapping' when two switches try to auto-configure their port speed and duplex setting to match each other's settings, but are not able to synchronise with each other)
- Cabling skills to follow a hierarchical network design
- Implementation and configuration of networks
- Configuring a workstation within a network environment

Required knowledge

- Differences between standard and intelligent (i.e. configurable) switches and between switches and hubs
- Documentation skills for networks (e.g. labelling of cable terminations and developing a cut sheet or cabling map)
- Common network cable types and connectors
- Common network topologies
- Implementation and configuration of networks
- Advantages and disadvantages of switches over hubs
- Australian Computer Society Code of Ethics

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

Evidence of the following is essential:

- Assessment must confirm the ability to install switches without the network losing connectivity or failing.

To demonstrate competency in this unit the person will require access to:

- Switches
- Network devices
- Workstations and servers

EVIDENCE GUIDE	
	• Cabling
Context of and specific resources for assessment	Setting up switches is an important task for most organisations and with a diverse range of switches, care should be taken to ensure security is managed effectively. The breadth, depth and complexity covering planning and initiation of alternative approaches to skills or knowledge applications across a broad range of technical and/or management requirements, evaluation and coordination would be characteristic. Assessment must ensure: • The demonstration of competency may also require self-directed application of knowledge and skills, with substantial depth in some areas where judgement is required in planning and selecting appropriate equipment, services and techniques for self and others. • Applications involve participation in development of strategic initiatives as well as personal responsibility and autonomy in performing complex technical operations or organising others. It may include participation in teams including teams concerned with planning and evaluation functions. Group or team coordination may also be involved.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must

EVIDENCE GUIDE	
	closely reflect the workplace to enable full demonstration of competency. Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: - ICAA5144B Determine best-fit topology for a local network - ICAI5174B Install high-end switches in multi-switched local area networks - ICAI5176B Install and configure router An individual demonstrating this competency would be able to: - Demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas - Analyse and plan approaches to technical problems or management requirements - Transfer and apply theoretical concepts and/or technical or creative skills to a range of situations - Evaluate information, using it to forecast for planning or research purposes - Take responsibility for own outputs in relation to broad quantity and quality parameters - Take some responsibility for the achievement of group outcomes - Maintain knowledge of industry products and services Additionally, an individual demonstrating this

EVIDENCE GUIDE

	competency would be able to: • Demonstrate knowledge in a well-developed range of switch configurations • Apply solutions to a variety of switch-related problems • Interpret and apply available technical and network information

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.

<i>Network capacity</i>	• LAN topology support (e.g. Ethernet, AppleTalk, Token Ring, FDDI) • port bandwidth capabilities (e.g. 100 megabits per second) • hardware reliability • expandability (e.g. number of available uplink ports) • redundant power supply (AC/DC)
<i>Topology</i> may include:	• ring • star • bus • hierarchical • hybrid
<i>Switch</i> produced by the following vendors:	• Accton • Cisco • DLink • Intel • 3Com • NetGear • System 3000 Ethernet

RANGE STATEMENT	
	• Bay
Computer may include:	• laptops • workstations • servers • other devices
Peripherals may include but are not limited to:	• Printers, scanners, tape cartridges • Speakers, multimedia kits • Personal computer fax, modems • Input equipment may include mouse, touch pad, keyboard, pens • Mobile phones, palmtops and personal digital assistants (PDAs), laptops and desktop computers • Bluetooth devices, universal serial bus (USB), Firewire (IEEE 1394)
User may include:	• a person within a department • a department within the organisation • a third party
Cable may include but is not limited to:	• UTP • STP • fibre
Standard may include:	• EIA/TIA 568A • EIA/TIA 568B

Unit Sector(s)

Unit sector	Implement

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAI5174B Install high-end switches in multi-switched local area networks

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to install, configure and test high end switches, in an extended star network. The following units are linked and form an appropriate cluster: • ICAA5144B Determine best fit topology for a local network • ICAB5159B Build a security shield for a network • ICAB5160B Build and configure a server • ICAI4188B Install and maintain a server • ICAI5172B Implement backbone technologies in a local area network • ICAI5176C Install and configure router

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Not Applicable

Pre-Requisites

Prerequisite units	

Prerequisite units		
	ICAI5173B	Install and configure a single-segment local area network switch

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 required switch specifications	1.1. Gather relevant data to identify and document network architecture 1.2. Select an appropriate hierarchical model for the network 1.3. Identify switch fabric and the type and number of switches 1.4. Determine switch network topology to be installed, with reference to network architecture and network protocol types 1.5. Develop an implementation plan for new network processes 1.6. Select relevant hardware and software with reference to equipment specifications/limitations

ELEMENT	PERFORMANCE CRITERIA
	1.7. Evaluate switch purchasing options and determine most appropriate
2. Install and configure switches and routers	2.1. Install switches according to vendor guidelines, network architecture and client requirements 2.2. Configure switches to a basic level 2.3. Configure switches for VLAN operation 2.4. Configure a VLAN trunking protocol (VTP) for the switches 2.5. Configure a router to run inter-VLAN routing for the selected VLANs 2.6. Document switch configuration according to client requirements
3. Test switches	3.1. Assess the impact of the changes on the network 3.2. Prepare, schedule and execute tests 3.3. Troubleshoot the network to track, resolve, document and report errors 3.4. Make changes and resolve problems to ensure that the network is functioning properly 3.5. Back-up final switch configuration, to reflect changes 3.6. Ensure documentation and reporting meets requirements

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Installing and configuring simple computer components
- Ability to record testing results
- Ability to critically analyse details
- Ability to understand specification sheets
- Ability to organise, and assess importance and relevance of, product information
- Ability to analyse and synthesise information
- Ability to diagnose performance deviations

REQUIRED SKILLS AND KNOWLEDGE**Required knowledge**

- The operation of switches in relation to the open systems interconnect (OSI) layer (i.e. protocol stack) model. (switches operate at layer two of the OSI model.)
- Functions and features of network interface card (NIC) (e.g. MAC and IP) addresses
- Network design in relation to physical constraints and role of switches, and how to overcome constraints in terms of traffic isolation and network utilisation (e.g. microsegmentation, VLANs)
- Operation of a relevant network operating system (e.g. UNIX, Linux, Novell, Microsoft)
- Functions and features of switches, including various filtering and forwarding modes (e.g. store-and-forward, cut-through, fast-forward), switching tables, bridge learning, spanning tree algorithm (STA) and spanning tree protocol (STP)
- Advantages and disadvantages of switches in relation to network architecture and client requirements (e.g. switches offer dedicated, full-bandwidth service to users)
- Basic functions of checksums (i.e. cyclic redundancy check [CRC])
- Functions and features of transparent switching
- Australian Computer Society Code of Ethics
- Networks bridges and switches

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

Evidence of the following is essential:

- Assessment must confirm the ability to install, configure and test network switches.

To demonstrate competency in this unit the person will require access to:

- Network devices, including configurable (Ethernet LAN) switches (needed to support features such as

EVIDENCE GUIDE	
	STP, VLANs and frame forwarding modes), PCs, routers
Context of and specific resources for assessment	Generally, switches have replaced bridges in modern network design. The high port density of a switch (e.g. 24 to 48 ports), offers much more value than the few ports available in a typical bridge. Furthermore, switches offer many other performance- and security-enhancing features. The main focus of this unit is on installing and configuring LAN, not WAN switches. Although both LAN and WAN switches are used extensively in many networked environments, the predominant use lies with LAN switches. WAN switches usually operate at the edge of a LAN and as such, are mainly installed and configured by telecommunications service providers. A current trend is the use of Virtual LANs (VLANs). VLANs logically segment a network (as opposed to physically segmenting the network, via simple, non-programmable switches or hubs). The benefits of VLANs include increased network security and a more convenient method for grouping an organisation's employees into logical workgroups, even though they may work in separate physical locations of the company. High-end switches in a multi-switched LAN imply the use of trunking, where traffic from many users flows up major arterial connections in the LAN hierarchy. Thus, a trunking protocol must be implemented. The breadth, depth and complexity covering planning and initiation of alternative approaches to skills or knowledge applications across a broad range of technical and/or management requirements, evaluation and coordination would be characteristic. Assessment must ensure: • The demonstration of competency may also require self-directed application of knowledge and skills, with substantial depth in some areas where

EVIDENCE GUIDE	
	judgement is required in planning and selecting appropriate equipment, services and techniques for self and others. Applications involve participation in development of strategic initiatives as well as personal responsibility and autonomy in performing complex technical operations or organising others. It may include participation in teams including teams concerned with planning and evaluation functions. Group or team coordination may also be involved.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. - Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. - Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: ICAA5144B Determine best-fit topology for a local

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network

- ICAB5159C Build a security shield for a network
- ICAB5160B Build and configure a server
- ICAI4188B Install and maintain a server
- ICAI5172B Implement backbone technologies in a local area network
- ICAI5176B Install and configure router

An individual demonstrating this competency would be able to:

- Demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas
- Analyse and plan approaches to technical problems or management requirements
- Transfer and apply theoretical concepts and/or technical or creative skills to a range of situations
- Evaluate information, using it to forecast for planning or research purposes
- Take responsibility for own outputs in relation to broad quantity and quality parameters
- Take some responsibility for the achievement of group outcomes
- Maintain knowledge of industry products and services

Additionally, an individual demonstrating this competency would be able to:

- Demonstrate theoretical knowledge of bridges and switches
- Apply solutions to a variety of problems
- Perform processes that require a range of skills
- Interpret available information

Range Statement**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.

Software may include but is not limited to:

- commercial software applications
- organisation-specific software
- packaged software
- in-house or customised software.

Equipment may include but is not limited to:

- workstations
- personal computers
- modems and other connectivity devices
- printers
- DSL modems
- hard drives
- monitors
- switches
- hubs
- personal digital assistant (PDA)
- other peripheral devices

Network may include but is not limited to:

- large and small LANs
- national WANs
- the internet
- VPNs
- the use of the PSTN for dial-up modems only
- private lines
- data
- voice

Client may include but is not limited to:

- internal departments
- external organisations
- clubs
- individual people
- internal employees

Network topology may include:

- star
- extended star campus networks
- ring
- bus
- hierarchical

RANGE STATEMENT

	• hybrid

Unit Sector(s)

Unit sector	Implement

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAI5176C Install and configure router

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to install and configure a router to a basic level. The following units are linked and form an appropriate cluster: • ICAI5172B Implement backbone technologies in a local area network • ICAI5173B Install and configure a single segment local area network switch • ICAI5174B Install high end switches in multi switched local area networks

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Not Applicable

Pre-Requisites

Prerequisite units		
	ICAI3101B	Install and manage network protocols

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. Select and install router	1.1. Select router based on organisational needs and criteria 1.2. Assemble router and peripherals in accordance with manufacturer requirements, enterprise guidelines and protocols 1.3. Configure router according to manufacturer instructions and technical requirements, taking into account interoperability requirements with network components 1.4. Reconfigure individual workstations to operate within the new environment, if required
2. Configure and test router	2.1. Test router and peripherals in accordance with manufacturer instructions and technical requirements 2.2. Test hardware and router to ensure full functionality and interoperability 2.3. Reconfigure additional hardware as required 2.4. Make adjustments to network depending on test results

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Configuring router protocols
- Configuring network peripherals
- Selecting and installing a router
- Network testing and troubleshooting (e.g. using Ping, telnet commands)

Required knowledge

- Router functions
- Router-based network architectures
- Broadcast traffic and bandwidth
- Redundant paths
- Intelligent packet forwarding
- Routing tables
- Routing protocols and how they operate
- Dynamic routing
- Router firewalls
- Australian Computer Society Code of Ethics

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

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

Evidence of the following is essential:

- Assessment must confirm the ability to install and configure a router for optimum performance and operate the LAN, WLAN or WAN.

To demonstrate competency in this unit the person will

EVIDENCE GUIDE	
	require access to: • A network environment • A router (preferably two or more) • Documentation on the network topology
Context of and specific resources for assessment	Routers are devices or sometimes software in a computer that directs information packets to the next point in their destination. Routers are generally located at any juncture of networks, including each internet point of presence. Poorly configured routers can have significant negative consequences and care must be taken to reduce risk associated with router settings and security. The breadth, depth and complexity covering planning and initiation of alternative approaches to skills or knowledge applications across a broad range of technical and/or management requirements, evaluation and coordination would be characteristic. Assessment must ensure: • The demonstration of competency may also require self-directed application of knowledge and skills, with substantial depth in some areas where judgement is required in planning and selecting appropriate equipment, services and techniques for self and others. • Applications involve participation in development of strategic initiatives as well as personal responsibility and autonomy in performing complex technical operations or organising others. It may include participation in teams including teams concerned with planning and evaluation functions. Group or team coordination may also be involved.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1.

EVIDENCE GUIDE

	- Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. - Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: - ICAI5172B Implement backbone technologies in a local area network - ICAI5173B Install and configure a single-segment local area network switch - ICAI5174B Install high-end switches in multi-switched local area networks An individual demonstrating this competency would be able to: - Demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas - Analyse and plan approaches to technical problems or management requirements - Transfer and apply theoretical concepts and/or technical or creative skills to a range of situations - Evaluate information, using it to forecast for planning or research purposes - Take responsibility for own outputs in relation to

EVIDENCE GUIDE

	broad quantity and quality parameters • Take some responsibility for the achievement of group outcomes. • Demonstrate knowledge and competencies of configuration issues • Maintain knowledge of industry products and services Additionally, an individual demonstrating this competency would be able to: • Demonstrate understanding of routers • Apply solutions to defined routing problems • Identify and evaluate information from a variety of sources

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.

Router may include:

- Cisco 700 to the 2600 Series routers
- Cisco 800 and ISR Series routers
- Linksys routers
- Cisco uBR7200 universal broadband routers
- 3Com OfficeConnect Remote 810 ADSL
- 3Com SuperStack 400
- Netopia routers
- D-Link routers
- Motorola Vanguard Series
- Intel express Series

Peripherals may include but are not limited to:

- Printers, scanners, tape cartridges
- Speakers, multimedia kits
- Personal computer fax, modems

RANGE STATEMENT	
	• Input equipment may include mouse, touch pad, keyboard, pens • Mobile phones, palmtops and personal digital assistants (PDAs), laptops and desktop computers • Bluetooth devices, universal serial bus (USB), Firewire (IEEE 1394)
Hardware may include but is not limited to:	• workstations • personal computers • modems and other connectivity devices • DSL modems • networks • remote sites • servers
Network may include but is not limited to:	• large and small LANs • VPNs • national WANs • the internet • the use of the PSTN for dial-up modems only • private lines • data • voice
Protocols	• Novell Protocol suite; internetwork packet exchange (IPX), sequenced packet exchange (SPX), NetBIOS emulator, netware core protocol • TCP/IP; internet control message protocol (ICMP) see router protocols above, Net BT • Dynamic host configuration protocol (DHCP) • AppleTalk protocol - Phase 2 (1989) • WAN protocols (encapsulations): synchronous data link control (SDLC) (generally not used, as superseded by point-to-point protocol (PPP); binary synchronous control (BSC) high-level data link control (HDLC), advanced data communications protocol (ADCP)

Unit Sector(s)

Unit sector	Implement

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAI5196B Implement secure encryption technologies

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to ensure secure encryption is applied and monitored.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Not Applicable

Pre-Requisites

Prerequisite units		

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. Determine encryption methods	1.1. Review the security plan to determine <i>encryption</i> methods 1.2. Review a range of <i>encryption technologies</i> and rank the most appropriate options 1.3. Assess the costs associated with each <i>encryption</i> option 1.4. Document <i>encryption</i> options and costs and forward to <i>appropriate person</i> for decision
2. Implement encryption	2.1. Purchase <i>encryption technologies</i> according to business procurement procedures 2.2. Apply <i>encryption technologies</i> to the business system 2.3. Analyse the impact of the <i>encryption technologies</i> to <i>user</i> roles and responsibilities 2.4. Inform <i>user</i> of the new <i>encryption technologies</i> and the impact it has on their responsibilities
3. Monitor encryption	3.1. Analyse implementation of the <i>encryption technologies</i> 3.2. Review help desk records for problems concerning implementation and take appropriate action 3.3. Review system logs for <i>user</i> breaches 3.4. Document security breaches and notify <i>appropriate person</i>

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Surveillance analysis
- Implementation of encryption protocols
- Implementing LAN/WLAN, VPN or WAN solutions
- Ability to undertake a network security risk assessment
- Ability to develop enterprise policies and procedures

Required knowledge

- Security threats, including eavesdropping, data interception, data corruption, data falsification, authentication issues
- Organisational issues surrounding security
- Encryption strength
- Encryption types (public key, secret key, hash key)
- The functions and features of symmetric encryption, asymmetric encryption and one-way encryption
- Examples of symmetric key encryption (e.g. DES, Triple DES, Skipjack, IDEA, Blowfish)
- Examples of asymmetric key encryption (e.g. RSA)
- Asymmetric key-based algorithms and public key/private key encryption
- PKI, PGP: pretty good privacy, GnuPG
- Examples of one-way encryption (e.g. message digests [MD5, SHA]), functions and features of timestamps, functions and features of digital signatures, replay security, functions and features of access control permissions, certificate-related infrastructure (certificate authorities, registration authorities, repository services), TCP/IP protocols and applications

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

EVIDENCE GUIDE	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: • Assessment must confirm the ability to ensure encryption solutions are implemented and appropriate to the business technology environment and business needs. To demonstrate competency in this unit the person will require access to: • Servers • Encryption software
Context of and specific resources for assessment	The integrity of organisational data and sensitive documents is vital for businesses. Encryption of sensitive data is a way for organisations to protect this data. Confidentiality, integrity and availability of data are the three key goals for securing information. A number of commercial encryption technologies are available in the market. It is vital that the implementation of these technologies takes place in a methodical and informed manner. Research of available technologies is important including information available through online vendor and newsgroup sources and security forums. The breadth, depth and complexity covering planning and initiation of alternative approaches to skills or knowledge applications across a broad range of technical and/or management requirements, evaluation and coordination would be characteristic. Assessment must ensure: • The demonstration of competency may also require self-directed application of knowledge and skills, with substantial depth in some areas where judgement is required in planning and selecting appropriate equipment, services and techniques for self and others. • Applications involve participation in development of strategic initiatives as well as personal responsibility

EVIDENCE GUIDE	
	and autonomy in performing complex technical operations or organising others. It may include participation in teams including teams concerned with planning and evaluation functions. Group or team coordination may also be involved.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. - Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. - Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. An individual demonstrating this competency would be able to: - Demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas - Analyse and plan approaches to technical problems or management requirements

EVIDENCE GUIDE

	• Transfer and apply theoretical concepts and/or technical or creative skills to a range of situations • Evaluate information, using it to forecast for planning or research purposes • Take responsibility for own outputs in relation to broad quantity and quality parameters • Take some responsibility for the achievement of group outcomes • Maintain knowledge of industry products and services

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.

Encryption may include but is not limited to:

- RSA public key
- PGP (Pretty Good Privacy)
- symmetric ciphers
- asymmetric public-key ciphers
- sniffers
- PKI
- SSH
- DESlogin
- PKZIP
- secure socket layer (SSL)
- digital signatures

Appropriate person may include:

- supervisor
- teacher
- authorised business representative
- client

Encryption technologies may include:

- Authentex DataSafe
- GPG (GNU software)
- Blowfish Advanced 97

RANGE STATEMENT	
	• Crypto ActiveX Tool • Distributed management systems • PGP • Cryptainer LE
User may include:	• a person within a department • a department within the organisation • a third party

Unit Sector(s)

Unit sector	Implement

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAI5197B Install and maintain valid authentication processes

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to develop, install and maintain an authentication processes. The following unit is linked and forms an appropriate cluster: • ICAI5196B Implement secure encryption technologies

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Not Applicable

Pre-Requisites

Prerequisite units		

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. Determine authentication requirements	1.1.Determine user and enterprise security requirements with reference to enterprise security plan 1.2.Identify and analyse authentication options according to user and enterprise requirements 1.3.Select the most appropriate authentication and authorisation processes
2. Configure authentication software/tools	2.1.Create an authentication realm and reuse as required to protect different areas of the server 2.2.Add users and authorisation rules to the new realm according to business needs 2.3.Describe the user attributes and the user attribute set-up 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 and/or obtain authentication protocols as required 3.2.Develop and distribute related policies and procedures to users according to business need 3.3.Brief user on the authentication system and their responsibilities according to enterprise security plan 3.4.Apply the authentication system to network and

ELEMENT	PERFORMANCE CRITERIA
	user according to system/product requirements 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 4.2. Ensure ongoing security monitoring using incident management and reporting processes in accordance with enterprise security plan

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Ability to develop enterprise policies and procedures
- Ability to analyse enterprise security requirements and propose solutions
- Scripting
- Ability to liaise with vendors and service providers as required
- Incident management

Required knowledge

- Organisational issues surrounding security
- The function and operation of virtual private networking (VPN) concepts
- Common VPN issues, including quality of service considerations (QOS), bandwidth, dynamic security environment
- The function and operation of authentication
- The features of common password protocols (e.g. password authentication protocol (PAP), challenge handshake authentication protocol (CHAP), challenge phrases, RADIUS authentication)
- Features and function of token cards
- Features and function of authentication adaptors
- Features and function of biometric authentication adaptors
- Features and function of digital certificates (e.g. VeriSign, X.509, SSL)
- Resource accounting through authentication

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	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: - Assessment must confirm the ability to ensure authentications solutions are deployed and appropriate to the business technology environment and business needs. To demonstrate competency in this unit the person will require access to: - Servers
Context of and specific resources for assessment	Security of information and personnel is of increasing importance to all organisations. Authentication is a control or protective measure put into place by an organisation to reduce the vulnerability of the system. Authentication controls include passwords, PINs, smart cards and biometric devices. The breadth, depth and complexity covering planning and initiation of alternative approaches to skills or knowledge applications across a broad range of technical and/or management requirements, evaluation and coordination would be characteristic. Assessment must ensure: The demonstration of competency may also require self-directed application of knowledge and skills, with substantial depth in some areas where judgement is required in planning and selecting appropriate equipment, services and techniques for self and others.

EVIDENCE GUIDE	
	Applications involve participation in development of strategic initiatives as well as personal responsibility and autonomy in performing complex technical operations or organising others. It may include participation in teams including teams concerned with planning and evaluation functions. Group or team coordination may also be involved.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. - Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. - Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: ICAI5196B Implement secure encryption technologies An individual demonstrating this competency would be

EVIDENCE GUIDE

	able to: • Demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas • Analyse and plan approaches to technical problems or management requirements • Transfer and apply theoretical concepts and/or technical or creative skills to a range of situations • Evaluate information, using it to forecast for planning or research purposes • Take responsibility for own outputs in relation to broad quantity and quality parameters • Take some responsibility for the achievement of group outcomes • Maintain knowledge of industry products and services

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.

Server may include:

- Application/web servers
- BEA Weblogic servers
- IBM VisualAge and WebSphere
- Novell NDS servers
- Email servers
- File and print servers
- FTP servers
- Firewall servers
- Proxy/cache servers

User may include:

- a person within a department
- a department within the organisation
- a third party

RANGE STATEMENT

Network may include but is not limited to:

- large and small LANs
- national WANs
- the internet
- VPNs
- the use of the PSTN for dial-up modems only
- private lines
- data
- voice

Unit Sector(s)

Unit sector	Implement

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAI5212B Implement quality assurance process for websites

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to develop and conduct a planned and systematic pattern of actions required to provide adequate confidence that websites conform to relevant standards and fulfil the client expectations.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Not Applicable

Pre-Requisites

Prerequisite units		

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. Establish standards	1.1. Identify appropriate regulatory, accessibility, industry and organisational compliance standards 1.2. Develop, quantify, document and disseminate measurable <i>performance standards</i>, from the standards identified above, for all documents 1.3. Establish a centralised, distributed or combined quality assurance methodology 1.4. Determine the specification from which the website was developed 1.5. Establish guidelines for controlling, updating and loading new <i>content</i> onto the website
2. Apply standards and track performance	2.1. Apply all processes as an integral part of the website development process 2.2. Validate site, all updates and new content against <i>performance standards</i>, using a wide variety of <i>browsers</i> and <i>tools</i> 2.3. Document and disseminate results 2.4. Provide feedback to web authors, <i>users</i> and administrators on a routine and regular basis
3. Develop and apply continuous improvement process	3.1. Provide <i>performance standards</i> feedback to developers, maintainers and/ or administrators 3.2. Identify below-average or unacceptable <i>performance standards</i> and apply appropriate measures in order to improve performance 3.3. Provide channels for interaction, feedback and suggestions from site users, administrators, developers and maintainers

ELEMENT	PERFORMANCE CRITERIA
	3.4. Conduct responses to interaction, feedback and suggestion providers 3.5. Develop procedures to identify whether feedback and suggestions are applied and acted upon 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 4.2. Document quality assurance results 4.3. Document and control changes to procedures, processes and results

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Website development
- Website analysis for compliance to legislation and best practice
- Technical test design to improve the design and maintenance processes and to ensure that all the client's elements are incorporated into the design
- Test implementation of the website
- Test evaluation
- Evaluation feedback
- Evaluation analysis

Required knowledge

- Website architecture and website security
- Workload metrics and technical performance measurement
- Business process design and customer and business liaison
- Website accessibility and equity legislation
- Copyright and intellectual property
- Provisions of relevant privacy legislation

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	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: • Assessment must confirm the competency to identify, establish and implement appropriate quality assurance standards to the website. A continuous improvement process must also be developed and implemented. Standards should be quantitative and applied universally wherever possible. Quality assurance standards should be well documented and disseminated. To demonstrate competency in this unit the person will require access to: • Web servers • E-business website • Analysis software • Automatic testing software • Documentation for appropriate regulatory, industry compliance and accessibility standards
Context of and specific resources for assessment	This unit looks at the overarching quality assurance processes that impact the design, development and maintenance of a website. Procedures are examined and if necessary, modified in order to quality assure the subject website to appropriate industry standards having regard to client business requirements. In the workplace continuous improvement is a vital part of adjusting processes to evolving standards and industry best practice in quality assurance. The breadth, depth and complexity covering planning and initiation of alternative approaches to skills or knowledge applications across a broad range of technical and/or management requirements, evaluation and coordination would be characteristic.

EVIDENCE GUIDE	
	Assessment must ensure: • The demonstration of competency may also require self-directed application of knowledge and skills, with substantial depth in some areas where judgement is required in planning and selecting appropriate equipment, services and techniques for self and others. • Applications involve participation in development of strategic initiatives as well as personal responsibility and autonomy in performing complex technical operations or organising others. It may include participation in teams including teams concerned with planning and evaluation functions. Group or team coordination may also be involved.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or

EVIDENCE GUIDE	
	scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. An individual demonstrating this competency would be able to: • Demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas • Analyse and plan approaches to technical problems or management requirements • Transfer and apply theoretical concepts and/or technical or creative skills to a range of situations • Evaluate information, using it to forecast for planning or research purposes • Take responsibility for own outputs in relation to broad quantity and quality parameters • Take some responsibility for the achievement of group outcomes • Maintain knowledge of industry products and services Additionally, an individual demonstrating this competency would be able to: • Demonstrate understanding of specialised knowledge of website design,, with depth in areas, such as features that enhance site response times • Analyse and diagnose website design in order to establish quality control procedures and so identify areas requiring improvement • Demonstrate a command of wide-ranging, highly specialised technical, creative or conceptual skills • Generate website design ideas through the analysis of information and concepts • Demonstrate accountability for group outcomes within broad parameters of reviewing website design and effectiveness and quality assurance processes

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.

Performance standards - common performance measures include:

- timeliness
- structural quality
- content accuracy and consistency
- response time and latency
- server response time

Content may include:

- information and interactive features, such as product information, company information, copyright and disclaimer notices, site map, frequently asked questions, what's new, customer-specific information, customer only information, error messages, instructions, feedback mechanisms, reference pages, forms, background articles, ratings/rankings/testimonials/quotes from reviews, hyperlink titles

Browsers may include but is not limited to:

- Netscape Navigator
- Internet Explorer
- Mozilla
- Opera
- Galleon
- Phoenix
- Konqueror
- Lynx

Tools may include but are not limited to:

- spell check
- CSS check
- HTML validating
- link checking software

Users may include:

- a person within a department
- a department within the organisation
- a third party

Unit Sector(s)

Unit sector	Implement

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAI5216B Monitor and improve knowledge management system

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to monitor and improve a knowledge management system.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Not Applicable

Pre-Requisites

Prerequisite units		

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. Investigate knowledge management system	1.1. Review structure of existing knowledge management system and develop an understanding of its operation 1.2. Interview <i>clients</i> and staff to determine <i>information requirements</i> 1.3. Identify frequently requested <i>information</i> 1.4. Create a structure for organising <i>information</i> 1.5. Document structure and forward to appropriate person for approval
2. Create knowledge management system	2.1. Retrieve identified <i>information</i> 2.2. Organise information to follow the approved structure 2.3. Document information structure
3. Distribute and monitor knowledge management system documentation	3.1. Distribute knowledge management system documentation to <i>clients</i> and staff 3.2. Gather feedback from <i>clients</i> and staff and incorporate to improving <i>systems and processes</i> 3.3. Monitor use of knowledge management system to determine effectiveness 3.4. Make changes to knowledge management system 3.5. Make knowledge management system documentation available in an accessible location 3.6. Implement and monitor <i>process improvements</i>

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Evaluating client information needs and matching them to appropriate resources
- Eliciting information from users (e.g. interviews, surveys, open and closed interview questions)
- Short- and long-term capacity planning
- Business analysis skills
- Communicating with clients
- Modelling of data processes
- Research, review and renewal of business knowledge systems

Required knowledge

- Information management systems (e.g. databases, structured query languages, web search engines)
- Information sources in all types of formats (e.g. electronic networks and remote databases)
- Knowledge and application of database structures and organisation
- Principles of database structure and construction
- Reviewing new systems for organising 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.

Overview of assessment

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

Evidence of the following is essential:

- Assessment must confirm the ability to monitor and implement strategies to improve a new or existing knowledge management system. The person must ensure that staff and/or clients are aware of relevant information, can access the required information and that all and only relevant information is being

EVIDENCE GUIDE	
	accessed. To demonstrate competency in this unit the person will require access to: • Databases • Organisational information requirements • Information repositories
Context of and specific resources for assessment	Effective knowledge management processes. Use technology to organise, manage and distribute all types of information. This may sometimes be tailored to meet particular user needs. The ability to reflect on current practices and processes promotes objectivity in gauging how to update and improve the system. The effective technological management of an organisation's intellectual assets is of increasing value and importance to wider business objectives and can provide efficiency, innovation and competitive advantage to the business. The breadth, depth and complexity covering planning and initiation of alternative approaches to skills or knowledge applications across a broad range of technical and/or management requirements, evaluation and coordination would be characteristic. Assessment must ensure: • The demonstration of competency may also require self-directed application of knowledge and skills, with substantial depth in some areas where judgement is required in planning and selecting appropriate equipment, services and techniques for self and others. • Applications involve participation in development of strategic initiatives as well as personal responsibility and autonomy in performing complex technical operations or organising others. It may include participation in teams including teams concerned with planning and evaluation functions. Group or team coordination may also be involved.
Method of assessment	The purpose of this unit is to define the standard of

EVIDENCE GUIDE

	performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1 • Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. An individual demonstrating this competency would be able to: • Demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas • Analyse and plan approaches to technical problems or management requirements • Transfer and apply theoretical concepts and/or technical or creative skills to a range of situations • Evaluate information, using it to forecast for planning or research purposes • Take responsibility for own outputs in relation to broad quantity and quality parameters

EVIDENCE GUIDE

	• Take some responsibility for the achievement of group outcomes • Maintain knowledge of industry products and services

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.

Client may include but is not limited to:

- internal departments
- external organisations
- clubs
- individual people
- internal employees

Requirements may be in reference to:

- business
- system
- platform
- application
- database
- network
- people in the organisation

Information may include but is not limited to:

- documents
- test pages
- web pages
- other output

Systems and processes may include:

- Computer systems (hardware and software)
- Networks (local, national or international)
- Workflows, associated routines and operating procedures

Process improvements may include:

- Reduction of production costs
- Improved value-adding
- Improved international or domestic

RANGE STATEMENT

	competitiveness
	• New products • New or improved business processes • Improved customer relationships

Unit Sector(s)

Unit sector	Implement

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAI5250A Develop, implement and evaluate system and application security

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to develop, implement and evaluate information security in an IT system or application during the System Development Life Cycle (SDLC) prior to the Operations and Maintenance phase. The practice of these protocols ensures that the operation of IT systems and software does not present undue risk to the enterprise and its information assets. This objective is accomplished through risk assessment; risk mitigation; security control selection, implementation and evaluation; and software security standards compliance. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		
	ICAB4225B	Automate processes

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. Develop system and application security	1.1. Specify the enterprise and <i>IT system or application</i> security policies 1.2. Specify the security requirements for the <i>IT system or application</i> 1.3. Author an IT system or application security plan in accordance with the enterprise and <i>IT system or application</i> security policies 1.4. Identify the standards against which to engineer the <i>IT system or application</i> 1.5. Specify the criteria for performing risk-based audits against the IT system or application 1.6. Develop processes and procedures to mitigate the introduction of <i>vulnerabilities</i> during the engineering process

ELEMENT	PERFORMANCE CRITERIA
	1.7. Integrate applicable information security requirements, controls, processes, and procedures into IT system and application design specifications in accordance with established requirements.
2. Implement system and application security	2.1. Execute the enterprise and IT system or application security policies 2.2. Apply and verify compliance with the identified standards against which to engineer the IT system or application 2.3. Perform the processes and procedures to mitigate the introduction of vulnerabilities during the engineering process 2.4. Perform secure configuration management practices 2.5. Validate that the engineered IT system and application security controls meet the specified requirements 2.6. Reengineer security controls to mitigate vulnerabilities identified during the operations phase 2.7. Ensure the integration of information security practices throughout the SDLC process 2.8. Document IT system or application security controls addressed within the system 2.9. Practise secure coding practices
3. Evaluate system and application security	3.1. Review new and existing risk management technologies to achieve an optimal enterprise risk posture 3.2. Review new and existing IT security technologies to support secure engineering across the SDLC phases 3.3. Continually assess the effectiveness of the information system's controls based on risk management practices and procedures 3.4. Assess and evaluate system compliance with corporate policies and architectures 3.5. Assess system maturation and readiness for promotion to the production stage 3.6. Collect lessons learned from integration of information security into the SDLC and use to identify improvement actions 3.7. Collect, analyse and report performance measures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Reading and interpreting program specifications
- Translating requirements from problem space to machine space
- Integrated development environment usage
- Basic programming techniques
- Internal (code) documentation techniques
- Basic debugging techniques
- Testing techniques
- Basic documentation techniques

Required knowledge

- Programming language
- Small size application development
- Data structures
- GUI interfaces
- Best practice in application of language syntax rules

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

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

Evidence of the following is essential:

- IT system or application security plan
- Application and verifying compliance with the identified standards
- Practise secure coding practices
- Assess and evaluate system compliance

Context of and specific resources for

Assessment must ensure:

EVIDENCE GUIDE	
assessment	• Author an IT system or application security plan • Apply and verify compliance with the identified standards • Ensure the integration of information security practices • Re-engineer security controls to mitigate vulnerabilities • Assess and evaluate system compliance • To demonstrate competency in this unit the following resources will be needed: • IT business specifications • Information on the security environment including relevant laws/legislation, existing organisational security policies, organisational expertise and knowledge • Possible security environment also includes the threats to security that are, or are held to be, present in the environment • Risk analysis tools/methodologies • IT security assurance specifications • Application and system scenarios
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. The following assessment method is appropriate for this unit: • Competency in this unit should to be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency.

EVIDENCE GUIDE	
	Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. Additionally, an individual demonstrating this competency would be able to: • Demonstrate understanding of specialised knowledge with depth in some areas • Analyse, diagnose, design and execute judgement across a broad range of technical or management functions • Generate ideas through the analysis of information and concepts at an abstract level • Demonstrate a command of wide-ranging, highly specialised technical, creative or conceptual skills • Demonstrate accountability for personal outputs within broad parameters • Demonstrate accountability for personal and group outcomes within broad parameters.

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.

RANGE STATEMENT	
Established requirements may include:	• standards • policies • regulations • and laws
IT system or application may include:	• program • applications • collection of programs • integrated suite of programs • operating system and system software
Vulnerabilities may include:	• errors in application or system • trapdoors • undefined variables • buffer overflows • undefined or undocumented code • untested code • poor design

Unit Sector(s)

Unit sector	

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAI5252A Develop, implement and evaluate an incident response plan

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required for the application of the knowledge and understanding of the process to prepare and prevent, detect, contain, eradicate, and recover, and apply lessons learned from incidents impacting the mission of an organisation. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		
	ICAP4037B	Contribute to the development of a strategy plan
	ICAI5152B	Implement risk management processes

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. Develop the incident response program	1.1. Develop the <i>incident</i> management policy 1.2. Identify the services the <i>incident</i> response team should provide 1.3. Create incident response plans in accordance with security policy and organisational goals 1.4. Develop procedures for performing incident handling and reporting 1.5. Create <i>incident</i> response exercises and red teaming activities 1.6. Develop specific processes for collecting and protecting forensic evidence during incident response 1.7. Specify the incident response staffing and training requirements 1.8. Establish incident management measurement program
2. Implement the incident response program	2.1. Apply response actions in reaction to security incidents in accordance with established policy, plans, and procedures 2.2. Respond to and report incidents

ELEMENT	PERFORMANCE CRITERIA
	2.3. Assist in collecting, processing, and preserving evidence according to requirements 2.4. Execute incident response plans 2.5. Execute red teaming activities and incident response exercises 2.6. Ensure lessons learned from incidents are collected in a timely manner and are incorporated into plan reviews 2.7. Collect, analyse, and report incident management measures
3. Evaluate the incident response program	3.1. Assess the efficiency and effectiveness of the incident response program activities and implement changes as required 3.2. Examine the effectiveness of red teaming and incident response tests, training, and exercises 3.3. Assess the effectiveness of communications between incident response team and related internal and external organisations and implement changes where appropriate 3.4. Identify incident management improvement actions based on assessments of effectiveness

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Logistic management skills for identified resources and procedures skills
- Negotiation skills in relation to self and other team members and applied to a defined range of predictable problems
- Project planning skills in relation to scope, time, cost, quality, communications, risk analysis and management
- Research skills for specifying, analysing and evaluating broad features of a particular business domain and best practice in system development
- Facilitation and presentation skills in relation to transferring and collecting information and gaining consensus on concepts

Required knowledge

REQUIRED SKILLS AND KNOWLEDGE

- Broad knowledge of basic engineering (e.g. when evaluating threats)
- Broad knowledge of fire/safety knowledge (e.g. when formulating prevention and recovery strategy)
- Detailed knowledge of back-up methodologies (e.g. when formulating prevention and recovery strategy)
- Broad knowledge of systems engineering (e.g. when evaluating threats)
- Specific components of the business planning process relevant to the development of IT business solutions (e.g. when evaluating impact of system on business continuity)
- Broad knowledge of the client business domain (e.g. when evaluating impact of system on business continuity)
- Detailed knowledge of the system's current functionality (e.g. when evaluating impact of system on business continuity)

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

Evidence of the following is essential:

- Develop the Incident response program
- the Incident response activation and operation
- Evaluation of the incident response

Context of and specific resources for assessment

Assessment must ensure:

- The creation of incident response plans
- The development of procedures for performing incident handling and reporting
- Application of response actions in reaction to security incidents
- Identify incident management improvement actions

To demonstrate competency in this unit the following resources will be needed:

EVIDENCE GUIDE	
	• IT business specifications • Information on the security environment including relevant laws/legislation, existing organisational security policies, organisational expertise and knowledge • Possible security environment also includes the threats to security that are, or are held to be, present in the environment • Risk analysis tools/methodologies • IT security assurance specifications • Incident scenarios
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. The following assessment method is appropriate for this unit: • Competency in this unit should to be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for	Holistic assessment with other units relevant to the

EVIDENCE GUIDE**assessment**

industry sector, workplace and job role is recommended.

Additionally, an individual demonstrating this competency would be able to:

- Demonstrate understanding of specialised knowledge with depth in some areas
- Analyse, diagnose, design and execute judgement across a broad range of technical or management functions
- Generate ideas through the analysis of information and concepts at an abstract level
- Demonstrate a command of wide-ranging, highly specialised technical, creative or conceptual skills
- Demonstrate accountability for personal outputs within broad parameters
- Demonstrate accountability for personal and group outcomes within broad parameters.

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.

Incident may include:

- fire
- theft of data or property
- misuse or improper access
- unauthorised publication
- other physical damage

According to requirements *may include*:

- standards
- procedures
- directives
- policy
- regulations

RANGE STATEMENT

	• law

Unit Sector(s)

Unit sector	Implement

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAI5253A Implement and evaluate systems for regulatory and standards compliance

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to implement and evaluate the application of the principles, policies, and procedures that enable an enterprise to meet applicable information security laws, regulations, standards, and policies to satisfy statutory requirements, perform industry-wide best practices, and achieve its information security program goals. Design aspects are appropriately covered in ICAA6052B Design an IT security framework. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		
	ICAA4041C	Determine and confirm client

Prerequisite units		
		business expectations and needs

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. Implement compliance systems	1.1. Monitor and assess the information security compliance practices of all personnel in accordance with enterprise policies and procedures 1.2. Maintain ongoing and effective communications with key compliance stakeholders 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 the compliance systems	2.1. Assess the effectiveness of enterprise compliance program controls against appropriate benchmarks 2.2. Assess the effectiveness of the information security compliance process and procedures for process improvement and implement changes where

ELEMENT	PERFORMANCE CRITERIA
	appropriate 2.3.Compile, analyse, and report performance measures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Researching skills related to security
- Ability to articulate complex security scenarios in a clear concise manner relevant to all levels of the organisation
- Skills in relation to analysis, evaluation and presentation of information
- Group facilitation and presentation skills in relation to transferring and collecting information

Required knowledge

- Current industry-accepted hardware and software products, including broad knowledge of security features and capabilities
- Accurate and in-depth knowledge of the client business domain
- Broad general knowledge of privacy issues and legislation (e.g. when integrating legal requirements with IT security)
- Risk analysis relating to IT security, including broad knowledge of general security issues incorporating substantial depth in some areas
- Detailed knowledge of operating systems, including strengths and weaknesses over lifetime of product
- Awareness of legislation relating to IT security

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.

EVIDENCE GUIDE	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: • Assessment must confirm sufficient knowledge of the basic elements of legal obligations with respect to privacy and the specific application of security issues. • Assessment must confirm the ability to implement and evaluate compliance requirements
Context of and specific resources for assessment	Assessment must ensure: • The ability to monitor and assess the information security compliance • Conduct internal audits • Assess the effectiveness of enterprise compliance • Compile, analyse, and report performance measures To demonstrate competency in this unit the following resources will be needed: • IT business specifications • Information on the security environment including relevant laws/legislation, existing organisational security policies, organisational expertise and knowledge • Possible security environment also includes the threats to security that are, or are held to be, present in the environment • Risk analysis tools/methodologies • IT security assurance specifications
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. The following assessment method is appropriate for this unit:

EVIDENCE GUIDE

	- Competency in this unit should to be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. - Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. Additionally, an individual demonstrating this competency would be able to: - Demonstrate understanding of specialised knowledge with depth in some areas - Analyse, diagnose, design and execute judgement across a broad range of technical or management functions - Generate ideas through the analysis of information and concepts at an abstract level - Demonstrate a command of wide-ranging, highly specialised technical, creative or conceptual skills - Demonstrate accountability for personal outputs within broad parameters - Demonstrate accountability for personal and group outcomes within broad parameters.

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.	
Key compliance stakeholders may include:	• internal departments • external organisations • individual people • employees
Appropriate benchmarks may include:	• applicable laws • regulations • standards • policies • procedures

Unit Sector(s)

Unit sector	Implement

Co-requisite units

Co-requisite units	

Competency field

Competency field	

ICAI6187B Implement change management processes

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to apply techniques that facilitate the planning, implementation and monitoring of information technology change.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Not Applicable

Pre-Requisites

Prerequisite units		

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 IT system changes	1.1. Research and develop change procedures and conventions 1.2. Develop IT change management plan 1.3. Identify key personnel responsible for change management policies and procedures 1.4. Train staff and management in change management procedures and policies 1.5. Evaluate current IT system to determine changing user or business patterns 1.6. Identify key personnel responsible for authorising and implementing change management plan
2. Identify technology system change needs	2.1. Determine current IT benchmarks 2.2. Compare identified needs against performance benchmarks to identify possible changes 2.3. Assess proposed changes to determine impact 2.4. Notify key personnel of necessary change
3. Implement change	3.1. Plan change schedule 3.2. Prioritise changes and allocate resources 3.3. Implement change management plan and procedures 3.4. Involve stakeholders in the implementation process 3.5. Capture new performance benchmarks to measure changes 3.6. Ensure appropriate liaison methods are used 3.7. Identify training requirements 3.8. Notify stakeholders of change
4. Monitor and review implementation	4.1. Measure change performance against new benchmarks

ELEMENT	PERFORMANCE CRITERIA
	4.2. Submit performance results to <i>stakeholders</i> 4.3. Obtain sign-off on changes 4.4. Provide appropriate documentation and reporting

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Information technology related to organisational analysis
- Data gathering and analysis skills
- Communication skills for stakeholder engagement
- Remote and local administration capabilities
- Prevention and monitoring of system security
- Version back-up and storage
- Directory management

Required knowledge

- Information technology systems
- Internet and internetworking architecture
- Server access security procedures and general security issues relating to a particular operating system
- Performance benchmarking
- Change management principles

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

EVIDENCE GUIDE	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: • Assessment must confirm the ability to plan for, implement, monitor and review change and apply guidelines and policies to the change management process. • The demonstration of competency in this unit necessitates the identification of elements that require changing, and planning of a change management intervention. Complex issues of version management and maintaining compliance with existing accessibility and other policies also need to be demonstrated. To demonstrate competency in this unit the person will require access to: • International standards • Operation data from an organisation • Needs analysis data • Organisational planning guidelines • Version control guidelines
Context of and specific resources for assessment	Implementing change management processes for an IT system may in some cases be a complex and large undertaking involving analysis, diagnosis, design, planning, execution and evaluation across a broad range of technical functions, including development of new criteria or applications or knowledge or procedures. Significant technical judgement and leadership will be required in complex technological change management processes. The in-depth review of technical systems across a wide and often unpredictable variety of contexts may be necessary for determining appropriate strategies. Contributions to the development of significant test plans will be involved and accountability and responsibility for self and others in achieving the outcomes will be necessary. The breadth, depth and complexity involving analysis,

EVIDENCE GUIDE

	design, planning, execution and evaluation across a range of technical and/or management functions including development of new criteria or applications or knowledge or procedures would be characteristic. Assessment must ensure: • The demonstration of competency may also require application of a significant range of fundamental principles and complex techniques across a wide and often unpredictable variety of contexts in relation to either varied or highly specific functions. Contribution to the development of a broad plan, budget or strategy may be involved and accountability and responsibility for self and others in achieving the outcomes may also be characteristic. • Applications involve significant judgement in planning, design, technical or leadership/guidance functions related to products, services, operations or procedures would be common.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Some organisations may be quality certified and have well documented standards for addressing quality while others will not. In a simulated environment best practice workplace examples should be used.

EVIDENCE GUIDE

	Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. An individual demonstrating this competency would be able to: - Demonstrate understanding of specialised knowledge with depth in some areas - Analyse, diagnose, design and execute judgement across a broad range of technical or management functions - Generate ideas through the analysis of information and concepts at an abstract level - Demonstrate a command of wide-ranging, highly specialised technical, creative or conceptual skills - Demonstrate accountability for personal outputs within broad parameters - Demonstrate accountability for personal and group outcomes within broad parameters - Maintain knowledge of industry products and services

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

RANGE STATEMENT	
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.	
Requirements may be in reference to:	• business • system • application • network • people in the organisation
User may include:	• a person within a department • a department within the organisation • a third party
Change procedures	• May be verbal, documented, process based, socially based or incremental, and may be the result of an impact on quality, cost or OH&S • May include formal procedures that must be adhered to, such as check points and sign-offs with documented procedures and templates; implementation of financial control mechanisms; communication with stakeholders; dispute resolution and modification procedures; and processes for determining size and cost.
Benchmarks may include:	• technical • cost savings • performance • quality
Stakeholders may include but are not limited to:	• end user • internal or external client • government body • corporate body • community groups
Liaison methods may include but are not limited to:	• Planning workshops • Management reviews • Web information portals • CRM technologies • Written reports • Group information sessions • Needs analysis surveys • Email • Telephone calls

RANGE STATEMENT

	• Newsletters

Unit Sector(s)

Unit sector	Implement

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAP4037B Contribute to the development of a strategy plan

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to participate in the planning process and to contribute to the development of a strategic plan. The following unit is linked and forms an appropriate cluster: ICAW4026B Coordinate and maintain work teams No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		
	ICAA4041C	Determine and confirm client business expectations and needs

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 for strategy	1.1. Form a planning committee and clarify the roles of people involved in the process 1.2. Identify issues that the planning process should address 1.3. Identify the <i>information</i> that must be collected
2. Investigate the current environment	2.1. Investigate the mission and vision statements of the organisation 2.2. Investigate the current internal and external environment of the organisation
3. Participate in feedback session	3.1. Identify the most important issues facing the organisation, using the information gathered 3.2. Undertake a review session with <i>appropriate person(s)</i> to confirm issues identified 3.3. Identify <i>objectives</i> and strategies for the organisation
4. Finalise and validate plan	4.1. Create a written plan to document the mission, vision, issues, <i>objectives</i> and strategies of the organisation 4.2. Submit the written plan to <i>appropriate person(s)</i> for

ELEMENT	PERFORMANCE CRITERIA
	approval 4.3. Review feedback and make alterations where appropriate

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Problem solving skills for a defined range of predictable problems found when contributing to the development of a strategic plan
- Negotiation skills in relation to other team members and applied to a defined range of predictable problems, such as during the analysis process
- Research skills for identifying, analysing and evaluating broad features of a particular business domain
- Project planning skills in relation to set benchmarks and identified scope, such as contributing to the identification of business strategy, vision, goals and objectives and confirming that the proposed project will come in on time and within budget
- Teamwork skills involve contribution to solutions and goals of a non-routine or contingency nature
- Report writing skills for business requiring depth in some areas, analysis and evaluation of information in a defined range of areas and preparation of presentation materials in plain English

Required knowledge

- Current business practices in relation to preparing reports, particularly for contributing to the development of a strategic plan that identifies the final expected results and details how these results will be achieved
- Understanding of components of the business planning process relevant to the development of strategic plans
- Basic knowledge of quality assurance practices
- Basic knowledge of information gathering techniques

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

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

Evidence of the following is essential:

- Assessment must confirm the ability to identify issues, goals and outcomes that meet the requirements of the stakeholders.

To demonstrate competency in this unit the learner will require access to:

- Detailed information relating to business current needs and project requirements
- A client expectations brief
- Business objectives

Context of and specific resources for assessment

The breadth, depth and complexity of knowledge and skills in this competency would cover a broad range of varied activities or application in a wider variety of contexts most of which are complex and non-routine. Leadership and guidance would be involved when organising activities of self and others as well as contributing to technical solutions of a non-routine or contingency nature.

Assessment must ensure:

- Performance of a broad range of skilled applications including the requirement to evaluate and analyse current practices, develop new criteria and procedures for performing current practices and provision of some leadership and guidance to others in the application and planning of the skills would be characteristic.
- A clear demonstration of participation in development of strategic initiatives, as well as personal responsibility and autonomy in performing complex technical operations (organising others is less important to this unit of competency) is essential for development of a strategy plan.

EVIDENCE GUIDE**Method of assessment**

The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1.

- Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency.
- Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.

Guidance information for assessment

Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example:

- ICAW4026B Coordinate and maintain work teams

An individual demonstrating this competency would be able to:

- Demonstrate understanding of a broad knowledge base incorporating some theoretical concepts
- Apply solutions to a defined range of unpredictable problems
- Identify and apply skill and knowledge areas to a wide variety of contexts, with depth in some areas
- Identify, analyse and evaluate information from a variety of sources
- Take responsibility for own outputs in relation to

EVIDENCE GUIDE

	specified quality standards • Take limited responsibility for the quantity and quality of the output of others • Maintain knowledge of industry products and services

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.

Information may include but is not limited to:

- system functionality
- geography
- environment
- client user
- cost constraints
- competitors

Appropriate person may include:

- supervisor
- teacher
- authorised business representative
- client

Objectives may be contained in the following:

- Business strategy
- Business planning document
- Client expectations brief

Unit Sector(s)

Unit sector	Strategy Planning

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAP5036B Determine appropriate IT strategies and solutions

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required during the initial planning phase to assist in determining the best IT solution as well as defining the basic goals of the solution and providing the basis for a high level project work plan. The following units are linked and form an appropriate cluster: • ICAP5039B Match IT needs with the strategic direction of the enterprise • ICAA5151B Gather data to identify business requirements No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units	

Prerequisite units		
	ICAP4037B	Contribute to the development of a strategy plan

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. Evaluate IT needs of the organisation	1.1. Conduct an analysis process that determines the organisation's current needs and projected IT requirements 1.2. Review organisational environment and relevant industry changes and trends 1.3. Determine IT goals, objectives and future requirements 1.4. Prepare information for <i>appropriate person(s)</i> to determine scope with top-level management
2. Contribute to the development of the project goals and objectives	2.1. Determine project scope according to agreed brief 2.2. Align the project goals with the IT goals of the organisation

ELEMENT	PERFORMANCE CRITERIA
	2.3. Determine the impact the system or changes will have on the organisation 2.4. Document project, goals and impact of changes according to requirements
3. Determine best IT systems solution	3.1. Evaluate a range of IT systems solutions according to project goals 3.2. Define the high-level hardware, software and communications environment necessary for the proposed systems solution 3.3. Develop a feasibility study and a cost-benefit analysis of the proposed solution 3.4. Ensure that the proposed solution aligns with the organisation's strategic plan 3.5. Forward feasibility study and cost-benefit analysis document to appropriate person for approval/sign-off

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Problem solving skills for a defined range of predictable problems, such as identifying the best IT systems solution and defining the basic goals of the system
- Negotiation skills in relation to self and other team members and applied to a defined range of predictable problems, such as negotiating the best IT systems solution and defining the basic goals of the system
- Research skills for identifying, analysing and evaluating broad features of a particular business domain and best practice in system development and identifying business objectives and future requirements and business continuity impact
- Project planning skills in relation to set benchmarks and identified scope in relation to contributing to a high-level project work plan
- Teamwork skills involve the contribution to solutions and goals of a non-routine or contingency nature
- Report writing skills for business requiring depth in some areas, analysis and evaluation of information in a defined range of areas, such as the contribution of information for development of a strategy report

REQUIRED SKILLS AND KNOWLEDGE

Required knowledge

- Broad knowledge of two or more current industry systems development methodologies
- Current business practices in relation to preparing reports and group interview processes
- Components of the business planning process relevant to the development of IT business solutions
- Current industry accepted hardware and software products, with broad knowledge of general features and capabilities of technology
- The role and degree of stakeholder involvement in the development of the IT strategy
- Specific client business requirements in relation to proposed IT solutions
- Current business practices in relation to quality assurance practices for identifying and recommending IT solutions
- Feasibility and cost-benefit analysis and identifying information sources for a cost-benefit analysis

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

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

Evidence of the following is essential:

- Assessment must confirm the ability to meet client requirements by ensuring that the recommended strategies and solutions are consistent with overall business objectives.

To demonstrate competency in this unit the learner will require access to:

- Detailed information relating to business current needs and project requirements
- A client expectations brief

EVIDENCE GUIDE	
	• Business objectives • Business risks • Information on a range of IT business solutions The learner will need access to the outcomes of the business analysis process.
Context of and specific resources for assessment	The breadth, depth and complexity covering planning and initiation of alternative approaches to skills or knowledge applications across a broad range of technical and/or management requirements, evaluation and coordination would be characteristic. Applications involve participation in development of strategic initiatives as well as personal responsibility and autonomy in performing complex technical operations or organising others. It may include participation in teams including teams concerned with planning and evaluation functions. Group or team coordination may also be involved. Assessment must ensure: • self-directed application of knowledge and skills, with substantial depth in database design and development where judgement is required in planning and selecting appropriate equipment, services and techniques for self and others. • The learner will demonstrate participation in development of strategic initiatives, as well as personal responsibility and autonomy in performing complex technical operations.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should be assessed using

EVIDENCE GUIDE

	summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • ICAP6038B Develop strategic and action plans • ICAP5039B Match IT needs with the strategic direction of the enterprise • ICAA5151B Gather data to identify business requirements An individual demonstrating this competency would be able to: • Demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas • Analyse and plan approaches to technical problems or management requirements • Transfer and apply theoretical concepts and/or technical or creative skills to a range of situations • Evaluate information, using it to forecast for planning or research purposes • Take responsibility for own outputs in relation to broad quantity and quality parameters • Take some responsibility for the achievement of group outcomes • Maintain knowledge of industry products and services

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.	
<i>Hardware</i> may include but is not limited to:	• workstations • personal computers • modem or other connectivity device • networks • DSL modems • remote sites • servers
<i>Software</i> may include but is not limited to:	• commercial • in-house • packaged • customised software
<i>Appropriate person</i> may include:	• supervisor • teacher • authorised business representative • client
<i>Feasibility</i> included but not limited to:	• technical feasibility • operational feasibility • economic • schedule feasibility

Unit Sector(s)

Unit sector	Strategy Planning

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAP5039B Match IT needs with the strategic direction of the enterprise

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to ensure IT services meet current and future internal operational enterprise requirements. The following units are linked and form an appropriate cluster: • ICAP5036B Determine appropriate IT strategies and solutions • ICAP6038B Develop strategic and action plans • ICAA5151B Gather data to identify business requirements No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units	

Prerequisite units		
	ICAA4041C	Determine and confirm client business expectations and needs

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. Evaluate current business strategy	1.1. Analyse the current strategic plan of the organisation to understand the industry environment and current organisational goals 1.2. Compare information related to current operational practices and the strategic plan to determine possible IT gaps and improvement opportunities 1.3. Report information regarding the impact of IT developments to <i>appropriate person(s)</i>
2. Evaluate impact of changes	2.1. Review information on current IT systems supported by the organisation 2.2. Compare and document advantages and disadvantages of current and proposed IT systems 2.3. Determine the objectives and implications of

ELEMENT	PERFORMANCE CRITERIA
	introducing changes 2.4. Document findings and forward to appropriate person(s) for feedback
3. Develop action plans	3.1. Develop action plans for the proposed changes that can be implemented according to organisational policies and procedures 3.2. Ensure that action plans take account of appropriate operational, financial, legal, human relations, internal and external operating environments and other relevant considerations 3.3. Document action plans, ensuring that standards, targets and implementation methods are detailed 3.4. Forward documentation to appropriate person for feedback/approval

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Negotiation skills in relation to planning and selecting appropriate equipment and services for self and others, such as when planning for client support service delivery within quality, time and cost parameters
- Evaluation and report writing skills involving analysis for evaluating IT changes, documenting recommendations and developing action plans
- Evaluation skills to determine possible IT client support gaps
- Broad strategic planning skills in relation to current operational practices and future requirements and the implications of introducing IT changes
- Planning and analysis skills for reviewing objectives and performance measures
- Time management skills in relation to planning the management of client support services
- Organising and presenting information in relation to business report writing requirements

Required knowledge

- Broad knowledge of technology and product directions for evaluating and forecasting vendor and technology trends
- Analysis and planning approaches to technical problems or management

REQUIRED SKILLS AND KNOWLEDGE

requirements, taking into account the hardware platform used by the organisation, and network and security guidelines

- Broad knowledge for evaluating current system functionality to forecast for planning
- Broad knowledge for evaluating internal and external operating environments
- Broad knowledge for evaluating the operating systems supported by the organisation to forecast for planning

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

Evidence of the following is essential:

- Competency is demonstrated by accessing and analysing relevant information on changes to technology and resources; analysing strategic plans to determine future technology needs; monitoring resource utilisation and cost efficiency and effectiveness of technology.

To demonstrate competency in this unit the learner will require access to::

- Detailed information relating to business strategic plan
- Budget constraints
- A timeframe for the strategic plan
- Business objectives
- Business risks
- Information on a range of IT business solutions

The learner will need access to the outcomes of the business analysis process

EVIDENCE GUIDE**Context of and specific resources for assessment**

Information Technology provides critical infrastructure and support for commercial and business objectives in organisations and together with communications processes are key success factors in the development of corporate strategies.

The breadth, depth and complexity covering planning and initiation of alternative approaches to skills or knowledge applications across a broad range of technical and/or management requirements, evaluation and coordination would be characteristic.

Assessment must ensure:

- self-directed application of knowledge and skills, with substantial depth in some areas where judgement is required in planning and selecting appropriate equipment, services and techniques for self and others.
- Applications involve participation in development of strategic initiatives as well as personal responsibility and autonomy in performing complex technical operations or organising others. It may include participation in teams including teams concerned with planning and evaluation functions. Group or team coordination may also be involved.

Method of assessment

The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1.

- Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency.
- Assessment will usually include observation of real

EVIDENCE GUIDE	
	or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • ICAP5036B Determine appropriate IT strategies and solutions • ICAA5151B Gather data to identify business requirements An individual demonstrating this competency would be able to: • Demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas • Analyse and plan approaches to technical problems or management requirements • Transfer and apply theoretical concepts and/or technical or creative skills to a range of situations • Evaluate information, using it to forecast for planning or research purposes • Take responsibility for own outputs in relation to broad quantity and quality parameters • Take some responsibility for the achievement of group outcomes • Maintain knowledge of industry products and services

Range Statement

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.

<i>Appropriate person</i> may include:	• supervisor • teacher • authorised business representative • client

Unit Sector(s)

Unit sector	Strategy Planning

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAP5155B Plan process re-engineering strategies for business

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to select a process to be reengineered, to plan for its reengineering and to understand the strategic, organisational and change context in which it is to be reengineered. There may be benefit in concurrent learning with the following unit: • ICAA5143C Implement process re engineering strategies for business No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

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. Select the process to be reengineered	1.1. Identify major processes that require re-engineering 1.2. Identify boundaries, <i>stakeholders</i> and strategic importance of each process 1.3. Prioritise each process according to its level of <i>performance</i> 1.4. Select a process to re-engineer and document decision making process
2. Identify the strategic context	2.1. Determine the purpose of the selected process, and where it fits into the business strategy 2.2. Evaluate the scope of the process, including <i>stakeholder</i> and strategic impact 2.3. Identify potential risks 2.4. Define the broad objectives of the new process 2.5. Model the new process, taking into account client expectations, cooperation across boundaries and process flow 2.6. Analyse changes to organisational structures, <i>technical requirements</i>, training needs, cultural and political impact and communication channels

ELEMENT	PERFORMANCE CRITERIA
	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 3.2. Communicate information to appropriate person 3.3. Prepare a process re-engineering plan to document all stages 3.4. Submit process re-engineering plan to appropriate person for sign-off

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Writing plans
- Benchmarking
- Stakeholder communication and negotiation
- Change management
- Training needs analysis

Required knowledge

- Organisational strategy
- Organisational development and structure
- Stakeholder liaison and negotiation
- Industry standards
- E-commerce standards
- Copyright and intellectual property

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

EVIDENCE GUIDE	
Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: - Assessment must confirm that learners identify a process to be re-engineered and plan the re-engineering of that process in a manner that supports the strategic, organisational and change context of the process to be re-engineered. To demonstrate competency in this unit the learner will require access to: - An organisational structure and culture - An organisational strategy - A stakeholder analysis - E-business models - Personnel computer - Analysis software - Modelling software
Context of and specific resources for assessment	The breadth, depth and complexity covering planning and initiation of alternative approaches to skills or knowledge applications across a broad range of technical and/or management requirements, evaluation and coordination would be characteristic. Assessment must ensure: - self-directed application of knowledge and skills, with substantial depth in some areas where judgement is required in planning and selecting appropriate equipment, services and techniques for self and others. - Applications involve participation in development of strategic initiatives as well as personal responsibility and autonomy in performing complex technical operations or organising others. It may include participation in teams including teams concerned with planning and evaluation functions. Group or team coordination may also be involved.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In

EVIDENCE GUIDE

	undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. - Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. - Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. An individual demonstrating this competency would be able to: - Demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas - Analyse and plan approaches to technical problems or management requirements - Transfer and apply theoretical concepts and/or technical or creative skills to a range of situations - Identify risks - Evaluate information, using it to forecast for planning or research purposes - Take responsibility for own outputs in relation to broad quantity and quality parameters - Take some responsibility for the achievement of

EVIDENCE GUIDE

	- group outcomes • Maintain knowledge of industry products and services

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.

Stakeholders may include:

- sponsors
- users
- development team
- project team

Client may include but is not limited to:

- internal departments
- external organisations
- clubs
- individual people
- internal employees

Appropriate person may include:

- supervisor
- teacher
- authorised business representative
- client

Technical requirements may be in reference to:

- business
- system
- platform
- application
- database
- network
- people in the organisation

Performance may include:

- financial or profitability measurements and selection decisions based on worst performance or strategic importance of the process

Unit Sector(s)

Unit sector	Strategy Planning

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAP6038B Develop strategic and action plans

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to create strategic and action plans in alignment with organisational goals. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		
	ICAP4037B	Contribute to the development of a strategy plan

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. Develop and communicate mission and vision statement	1.1. Develop a mission statement for the organisation that states the purpose, values and business activities 1.2. Develop a vision statement for the organisation that describes its future operation and success 1.3. Develop the mission and vision statements in active consultation with team members and management 1.4. Document mission and vision statements 1.5. Communicate mission and vision statement to <i>stakeholders</i> and other relevant 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 2.2. Assess the external environment of the organisation, taking into account opportunities and threats 2.3. Determine trends and developments impacting on the strategic direction of organisation 2.4. Determine critical issues facing the organisation 2.5. Document strengths, weaknesses, opportunities, threats and critical issues facing the organisation in the <i>strategic plan</i>
3. Set objectives and	3.1. Use critical issues to develop objectives and targets

ELEMENT	PERFORMANCE CRITERIA
targets	for the organisation after active consultation with team members and management 3.2. Develop strategies based on these objectives that accurately reflect the overall organisational mission and values 3.3. Develop strategies and objectives that are attainable, cost efficient and realistic, within a designated timeframe that allows for continuous improvement planning 3.4. Determine constraints associated with the strategies and objectives developed 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 4.2. Check that action plans have clear, comprehensive and concise details 4.3. Check that action plans are adhered to 4.4. Include action plans in strategic plan documentation
5. Review and implement strategic plan	5.1. Review strategic plan with stakeholders and management 5.2. Incorporate changes and improvements as recommended 5.3. Implement action plans as set out in the strategic plan 5.4. Review and evaluate success of strategic plan after action plans have been implemented

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Group facilitation and presentation skills in relation to transferring and collecting information and gaining consensus when developing mission statements, strategies,

REQUIRED SKILLS AND KNOWLEDGE

objectives and targets

- Skills relating to analysis, planning and implementation of plans, such as developing and implementing action plans
- Evaluation skills to forecast for planning purposes, particularly for evaluating internal and external operating environments in relation to current and future IT requirements

Required knowledge

- Analysis and planning approaches to technical problems and management requirements, taking into account organisational values and purpose, such as setting objectives and targets, developing action plans and monitoring strategic directions
- Evaluating current system functionality to forecast for planning, particularly with regard to IT trends and developments
- Evaluating internal and external operating environments to forecast for planning
- Analysis and planning approaches to technical problems or management requirements, taking into account the hardware platform used by the organisation
- Analysis and planning approaches to technical problems or management requirements, taking into account network and IT security guidelines of the organisation
- Evaluating the operating systems supported by the organisation to forecast for planning
- Broad knowledge of technology and product directions for evaluating and forecasting vendor and technology trends

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

Evidence of the following is essential:

- Assessment must confirm the ability to develop strategic directions determined by the strategic alignment of IT directions with organisational goals.

EVIDENCE GUIDE	
	To demonstrate competency in this unit the learner will require access to: • Detailed information relating to business strategic plan • Budget constraints • A timeframe for the strategic plan • Business objectives • Business risks • Information on a range of IT business solutions The learner will need access to the outcomes of the business analysis process
Context of and specific resources for assessment	Strategic plans of an organisation provide the vision and context for working with customers, clients and stakeholders. The breadth, depth and complexity involving analysis, design, planning, execution and evaluation across a range of technical and/or management functions including development of new criteria or applications or knowledge or procedures would be characteristic. Assessment must ensure: • application of a significant range of fundamental principles and complex techniques across a wide and often unpredictable variety of contexts in relation to either varied or highly specific functions. Contribution to the development of a broad plan, budget or strategy may be involved and accountability and responsibility for self and others in achieving the outcomes may also be characteristic. • Applications involve significant judgement in planning, design, technical or leadership/guidance functions related to products, services, operations or procedures would be common
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility

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	practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. - Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. - Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: - ICAP5039B Match IT needs with the strategic direction of the enterprise - ICAA5151B Gather data to identify business requirements An individual demonstrating this competency would be able to: - Demonstrate understanding of specialised knowledge with depth in some areas - Analyse, diagnose, design and execute judgement across a broad range of technical or management functions - Generate ideas through the analysis of information and concepts at an abstract level - Demonstrate a command of wide-ranging, highly specialised technical, creative or conceptual skills - Demonstrate accountability for personal outputs within broad parameters

EVIDENCE GUIDE

	• Demonstrate accountability for personal and group outcomes within broad parameters • Maintain knowledge of industry products and services

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.

Stakeholders may include:

- sponsors
- users
- development team
- project team

Action plans take into account:

- appropriate operational
- financial
- legal
- human relations
- risks
- internal and external operating environments
- other relevant considerations

Documentation may follow:

- ISO/IEC/AS standards
- audit trails
- naming standards
- version control
- project management templates
- report writing principles

Strategic plan

- The overall organisational strategic plan may take different forms and may include components from separate disciplines such as IT or human resources. The IT strategic plan may form part of organisational strategic plan or may be a standalone document

Unit Sector(s)

Unit sector	Strategy Planning

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAP6040B Develop contracts and manage contracted performance

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to negotiate and document contractual arrangements between clients, vendors and service providers and to monitor and manage performance against agreed contractual obligations. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

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. Establish contract	1.1. Determine boundaries of the contract 1.2. Document contract details and provide a copy to the <i>client</i> and vendor for review 1.3. Obtain <i>client</i> and vendor feedback to clarify problems and misunderstandings 1.4. Facilitate negotiations to resolve problems and misunderstandings 1.5. Seek agreement from <i>stakeholders</i>
2. Monitor contract	2.1. Monitor performance against contractual obligations to ensure desired level of quality is maintained 2.2. Ascertain <i>client</i> satisfaction with contractual performance 2.3. Identify and take action to address unsatisfactory performance 2.4. Provide recommendations for contractual variations, if required 2.5. Forward recommendations to the <i>appropriate person</i> for approval

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Negotiation skills in relation to contracting equipment and services, such as negotiating extensive client support contracts
- Evaluation and report writing skills involving analysis, such as identifying, service expectations and boundaries of service provision
- Group facilitation and presentation skills in relation to transferring and collecting information and gaining consensus on concepts and gaining the trust and confidence of colleagues, clients and suppliers
- Broad strategic planning skills for planning resource use to achieve contract obligations
- Planning and analysis skills for reviewing objectives and performance measures against contract outcomes
- Basic financial skills in relation to monitoring the finances related to contracts
- Time management skills in relation to planning the management of services and monitoring satisfactory service
- Organising and presenting information in relation to business report writing requirements, such as preparing information on client support performance outcomes and agreed quality standards

Required knowledge

- Broad knowledge of methods for evaluating and forecasting vendor and technology trends
- Analysis and planning approaches to technical problems or management requirements, taking into account organisational values and purpose in the context of formulating client support contracts
- Contracting requirements in relation to IT; IT purchasing of equipment and services, such as negotiating extensive client support contracts
- Industry standards in relation to service and product agreements

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.

EVIDENCE GUIDE	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Competency is demonstrated by negotiating and formulating extensive client support contracts by: • Accessing and analysing relevant information on resources and budgets • Analysing current and future client support requirements • Monitoring resource utilisation, cost efficiency and effectiveness against contractual obligations • Reviewing objectives and performance measures To demonstrate competency in this unit the learner will require access to: • Detailed information relating to business strategic plan • Budget constraints • A timeframe for the strategic plan • Business objectives • Information on a range of IT business solutions • Access to the outcomes of a business analysis process (separate to this unit of competency)
Context of and specific resources for assessment	Action to promote client satisfaction is in line with organisational policy and values. Organisational policy and procedures relating to contracting arrangements for IT are employed, monitored and evaluated. Client requirements for support service delivery are satisfied within quality, time and cost parameters. The purpose of most contracts is to specify the nature of agreement between two parties about the supply and receipt of goods or services. It is essential that the contract take into consideration those variables that may impact upon agreed deliverables. These variables may include timing of the

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	work or production of the item(s), the quality of production, the cost, the warranty and after-sales service. Additionally, there is an obligation to ensure that conditions of the contract are actually fulfilled. This requires constant monitoring of whether the contract is still suitable and whether subsequent events have rendered the contract untenable to either party. This unit focuses on the process of constant review as a way of achieving this goal. The breadth, depth and complexity involving analysis, design, planning, execution and evaluation across a range of technical and/or management functions including development of new criteria or applications or knowledge or procedures would be characteristic. Assessment must ensure: • application of a significant range of fundamental principles and complex techniques across a wide and often unpredictable variety of contexts in relation to either varied or highly specific functions. Contribution to the development of a broad plan, budget or strategy may be involved and accountability and responsibility for self and others in achieving the outcomes may also be characteristic. • Applications involve significant judgement in planning, design, technical or leadership/guidance functions related to products, services, operations or procedures would be common.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should be assessed using summative assessment to ensure consistency of

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	performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • ICAI5088B Evaluate and negotiate vendor offerings An individual demonstrating this competency would be able to: • Demonstrate understanding of specialised knowledge with depth in some areas • Analyse, diagnose, design and execute judgement across a broad range of technical or management functions • Generate ideas through the analysis of information and concepts at an abstract level • Demonstrate a command of wide-ranging, highly specialised technical, creative or conceptual skills • Demonstrate accountability for personal outputs within broad parameters • Demonstrate accountability for personal and group outcomes within broad parameters • Maintain knowledge of industry products and services

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.	
<i>Boundaries of the contract</i> may include:	- organisational policy - budget - time constraints - resources
<i>Client</i> may include but is not limited to:	- internal departments - external organisations - clubs - individual people - internal employees
<i>Stakeholders</i> may include:	- sponsors - users - development team - project team
<i>Appropriate person</i> may include:	- supervisor - teacher - authorised business representative - client

Unit Sector(s)

Unit sector	Strategy Planning

Co-requisite units

Co-requisite units		

Co-requisite units		

Competency field

Competency field	

ICAS1193B Connect a workstation to the internet

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to connect a workstation or networked computer to the internet. There may be benefit in concurrent learning with the following unit: • ICAU1128B Operate a personal computer The following units are linked and form an appropriate cluster: • ICAT1206B Check site security • ICAU1128B Operate a personal computer • ICAU1133C Send and retrieve information using web browsers and email • ICAU1204C Locate and use relevant on line information • ICAU1213C Conduct on line transactions No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

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. Determine requirements of internet connection	1.1.Determine the purpose and intended use for the <i>internet connection</i> 1.2.Determine and decide on the type of <i>internet connection</i> needed to fulfil <i>business requirements</i>
2. Create account with internet service provider (ISP)	2.1.Compare and analyse different internet service provider <i>features</i> 2.2.Choose the most appropriate <i>internet service provider</i> based on <i>business requirements</i> and create an account 2.3.Configure the <i>internet connection</i> on the <i>computer</i> using the relevant <i>software</i>

ELEMENT	PERFORMANCE CRITERIA
3. Make and test ISP connection	3.1. Select the modem or other connection device based on business requirements 3.2. Install and test the modem or connection device in accordance with vendor instructions and operating system
4. Load browser software	4.1. Select and install internet browser software with consideration to the operating environment 4.2. Configure internet browser software as required by operating system and personal preference
5. Connect workstation to the internet	5.1. Connect workstation to the internet through the existing internet connection and confirm functionality 5.2. Launch internet browser software to enable access to the internet and confirm functionality

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Operating a personal computer
- Keyboarding skills
- Mouse operation

Required knowledge

- The range of internet service providers (ISPs) and the varying plans, technologies and services they offer
- The range of different internet connections available, including strengths and weaknesses of these options
- Current browser software
- The operation of the world wide web, web pages and directories
- FTP connections

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

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

Evidence of the following is essential:

- Assessment must confirm the ability to connect a workstation to the internet.

To demonstrate competency in this unit the learner will require access to:

- Personal computer
- Internet connection
- Modem or other connectivity device

Context of and specific resources for assessment

The breadth, depth and complexity of knowledge and skills in this competency would prepare a person to perform a defined range of activities many of which may be routine and predictable.

Assessment must ensure:

- Applications may include a variety of employment related skills including preparatory access and participation skills, broad-based induction skills and/or specific workplace skills. They may also include participation in a team or work group.

Method of assessment

The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1.

- Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated

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	environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: - ICAT1206B Check site security - ICAU1128B Operate a personal computer - ICAU1133C Send and retrieve information using web browsers and email - ICAU1204C Locate and use relevant on-line information - ICAU1213C Conduct on-line transactions An individual demonstrating this competency would be able to: - Demonstrate knowledge by recall in a narrow range of areas - Demonstrate basic practical skills, such as the use of relevant tools - Perform a sequence of routine tasks given clear direction - Receive and pass on messages and information - Maintain knowledge of industry products and services

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.	
Internet connection may include:	• dial-up • cable • ISDN • broadband • satellite
Business requirements may include:	• speed of access • money available • technical support required • other specific internet needs
Features may be in relation to:	• cost • connectivity • services • connection type • support
Workstation may include:	• personal computers • networked computers • laptops
Software may include but is not limited to:	• commercial • in-house • packaged or customised software
Connection device may include but is not limited to:	• ADSL modem • cable modem • ISDN
Vendor instructions may include:	• user manual • written instructions from meetings • verbal request • help desk
Operating system may include but is not limited to:	• Linux 7.0 or above • Windows 2000 or above • Apple OS X or above
Internet browser software may	• Netscape Navigator

RANGE STATEMENT	
include but is not limited to:	• Internet Explorer • Mozilla • Opera • Galleon • Phoenix • Konqueror • Lynx
Internet	• An interconnected system of networks that connects computers around the world via TCP/IP or FTP protocols

Unit Sector(s)

Unit sector	Support

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAS2008B Maintain inventories for equipment, software and documentation

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to record and store details of software, hardware and technical documentation. The following unit is linked and forms an appropriate cluster: • ICAS2016B Record client support requirements No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

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. Document and update inventory	1.1. Maintain a hardware inventory that creates a profile or description of each piece of equipment 1.2. Maintain a software inventory and update licences as required, particularly when upgrading software 1.3. Record and organise the storage of user documentation or technical manuals
2. Store technical documentation	2.1. Take action to ensure hardware, software and equipment that is not in use is stored in a manner as recommended by technical manuals 2.2. Ensure technical documentation is stored securely 2.3. Access and disseminate technical documentation as required by clients

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Basic reading, writing and interpretation skills for workplace documentation
- Plain English literacy and communication skills in relation to presentation of information
- Problem solving skills for a defined range of predictable problems
- Low-level decision making skills

Required knowledge

- Basic understanding of software licensing requirements
- Broad knowledge of inventory principles and procedures
- Storage of equipment and software

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

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

Evidence of the following is essential:

- Assessment must confirm the ability to accurately and regularly update and maintain the software, equipment and technical documentation inventory according to identified storage and retrieval policy and procedures. Software licensing requirements are adhered to according to vendor specifications. Inventories are regularly accessed and kept up-to-date. Literacy skills in regard to workplace documentation and technical manuals are demonstrated.

To demonstrate competency in this unit the learner will require access to:

- Personal computer

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	• Software for managing inventory
Context of and specific resources for assessment	The breadth, depth and complexity of knowledge and skills in this competency would prepare a person to perform in a range of varied activities or knowledge applications where there is a clearly defined range of contexts in which the choice of actions required is usually clear. There would generally be limited complexity in the range of operations to be applied. Assessment must ensure: • Performance of a prescribed range of functions involving known routines and procedures and some accountability for the quality of outcomes would be characteristic. • • Applications may include some complex or non-routine activities involving individual responsibility or autonomy and/or collaboration with others as part of a group or team.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate

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	may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • ICAS2016B Record client support requirements An individual demonstrating this competency would be able to: • Demonstrate basic operational knowledge in a moderate range of areas • Apply a defined range of skills • Apply known solutions to a limited range of predictable problems • Perform a range of tasks where choice between a limited range of options is required • Assess and record information from varied sources • Take limited responsibility for own outputs in work and learning • Maintain knowledge of industry products and services

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.	
<i>Hardware inventory</i> may include but is not limited to:	• a list of personal computers • networked systems • personal organisers • communications equipment

RANGE STATEMENT	
	Peripherals may include printers, scanners, tape cartridges, speakers, multimedia kits; keyboard equipment, including mouse, touch pad, keyboard and pens
Equipment may include but is not limited to:	- workstations - personal computers - modems or other connectivity devices - printers - hard drives - monitors - switches - hubs - personal digital assistants - other peripheral devices
Software may include but is not limited to:	- commercial - in-house, packaged or customised software
Software inventory may include but is not limited to:	- a list of commercial software applications - organisation-specific or customised software - word processing, spreadsheet, database, graphic, mail, internet browsers - presentation functionalities

Unit Sector(s)

Unit sector	Support

Co-requisite units

Co-requisite units	

Competency field

Competency field	

ICAS2009B Interact with clients

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to provide routine client support in a professional manner. There may be benefit in concurrent learning with the following units: • ICAW2002B Communicate in the workplace • ICAW2011B Work individually or in a team to achieve organisational goals The following units are linked and form an appropriate cluster: • ICAD2003B Receive and process oral and written communication • ICAS2016B Record client support requirements • ICAW2002B Communicate in the workplace • ICAW2011B Work individually or in a team to achieve organisational goals No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

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. Deliver support to clients	1.1. Provide support for <i>clients</i> in a courteous and professional manner according to organisational policy, taking into consideration <i>cultural differences</i> 1.2. Use active listening and questioning to establish and confirm nature of <i>client</i> concerns 1.3. Maintain <i>client</i> contact and provide progress information until the problem is resolved
2. Respond to client	2.1. Demonstrate a positive and helpful attitude to client

ELEMENT	PERFORMANCE CRITERIA
complaints	when handling their concern and use sensitivity and discretion when handling issues 2.2. Escalate and refer client concern to support person if required, explaining the nature of issues involved 2.3. Resolve client complaint using recommendations from the support person 2.4. Document and record client concerns and solutions in line with organisational guidelines

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE
This section describes the skills and knowledge required for this unit.
Required skills
• Customer service skills • Handling difficult clients • Handling clients from diverse cultural and other backgrounds • Conflict resolution skills • Verbal and non-verbal communication appropriate to the work environment • Decision making skills applied to a limited range of options • Questioning and active listening skills
Required knowledge
• Principles of equal employment opportunity and anti-discrimination • General understanding of systems, organisational environment • Current industry-accepted hardware and software products, with broad knowledge of general features and capabilities and detailed knowledge in some areas • General knowledge of the client business domain and business-critical functions • Principles of ethical work practice • Organisational policies for external and internal client contact

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

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

Evidence of the following is essential:

- Assessment must confirm ability to provide routine client support in a professional manner, with exceptions being referred to appropriate area as they occur according to escalation procedures.

To demonstrate competency in this unit the learner will require access to:

- Personal computer

Context of and specific resources for assessment

The breadth, depth and complexity of knowledge and skills in this competency would prepare a person to perform in a range of varied activities or knowledge applications where there is a clearly defined range of contexts in which the choice of actions required is usually clear. There would generally be limited complexity in the range of operations to be applied.

Assessment must ensure:

- Performance of a prescribed range of functions involving known routines and procedures and some accountability for the quality of outcomes would be characteristic.
- Applications may include some complex or non-routine activities involving individual responsibility or autonomy and/or collaboration with others as part of a group or team.

Method of assessment

The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have

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	special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. - Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. - Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: - ICAD2003B Receive and process oral and written communication - ICAS2016B Record client support requirements - ICAW2002B Communicate in the workplace - ICAW2011B Work individually or in a team to achieve organisational goals An individual demonstrating this competency would be able to: - Demonstrate basic operational knowledge in a moderate range of areas - Apply a defined range of skills - Apply known solutions to a limited range of predictable problems - Perform a range of tasks where choice between a limited range of options is required - Assess and record information from varied sources

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	• Take limited responsibility for own outputs in work and learning • Maintain knowledge of industry products and services

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.

Cultural differences may include but is not limited to:

- the way people interact with each other
- content of emails and business documents
- design of templates
- policies relating to safety standards, customer service, quality, and security

Support person may include:

- supervisor
- teacher
- vendor business representative
- help desk person
- subject matter expert

Client may include but is not limited to:

- internal departments
- external organisations
- individual people
- employees

Organisational guidelines may include but are not limited to:

- personal use of emails and internet access
- content of emails
- downloading information and accessing particular websites
- opening mail with attachments
- virus risk (MS windows OS and Mac OS only)
- dispute resolution
- document procedures and templates
- communication methods

RANGE STATEMENT	
	financial control mechanisms

Unit Sector(s)

Unit sector	Support

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAS2010B Apply problem solving techniques to routine malfunctions

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to apply problem solving techniques to determine the origin and plan for the resolution of a routine malfunction. The following units are linked and form an appropriate cluster: • ICAD2003B Receive and process oral and written communication No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

Prerequisite units		

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 problems	1.1. Identify hardware, software, user or procedural problem areas to appropriate person in the organisation 1.2. Define and determine problem to be investigated 1.3. Objectively identify and document current conditions of the hardware, software, user or problem
2. Recommend solutions to problem	2.1. Identify potential solutions to problem 2.2. Develop, document, rank and present recommendations about possible solutions to the appropriate person for decision 2.3. Plan the implementation of solutions 2.4. Plan the evaluation of solutions 2.5. Document the recommended solution and submit to the appropriate person for confirmation

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Decision making within a limited range of options
- Clear and precise communication that varies according to audience
- Team participation
- Time management as applied to self-management
- Analytical skills in relation to routine malfunctions
- Customer service skills
- Questioning and active listening to clarify general information

Required knowledge

- Broad knowledge of help desk and maintenance practices
- Current industry-accepted hardware and software products, with broad knowledge of general features and capabilities and detailed knowledge in some areas
- Broad knowledge of the operating system
- Broad knowledge of current industry practices
- Broad knowledge of diagnostic tools

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

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

Evidence of the following is essential:

- Assessment must confirm the ability to apply problem solving techniques to determine the root cause of a routine malfunction or to refer the problem according to escalation procedures.

EVIDENCE GUIDE	
	To demonstrate competency in this unit the learner will require access to: • Detailed information relating to organisational processes • Business objectives • Information on a range of IT business solutions • Work station
Context of and specific resources for assessment	The breadth, depth and complexity of knowledge and skills in this competency would prepare a person to perform in a range of varied activities or knowledge applications where there is a clearly defined range of contexts in which the choice of actions required is usually clear. There would generally be limited complexity in the range of operations to be applied. Assessment must ensure: • Performance of a prescribed range of functions involving known routines and procedures and some accountability for the quality of outcomes would be characteristic. • Applications may include some complex or non-routine activities involving individual responsibility or autonomy and/or collaboration with others as part of a group or team.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must

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	closely reflect the workplace to enable full demonstration of competency. Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: - ICAD2003B Receive and process oral and written communication An individual demonstrating this competency would be able to: - Demonstrate basic operational knowledge in a moderate range of areas - Apply a defined range of skills - Apply known solutions to a limited range of predictable problems - Perform a range of tasks where choice between a limited range of options is required - Assess and record information from varied sources - Take limited responsibility for own outputs in work and learning - Maintain knowledge of industry products and services

Range Statement

RANGE STATEMENT

The range statement relates to the unit of competency as a whole. It allows for different

RANGE STATEMENT	
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.	
Appropriate person may include:	• supervisor • teacher • authorised business representative • client
Hardware may include:	• Workstations, personal computers • Modems or other connectivity devices • Networks • Remote sites • Servers
Software may include but is not limited to:	• commercial, in-house, packaged or customised software
User may include:	• a person within a department • a department within the organisation • a third party
Solutions may include but is not limited to:	• new hardware • hardware upgrades • new software • software upgrades • user training • implementing a new system
Problem may include:	• routine malfunctions or problems that affect the immediate work environment, particularly in relation to using equipment such as workstations, keyboards, peripherals

Unit Sector(s)

Unit sector	Support

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAS2014B Connect hardware peripherals

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to connect hardware peripherals according to instructions. There may be benefit in concurrent learning with the following unit: • ICAU2005B Operate computer hardware The following units are linked and form an appropriate cluster: • ICAS2008B Maintain inventories for equipment, software and documentation • ICAS2016B Record client support requirements • ICAS2017B Maintain system integrity • ICAU2005B Operate computer hardware • ICAU2007B Maintain equipment and consumables No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

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. Confirm requirements of client	1.1. Identify <i>client peripheral</i> requirements and confirm in accordance with <i>organisational standards</i> 1.2. Document <i>client</i> requirements and peripherals needed in line with <i>organisational standards</i> and report findings to the <i>appropriate person</i> 1.3. Verify <i>client</i> requirements with <i>appropriate person</i> in line with <i>organisational standards</i> and reporting procedures 1.4. Take action to ensure <i>client</i> support expectations are covered by vendor warranty and support services
2. Obtain required peripherals	2.1. Obtain <i>peripherals</i> under instruction from <i>appropriate person</i>

ELEMENT	PERFORMANCE CRITERIA
	2.2. Enter peripherals into equipment inventory according to organisational standards 2.3. Validate that contents of delivered components and physical contents match the packing list and resolve discrepancies if necessary 2.4. Store peripherals according to vendor/manual guidelines
3. Connect hardware peripherals	3.1. Verify the timeframe for installation schedule with the client 3.2. Remove old peripherals if they are being replaced with minimal disruption to clients, taking into account environmental considerations and OH&S standards 3.3. Connect new peripherals with minimum disruption to clients, taking into account operating system procedures 3.4. Configure the computer to accept the new peripherals 3.5. Test hardware peripherals and confirm client satisfaction, pay particular attention to possible impact on other systems and make adjustments as required

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Customer service skills in relation to maintenance procedures
- Handling difficult clients skills in relation to maintenance procedures
- Conflict resolution skills in relation to maintenance procedures
- Decision making in a limited range of options
- Literacy for general workplace documentation
- Problem solving skills for a defined range of predictable problems
- Plain English literacy and communication skills in relation to analysis, evaluation and presentation of information
- Facilitation and presentation skills in relation to transferring and collecting

REQUIRED SKILLS AND KNOWLEDGE
information • Negotiation skills in relation to other team members and applied to a defined range of predictable problems
Required knowledge
• Broad general knowledge of OH&S procedures for electrical equipment • Detailed knowledge of inventory procedures • Organisational guidelines relating to external suppliers and vendors • General understanding of technical systems • Broad knowledge of operating systems • Broad knowledge of help desk and maintenance practices • Current industry-accepted hardware and software products, with broad knowledge of general features and capabilities and detailed knowledge in some areas • Broad knowledge of input/output devices

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	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: • Assessment must confirm the ability to safely connect hardware peripherals according to vendor instructions with a minimum of down time to the system. Competency is required in the connection of five different peripherals. Ability to interpret vendor manuals in relation to the storage and connection of hardware peripherals is demonstrated. OH&S regulations relating to working with electrical equipment are adhered to. To demonstrate competency in this unit the learner will require access to: • Organisation's hardware blueprint

EVIDENCE GUIDE	
	• Vendor support staff (on call if assessment is a live activity) • Additional staff if required to support the assessment • Hardware peripherals and workstation
Context of and specific resources for assessment	The breadth, depth and complexity of knowledge and skills in this competency would prepare a person to perform in a range of varied activities or knowledge applications where there is a clearly defined range of contexts in which the choice of actions required is usually clear. There would generally be limited complexity in the range of operations to be applied. Assessment must ensure: • Performance of a prescribed range of functions involving known routines and procedures and some accountability for the quality of outcomes would be characteristic. • Applications may include some complex or non-routine activities involving individual responsibility or autonomy and/or collaboration with others as part of a group or team.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Assessment will usually include observation of real or simulated work processes and procedures and/or

EVIDENCE GUIDE	
	performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • ICAS2008B Maintain inventories for equipment, software and documentation • ICAS2016B Record client support requirements • ICAS2017B Maintain system integrity • ICAU2005B Operate computer hardware • ICAU2007B Maintain equipment and consumables An individual demonstrating this competency would be able to: • Demonstrate basic operational knowledge in a moderate range of areas • Apply a defined range of skills • Apply known solutions to a limited range of predictable problems • Perform a range of tasks where choice between a limited range of options is required • Assess and record information from varied sources • Take limited responsibility for own outputs in work and learning • Maintain knowledge of industry products and services

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. <i>Bold italicised</i>

RANGE STATEMENT	
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.	
Peripherals may include but are not limited to:	• Printers, scanners, tape cartridges • Speakers, multimedia kits • Personal computer, modems • Input equipment may include mouse, touch pad, keyboard, pens • Mobile phones, palmtops and personal digital assistants (PDAs), laptops, and desktop computers • Bluetooth devices, universal serial bus (USB), Firewire (IEEE 1394)
Organisational standards may include but are not limited to:	• personal use of emails and internet access • content of emails • downloading information and accessing particular websites • opening mail with attachments • virus risk (MS windows OS and Mac OS only) • dispute resolution • document procedures and templates • communication methods • financial control mechanisms
Appropriate person may include:	• supervisor • teacher • authorised business representative • client
Operating system may include:	• Win 98/ME/2000/XP • Sun Solaris/SunOS • HP-UX • AIX • Silicon Graphics IRIX, DEC VMS • Mac OS X • Linux • NetWare
Client may include but is not limited to:	• internal departments • external organisations • individual people • employees

RANGE STATEMENT	
Equipment may include but is not limited to:	• workstations • personal computers • modems or other connectivity devices • printers • hard drives • monitors • switches • hubs • personal digital assistant (PDA) • other peripheral devices
OH&S standards may include:	• correct posture • lighting • type of desk • type of monitor • style of chair • typing position • repetitive strain injury prevention • ventilation • light position • correct lifting method • length of time in front of computer
Environmental considerations may include:	• disposal of packaging (e.g. cardboard, polystyrene, paper, plastic) • redundant hardware (e.g. hard drives, circuit boards)

Unit Sector(s)

Unit sector	Support

Co-requisite units

Co-requisite units	

Co-requisite units		

Competency field

Competency field	

ICAS2016B Record client support requirements

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to record, prioritise and escalate client support requests. The following units are linked and form an appropriate cluster: • ICAD2003B Receive and process oral and written communication • ICAS2009B Interact with clients No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

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. Log requests for support	1.1. Record <i>client</i> support requests and requirements according to <i>organisational standards</i> 1.2. Review <i>client</i> support history and details 1.3. Check the information and request for accuracy and urgency according to <i>organisational standards</i>
2. Prioritise support requests with appropriate personnel	2.1. Identify the relevant guidelines for prioritising or rating <i>client</i> requests 2.2. Prioritise the <i>client</i> request based on its criticality or impact on the business 2.3. Refer the requests to an <i>appropriate person</i> or department for assistance 2.4. Communicate with <i>appropriate persons</i> involved with <i>client</i> support

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Literacy skills for general workplace documentation
- Limited decision making
- Questioning and active listening in clarifying client requirements
- Basic analytical skills for questioning and gathering information
- Customer service skills in relation to receiving requests for support
- Skills in handling difficult clients in relation to receiving requests for support
- Conflict resolution skills in relation to receiving requests for support

Required knowledge

- Organisational procedures for rating and prioritising client requests
- Broad knowledge of escalation procedures
- Roles and responsibilities of IT division
- Broad knowledge of maintenance procedures
- Business scheduling requirements
- Current business practices in relation to preparing reports
- Broad knowledge of diagnostic tools

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

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

Evidence of the following is essential:

- Assessment must confirm the ability to accurately log calls and record, prioritise and escalate client support requests according to organisational policy and procedures.

To demonstrate competency in this unit the learner will

EVIDENCE GUIDE	
	require access to: • Logging procedures • Critical process • Escalation procedures
Context of and specific resources for assessment	The breadth, depth and complexity of knowledge and skills in this competency would prepare a person to perform in a range of varied activities or knowledge applications where there is a clearly defined range of contexts in which the choice of actions required is usually clear. There would generally be limited complexity in the range of operations to be applied. Assessment must ensure: • Performance of a prescribed range of functions involving known routines and procedures and some accountability for the quality of outcomes would be characteristic. • Applications may include some complex or non-routine activities involving individual responsibility or autonomy and/or collaboration with others as part of a group or team.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Assessment will usually include observation of real

EVIDENCE GUIDE	
	or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • ICAD2003B Receive and process oral and written communication • ICAS2009B Interact with clients An individual demonstrating this competency would be able to: • Demonstrate basic operational knowledge in a moderate range of areas • Apply a defined range of skills • Apply known solutions to a limited range of predictable problems • Perform a range of tasks where choice between a limited range of options is required • Assess and record information from varied sources • Take limited responsibility for own outputs in work and learning • Maintain knowledge of industry products and services

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

RANGE STATEMENT	
situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Client may include but is not limited to:	• internal departments • external organisations • individual people • employees
Organisational standards may include but are not limited to:	• Security procedures • Logged call procedures • Client liaison policy • Escalation procedures • Preventative maintenance and diagnostic policy • Roles and technical responsibilities in the IT department • Vendor and product service-level support agreements
Appropriate person may include:	• supervisor • teacher • vendor business representative • help desk person • subject matter expert

Unit Sector(s)

Unit sector	Support

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAS2017B Maintain system integrity

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to protect and secure standalone or client server environments. The following units are linked and form an appropriate cluster: • ICAS2008B Maintain inventories for equipment, software and documentation • ICAU2005B Operate computer hardware • ICAU1131B Operate a database application No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

Prerequisite units		

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. Carry out system backup	1.1. Create and/or review organisational <i>back-up schedule</i> 1.2. Determine <i>storage media</i> and <i>hardware</i> for back-ups 1.3. File back-ups are carried out according to the schedule 1.4. Label and store back-ups according to <i>organisational standards</i> 1.5. Maintain records of back-ups
2. Restore system backup	2.1. Determine and test restoration procedures according to <i>organisational standards</i> 2.2. Restore data under instruction from an <i>appropriate person</i> 2.3. Restore data according to <i>organisational standards</i> 2.4. Document and report on back-up results

ELEMENT	PERFORMANCE CRITERIA
3. Carry out virus scanning	3.1. Maintain virus protection software and updates depending on the operating system in use 3.2. Scan for and report detected viruses to appropriate person and remove the viruses
4. Follow copyright procedures and record software licences where appropriate	4.1. Identify licensed software used by the organisation 4.2. Maintain records of licence number and location 4.3. Monitor the operation and use of licensed software where applicable 4.4. Check personal computers and networks to ensure software compliance 4.5. Report licensing anomalies related to software to an appropriate person

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Communication skills in relation to presentation of information
- Basic diagnostic skills in relation to system integrity
- Questioning and active listening for clarifying instructions
- Basic analytical skills in relation to system integrity
- Problem solving skills for a defined range of predictable problems
- Problem solving in regard to known problems in routine procedures
- Research skills for identifying broad features of current viruses and best practice in virus protection

Required knowledge

- Software copyright and General Public Licence (GPL)/copyright responsibilities
- Broad knowledge of system performance
- Broad knowledge of maintenance procedures
- Broad knowledge of inventory procedures
- Restore procedures
- Broad knowledge of storage and retrieval guidelines
- Current industry-accepted hardware and software products, with broad knowledge of general features and capabilities and detailed knowledge in some areas

REQUIRED SKILLS AND KNOWLEDGE

- Broad knowledge of diagnostic tools
- Broad knowledge of current viruses and protection methods

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

Evidence of the following is essential:

- Assessment must confirm the ability to protect and secure standalone or networked client server environments and operating systems according to system maintenance procedures. Undertaking file back-up, restore, delete and archive are carried out according to back-up and restore procedures.

To demonstrate competency in this unit the learner will require access to:

- Back-up guidelines
- Anti-virus software
- Workstation

Context of and specific resources for assessment

The breadth, depth and complexity of knowledge and skills in this competency would prepare a person to perform in a range of varied activities or knowledge applications where there is a clearly defined range of contexts in which the choice of actions required is usually clear. There would generally be limited complexity in the range of operations to be applied.

Assessment must ensure:

- Performance of a prescribed range of functions involving known routines and procedures and some accountability for the quality of outcomes would be

EVIDENCE GUIDE	
	characteristic. Applications may include some complex or non-routine activities involving individual responsibility or autonomy and/or collaboration with others as part of a group or team.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. - Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. - Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: - ICAU2005B Operate computer hardware - ICAS2008B Maintain inventories for equipment, software and documentation - ICAU1131B Operate a database application

EVIDENCE GUIDE

	An individual demonstrating this competency would be able to: • Demonstrate basic operational knowledge in a moderate range of areas • Apply a defined range of skills • Apply known solutions to a limited range of predictable problems • Perform a range of tasks where choice between a limited range of options is required • Assess and record information from varied sources • Take limited responsibility for own outputs in work and learning • Maintain knowledge of industry products and services

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.

<i>Hardware</i> may include:	• personal computers • networked systems • tools to perform back-ups such as tapes • streamers • floppy disks
<i>Back-up schedule</i> may occur on:	• evenings • weekdays • weekends • monthly • yearly • or a combination
<i>Licensed software</i> may include:	• single user licences • corporate licences

RANGE STATEMENT	
	• educational licences • user-restrictive licences • shareware licences
Operating system may include but is not limited to:	• Linux 6.0 or above • Windows 98 or above • Apple OS 8 or above
Storage media may include but is not limited to:	• diskettes (floppy disks) • CDs • CD-RW (compact disks-read write) • DVD RW • zip disks • solid state hard drives
Appropriate person may include"	• supervisor • teacher • authorised business representative • client
Software may include but is not limited to:	• commercial, in-house, packaged or customised software
Organisational standards may include but are not limited to:	• security procedures • back-up procedures • restore procedures • virus scanning and removal procedures • software licence documentation • reporting of non-compliance software • GPL/copyleft licences
Virus protection may include but is not limited to:	• McAfee • Panda AntiVirus • Protector Plus Antivirus • Symantec Norton Antivirus • Command Antivirus • Vet. AMIvirus

Unit Sector(s)

Unit sector	Support

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAS2243B Detect and protect from spam and destructive software

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to reduce the risk of a computer's operation being affected by spam or destructive software. The following units are linked and form an appropriate cluster: • ICAU2005B Operate computer hardware • ICAU2006B Operate computing packages • ICAU2231B Use a computer operating system No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

Prerequisite units		

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. Detect and remove destructive software	1.1. Define and identify common types of <i>destructive software</i> 1.2. Select and install <i>virus protection</i> compatible with the <i>operating system</i> in use 1.3. Describe other <i>advanced systems</i> of protection, in order to understand further options 1.4. Install <i>software updates</i> on a regular basis 1.5. Configure software <i>security settings</i> to prevent <i>destructive software</i> from infecting computer 1.6. Run and/or schedule to run <i>virus protection</i> software on a regular basis 1.7. Report detected <i>destructive software</i> to <i>appropriate person</i> and remove the <i>destructive software</i>
2. Identify and take action to stop spam	2.1. Define and identify common types of <i>spam</i> 2.2. Take <i>appropriate action</i> in regard to <i>spam</i>

ELEMENT	PERFORMANCE CRITERIA
	2.3. Configure and use a <i>spam filter</i> 2.4. Report <i>spam</i> to <i>appropriate organisation</i>

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Decision making in a limited range of options
- Problem solving of known problems in routine procedures
- Plain English literacy and communication skills in relation to the presentation of information
- Basic skills in computer operation and software application operation
- Ability to install and/or activate system filtering and security settings

Required knowledge

- Basic knowledge of identification of spam and virus intrusions and appropriate remedial action
- Broad general knowledge of operating systems supported by the organisation
- Broad general knowledge of computer hardware
- Basic knowledge types protective applications used against viruses and spam
- Spam Act 2003 and associated 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.

Overview of assessment

Critical aspects for assessment and evidence required to demonstrate

Evidence of the following is essential:

EVIDENCE GUIDE	
competency in this unit	- Assessment must confirm the ability to identify, isolate and protect a system from destructive software by installing virus protection and software updates and to identify and take counter-action against SPAM. To demonstrate this unit of Competency the learner will require access to: - the organisation's applications needs - appropriate software - computer hardware
Context of and specific resources for assessment	The spread of junk email or spam over the internet has the potential to threaten the viability and efficiency of electronic messaging. Together with the circulation of destructive software in the form of viruses and the like, spam damages consumer confidence, obstructs legitimate business activities and imposes costs on users. This competency is one of a suite of foundation skills necessary for all users of email and internet services. The breadth, depth and complexity of knowledge and skills in this competency would prepare a person to perform in a range of varied activities or knowledge applications where there is a clearly defined range of contexts in which the choice of actions required is usually clear. There would generally be limited complexity in the range of operations to be applied. Assessment must ensure: - Performance of a prescribed range of functions involving known routines and procedures and some accountability for the quality of outcomes would be characteristic. - Applications may include some complex or non-routine activities involving individual responsibility or autonomy and/or collaboration with others as part of a group or team.

EVIDENCE GUIDE

Method of assessment

The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1.

- Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency.
- Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.

Guidance information for assessment

Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example:

- ICAU2005B Operate computer hardware
- ICAU2006B Operate computing packages
- ICAU2231B Use a computer operating system

An individual demonstrating this competency would be able to:

- demonstrate basic operational knowledge in a moderate range of areas
- apply a defined range of skills
- apply known solutions to a limited range of predictable problems

EVIDENCE GUIDE	
	- perform a range of tasks where choice between a limited range of options is required - assess and record information from varied sources - take limited responsibility for own outputs in work and learning - Maintain knowledge of industry products and services

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.	
<i>Appropriate action</i> may include but is not limited to:	- Delete the spam - Block the sender by configuring spam filter. - Unsubscribe from mailing list, if company is reputable
<i>Appropriate organisation</i> may include but is not limited:	- Company that originated the spam message. - Australian Communications Authority (www.aca.gov.au) - Australian Broadcasting Authority (www.aba.gov.au/internet) - Scamwatch (www.scamwatch.gov.au)
<i>Appropriate person</i> may include:	- supervisor - teacher - authorised business representative - client
<i>Operating System</i> may include but is not limited to:	- Linux 7.0 or above - Windows 2000 or above - Apple OS X or above
<i>Virus protection</i>	There are various antivirus software applications available. Some include: McAfee, Panda AntiVirus, Protector Plus Antivirus, Symantec's Norton Antivirus,

RANGE STATEMENT	
	Command Antivirus, Vet. AMIvirus
<i>Destructive Software</i> may include but ins not limited to:	• Viruses • File viruses • System sector viruses • Macro viruses • Worms • Trojans • Logic bombs • Spyware
<i>Software Updates</i> may include but ins not limited to:	• Service packs and service releases • Security patches • Automatic online updates • Virus scanning engine updates • Virus definition updates
<i>Spam</i> may include:	• unsolicited commercial electronic messaging, where electronic messaging covers emails, instant messaging, SMS and other mobile phone messaging, but does not cover normal voice-to-voice communication by telephone. • A formal definition is included in the Spam Act 2003.
<i>Spam filter</i> may include but is not limited to:	• Email client filters or rules • Email server filters • Third party filter programs such as: • MailWasher Pro • Spamassassin • Norton Internet Security
<i>Security settings</i> may include but is not limited to:	• Internet browser security settings • Virus protection security settings • Firewall security settings • Operating system security settings
<i>Advanced systems</i> may include but is not limited to:	• Hardware firewall • Software firewall

Unit Sector(s)

Unit sector	Support

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAS2248A Protect and secure information assets

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required for ensuring information assets are protected from improper access and appropriate actions are taken to secure assets in the event that they are threatened. <i>No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.</i>

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		
	ICAU2231B	Use a computer operating system

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 assets and threats	1.1. Identify types of <i>information assets</i> in the <i>organisation</i> 1.2. Identify mechanisms by which information assets are accessed, transmitted and stored 1.3. Establish nature of threats to information assets and determine the <i>impact</i> that <i>loss or damage</i> may have to the organisation
2. Secure assets	2.1. Identify the actions, mechanisms and strategies to protect information assets 2.2. <i>Secure</i> assets within scope of authority and report these issues <i>to appropriate person</i> and other issues where it is 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 3.2. Provide <i>first level response</i> to reduce impacts, mitigate damage and protect evidence 3.3. Report incident, effects and actions to appropriate person

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Basic knowledge of Information assets
- Broad general knowledge of operating systems supported by the organisation
- Broad general knowledge of computer hardware
- Basic knowledge types protective applications used against viruses and spam and other threats
- Interaction between relevant hardware and software products and communication devices
- Broad knowledge of the client business domain

Required knowledge

- Identification of key sources of information assets
- Decision making in a limited range of options
- Problem solving of known problems in routine procedures
- Plain English literacy and communication skills in relation to the presentation of information
- Basic skills in computer operation and software application operation
- Ability to install and/or activate system filtering and security settings

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

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

Evidence of the following is essential:

- Assessment must confirm the ability to conduct research and discuss various security issues relating to Information assets.
- Assessment must confirm the ability to examine and discuss examples of different actions using case

EVIDENCE GUIDE	
	studies
Context of and specific resources for assessment	Threats to information assets is ever present and an appropriate understanding of how these assets should be protected and the response and actions in the event of an attack, loss or damaging event is important for every individual in the workplace. The breadth, depth and complexity of knowledge and skills in this competency would prepare a person to perform in a range of varied activities or knowledge applications where there is a clearly defined range of contexts in which the choice of actions required is usually clear. There would generally be limited complexity in the range of operations to be applied. Performance of a prescribed range of functions involving known routines and procedures and some accountability for the quality of outcomes would be characteristic. Applications may include some complex or non-routine activities involving individual responsibility or autonomy and/or collaboration with others as part of a group or team. To demonstrate this unit of competency the learner will require access to: • The organisation's applications needs and information types • Appropriate software systems • Computer hardware and office environments representative of a range of workplaces
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs.

EVIDENCE GUIDE

	Additional guidance on these and related matters is provided in ICA05 Section 1. The following assessment method is appropriate for this unit: • Assessment of this unit of Competency will usually include observation of real or simulated work processes and procedures, quality projects, questioning on underpinning knowledge and skills. This competency can be assessed in the workplace or in a simulated environment. Simulated activities must closely reflect the workplace to fully demonstrate Competency. • Competency in this unit needs to be assessed using summative assessment to ensure consistency of performance in a range of contexts.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. An individual demonstrating this competency would be able to: • Demonstrate basic operational knowledge in a moderate range of areas • Apply a defined range of skills • Apply known solutions to a limited range of predictable problems • Perform a range of tasks where choice between a limited range of options is required • Assess and record information from varied sources • Take limited responsibility for own outputs in work and learning • Maintain knowledge of industry products and services

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.

<i>Information assets</i> may include:	• forms • procedures • reports • files • online or printed data and information • passkeys or passwords • programs or information channels • equipment
<i>Organisation</i> may include:	• individuals inside and outside the business • departments • the whole business • entities outside the business • government
<i>Impact</i> may include:	• financial • personal • reputation • privacy issues • confidentiality
<i>Loss or damage</i> may include:	• theft • damage or destruction • unauthorised publication • deletion • alteration • misuse
<i>Secure</i> may include:	• protective software installation or operation • appropriate modification of procedures or processes • changing of passwords or work habits • physical exclusion or control, etc.
<i>Appropriate person</i> may include:	• supervisor • peers • business owner or authorised business

RANGE STATEMENT	
	representative • government • client • police as appropriate
<i>First level response</i> may include:	• updating software protection • logging off • powering down systems • changing passwords • locking doors • excluding people from access • locking down the workplace

Unit Sector(s)

Unit sector	Support

Co-requisite units

Co-requisite units	

Competency field

Competency field	

ICAS3024B Provide basic system administration

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to implement components of systems backup, restore, security and licensing in a standalone or client server environment. The following units are linked and form an appropriate cluster: • ICAI3020B Install and optimise operating system software • ICAT3025B Run standard diagnostic tests • ICAS3031B Provide advice to clients No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

Prerequisite units		

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. Record security access	1.1. Obtain <i>client</i> access requirements and clearance levels according to <i>organisational requirements</i> 1.2. Issue computer or network user account and password details to <i>client</i> 1.3. Provide security documentation and access to <i>client</i> 1.4. Record user account and security access details to maintain system integrity and assist later auditing
2. Record software licences	2.1. Determine what licensed <i>software</i> is used within the organisation 2.2. Maintain <i>records</i> of licence number and location 2.3. Check personal computers and network for illegal <i>software</i> 2.4. Report illegal <i>software</i> to <i>appropriate person</i>
3. Carry out system	3.1. Create or review <i>organisational</i> back-up schedule

ELEMENT	PERFORMANCE CRITERIA
backup	3.2. Complete file back-ups according to the schedule 3.3. Label and store back-ups according to organisational requirements 3.4. Maintain records of back-ups
4. Restore system backup	4.1. Determine and test restore procedures according to organisational guidelines 4.2. Complete a restore under supervision of an appropriate person 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 5.2. Maintain a security access register in line with organisational guidelines to record which client or groups have access to which resources 5.3. Identify the security controls on the file system provided by the operating system 5.4. Apply effective access control on files and directories

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Plain English literacy and communication skills in relation to presentation of information
- Basic diagnostic skills in relation to system administration
- Questioning and active listening for clarifying instructions
- Basic analytical skills
- Problem solving skills
- Inventory recording

Required knowledge

- General knowledge of software copyright responsibilities
- Detailed knowledge of organisational security procedures

REQUIRED SKILLS AND KNOWLEDGE

- Broad knowledge of operating systems used by the organisation
- Current industry-accepted hardware and software products, with broad knowledge of general features and capabilities and detailed knowledge in some areas
- Detailed knowledge of back-up procedures
- Detailed knowledge of the system's current functionality
- General knowledge of system performance
- Broad knowledge of maintenance procedures
- Broad knowledge of diagnostic tools

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

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

Evidence of the following is essential:

- Assessment must confirm the ability to perform systems back-up, restore and maintain correct usage according to licensing agreements in a standalone or client server environment.

To demonstrate competency in this unit the learner will require access to:

- Security guidelines
- Back-up procedures

Context of and specific resources for assessment

The breadth, depth and complexity of knowledge and skills in this competency would cover selecting, adapting and transferring skills and knowledge to new environments and providing technical advice and some leadership in resolution of specified problems. This would be applied across a range of roles in a variety of contexts with some complexity in the extent and choice of options available.

EVIDENCE GUIDE	
	Assessment must ensure: • Performance of a defined range of skilled operations, usually within a range of broader related activities involving known routines, methods and procedures, where some discretion and judgement is required in the selection of equipment, services or contingency measures and within known time constraints would be characteristic. • Applications may involve some responsibility for others. Participation in teams including group or team coordination may be involved.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended,

EVIDENCE GUIDE

	for example: • ICAI3020B Install and optimise operating system software • ICAT3025B Run standard diagnostic tests • ICAS3031B Provide advice to clients An individual demonstrating this competency would be able to: • Demonstrate some relevant theoretical knowledge • Apply a range of well-developed skills • Apply known solutions to a variety of predictable problems • Perform processes that require a range of well-developed skills where some discretion and judgement is required • Interpret available information, using discretion and judgement • Take responsibility for own outputs in work and learning • Take limited responsibility for the output of others • Maintain knowledge of industry products and services

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.	
<i>Organisational requirements</i> may include but are not limited to:	• Availability of system to be optimised • Complexity of technical manuals • In-house or vendor ICT purchasing arrangements • Client support documentation • ICT policy and procedures relating to service

RANGE STATEMENT	
	levels and installation • Security procedures • System administration and back-up procedures • Type of product licences • Storage of ICT documentation; register of licences
Organisational guidelines may include but are not limited to:	• personal use of emails and internet access • content of emails • downloading information and accessing particular websites • opening mail with attachments • virus risk • dispute resolution • document procedures and templates • communication methods • financial control mechanisms
Records may include:	• databases • spreadsheets or other recording mechanisms using operating system • vendor tools to create, modify and document user accounts and access to computer/network resources
Software may include but is not limited to:	• commercial software applications • organisation-specific software
Appropriate person may include:	• supervisor • teacher • authorised business representative • client
Documentation may follow:	• ISO/IEC/AS standards • audit trails • naming standards • version control • project management templates and report writing • maintaining equipment inventory • client training • satisfaction reports
Client may include but is not limited to:	• internal departments • external organisations • individual people

RANGE STATEMENT	
	• employees

Unit Sector(s)

Unit sector	Support

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAS3031B Provide advice to clients

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to provide advice and support to clients including the communication of comprehensive technical information. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

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. Analyse client support issues	1.1. Check for new problems logged by <i>client</i> 1.2. Check previous logs for similar problems or requests from <i>client</i> 1.3. Investigate and document the support issues affecting the <i>client</i> 1.4. Notify client of the results of <i>investigation</i> and provide <i>advice and support</i> on findings 1.5. Obtain <i>client</i> feedback and make changes
2. Provide advice on software, hardware or network	2.1. Confirm software, hardware or network requirements with <i>client</i> 2.2. Investigate and document a <i>solution</i> 2.3. Document additional requirements discovered in the investigation and refer them to the <i>client</i> 2.4. Obtain approval from the <i>client</i> to implement the <i>solution</i> 2.5. Investigate and document the amount of technical support the <i>client</i> may require 2.6. Discuss and agree the level of technical support identified with the <i>client</i> 2.7. Arrange a time with the <i>client</i> when support will take place 2.8. Provide technical support as part of group or

ELEMENT	PERFORMANCE CRITERIA
	one-to-one instruction to the <i>client</i> 2.9. Provide manuals and help <i>documentation</i> to the <i>client</i>
3. Obtain client feedback	3.1. Create an appropriate evaluation or feedback form or other mechanism to gather feedback about the <i>solution</i> and support provided 3.2. Provide <i>client</i> with instructions on how to complete the form or use other means of providing feedback 3.3. Distribute the evaluation or feedback to the <i>client</i> 3.4. Review the feedback from the <i>client</i> to identify areas for improvement

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Writing macros and templates
- One-to-one instruction
- Client needs assessment methods
- Interpretation of technical manuals
- Verbal and non-verbal communication skills for conveying and clarifying complex information
- Customer service skills in a range of contexts at various levels

Required knowledge

- Operating systems supported by the organisation
- Advanced features and functions of software
- Information sources
- Contract and service agreements with vendors
- Operating systems functions and basic features
- Hardware and software supported by the organisation
- Features of different types of hardware
- Security and network guidelines and procedures
- Available in-house and vendor support

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

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

Evidence of the following is essential:

- Assessment must confirm the ability to convey comprehensive technical information to clients in a clear, concise and coherent manner. Assessment must confirm the ability to access technical manuals and help documentation and to convey this information to the client in a concise and jargon-free manner. Information conveyed enhances client efficiency.

To demonstrate competency in this unit the learner will require access to:

- Peers and supervisors for obtaining information
- Software, hardware and networks
- Helpdesk repository

Context of and specific resources for assessment

The breadth, depth and complexity of knowledge and skills in this competency would cover selecting, adapting and transferring skills and knowledge to new environments and providing technical advice and some leadership in resolution of specified problems. This would be applied across a range of roles in a variety of contexts with some complexity in the extent and choice of options available.

Assessment must ensure:

- Performance of a defined range of skilled operations, usually within a range of broader related activities involving known routines, methods and procedures, where some discretion and judgement is required in the selection of equipment, services or contingency measures and within known time constraints would be characteristic.

EVIDENCE GUIDE	
	Applications may involve some responsibility for others. Participation in teams including group or team coordination may be involved.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. - Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. - Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. An individual demonstrating this competency would be able to: - Demonstrate some relevant theoretical knowledge - Apply a range of well-developed skills - Apply known solutions to a variety of predictable problems - Perform processes that require a range of

EVIDENCE GUIDE	
	well-developed skills where some discretion and judgement is required • Interpret available information, using discretion and judgement • Take responsibility for own outputs in work and learning • Take limited responsibility for the output of others • Maintain knowledge of industry products and services

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.	
<i>Client</i> may include but is not limited to:	• internal departments • external organisations • individual people • employees
<i>Advice and support</i> may include:	• provision of client documentation • manuals • one-to-one training • identification of training need for referral to supervisor • documentation from vendor • advice on software supported by the organisation, including but not limited to use of macros, statistical functions of spreadsheets, creation of templates, generation of a complex report on a database, password and log-on procedure • advice on hardware supported by the organisation, including but not limited to printers, laptops, notebooks, CD-ROM, screens, disk drives, reconfiguration of

RANGE STATEMENT	
	settings, operation of scanners
Documentation may include:	a collection of records that describe the structure, purpose, operation, maintenance and data requirements for a computer program, operating system or hardware device
Investigation may include:	- on-site examination - questions and answers - active listening to clients and colleagues - contacting vendor or maintenance organisations - reviewing technical advice about the organisation
Solution may include but is not limited to:	- new hardware - hardware upgrades - new software - software upgrades - user training - implementing a new system

Unit Sector(s)

Unit sector	Support

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAS3032B Provide network systems administration

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to technically manage elements of a network including contribution to disaster recovery plan. The following units are linked and form an appropriate cluster: • ICAI3020B Install and optimise operating system software • ICAS3120C Configure and administer a network operating system <i>No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.</i>

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		
	ICAI3101B	Install and manage network

Prerequisite units		
		protocols
	ICAS3024B	Provide basic system administration

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. Provide client access and security	1.1. Provide logons, passwords and applications file access to users and prepare documentation in line with organisational requirements 1.2. Evaluate records of user accounts to determine access privileges and usage 1.3. Take necessary action to ensure maintenance of system integrity and security
2. Input into and disseminate disaster recovery plan	2.1. Provide input for the organisation's disaster recovery plan 2.2. Disseminate disaster recovery plan to user as required
3. Monitor network performance	3.1. Perform diagnostic tests associated with administering the network or system

ELEMENT	PERFORMANCE CRITERIA
	3.2. Analyse and respond to diagnostic information 3.3. Monitor software usage including inappropriate or illegal use 3.4. Delete illegal software from the system 3.5. Monitor hardware response time and other performance indicators 3.6. Determine and action methods for improving network and systems efficiency according to organisational guidelines

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Interpretation of technical manuals
- One-to-one instruction
- Questioning and active listening for conveying and clarifying information
- Client needs assessment methods
- System administration skills
- Customer service skills in a range of contexts at various levels
- Diagnostic skills

Required knowledge

- Organisational and technical systems
- Organisational access and security procedures
- Software copyright responsibilities
- Operating systems supported by the organisation
- Operating systems functions and basic features
- Organisational procedures for protection against and elimination of computer viruses
- Advanced knowledge of software features supported by the organisation
- Security and network guidelines and procedures
- Policy and procedures for deleting, restoring and archiving of files
- Approaches to back-up and restoring computer data
- Disaster recovery policy

REQUIRED SKILLS AND KNOWLEDGE

- Procedures for creating logons
- File access
- In-house and vendor support
- OH&S legislation relating to the use of 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

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

Evidence of the following is essential:

- Assessment must confirm competency in sustaining the operation of the network through maintenance of network integrity and the performing of diagnostic tests. Assessment must also confirm competency in contributing to the formulation of a disaster recovery plan and providing the client with an optimised network that complies with organisational guidelines.

To demonstrate competency in this unit the learner will require access to:

- Peers and supervisors for obtaining information on the extent and quality of the contribution made
- Live network

Context of and specific resources for assessment

Demonstrating competency in network systems administration would include knowledge by recall in a narrow range of areas; and demonstrate basic practical skills, such as the use of relevant systems administration tools.

Breadth, depth and complexity of knowledge and skills would prepare a person to perform in a range of varied activities or knowledge application where there are clear guidelines on managing a network system and associated

EVIDENCE GUIDE

	software and hardware. The breadth, depth and complexity of knowledge and skills in this competency would cover selecting, adapting and transferring skills and knowledge to new environments and providing technical advice and some leadership in resolution of specified problems. This would be applied across a range of roles in a variety of contexts with some complexity in the extent and choice of options available. Assessment must ensure: • Performance of a defined range of skilled operations, usually within a range of broader related activities involving known routines, methods and procedures, where some discretion and judgement is required in the selection of equipment, services or contingency measures and within known time constraints would be characteristic. • Applications may involve some responsibility for others. Participation in teams including group or team coordination may be involved.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Assessment will usually include observation of real

EVIDENCE GUIDE	
	or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • ICAI3020B Install and optimise operating system software • ICAS3120B Configure and administer a network operating system Demonstration of competency would involve: • Demonstrating basic operational knowledge of a network system in a range of areas • Applying appropriate knowledge and skills in managing and administering a network within a limited range of predictable outcomes • Performing a range of tasks where choice between options for network performance is required Additionally, an individual demonstrating this competency would be able to: • Demonstrate some relevant theoretical knowledge • Apply a range of well-developed skills • Apply known solutions to a variety of predictable problems • Perform processes that require a range of well-developed skills where some discretion and judgement is required • Interpret available information, using discretion and judgement • Take responsibility for own outputs in work and learning • Take limited responsibility for the output of others • Maintain knowledge of industry products and

EVIDENCE GUIDE

services

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.

User may include:

- a person within a department
- a department within the organisation
- a third party

Documentation may follow:

- ISO/IEC/AS standards
- audit trails
- naming standards
- version control
- project management templates and report writing
- maintaining equipment inventory
- client training
- satisfaction reports

System may include but is not limited to:

- network
- application
- software
- business
- computers
- financial system
- management system
- information system

Hardware may include:

- Workstations, personal computers
- Modems or other connectivity devices
- Networks
- Remote sites
- Servers

Software may include but is not

- commercial, in-house, packaged or customised

RANGE STATEMENT	
limited to:	software
Organisational requirements may be in reference to:	• work environment • problem solution processes • preventative maintenance • diagnostic policy • roles and technical responsibilities in the IT department • vendor and product service-level support agreements
Organisational guidelines may include but are not limited to:	• personal use of emails and internet access • content of emails • downloading information and accessing particular websites, opening mail with attachments, virus risk, dispute resolution, document procedures and templates • communication methods • financial control mechanisms
OH&S standards may include:	• correct posture • lighting • type of desk • type of monitor • style of chair • typing position • repetitive strain injury prevention • ventilation • light position • correct lifting method • length of time in front of computer

Unit Sector(s)

Unit sector	Support

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAS3034B Determine and action network problems

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to document network related problems, determine the resources required, solve the client problem or escalate the problem to a new support level. The following units are linked and form an appropriate cluster: • ICAD3218B Create user documentation • ICAD4217B Create technical documentation No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		
	ICAS3024B	Provide basic system administration

Prerequisite units		
	ICAT3025B	Run standard diagnostic tests

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. Determine client requirements and ascertain if problem exists	1.1. Log calls from help desk support staff 1.2. Determine and document <i>problem</i> based on <i>client</i> requirements
2. Determine whether problem is covered by policy	2.1. Verify the scope and coverage of maintenance and technical <i>support agreements</i> relative to the problem and <i>client</i> requirements 2.2. Provide assistance in accordance with <i>organisational guidelines</i>
3. Carry out maintenance support on identified problem	3.1. Conduct diagnostic tests around identified problem 3.2. Complete maintenance in line with <i>organisational guidelines</i> 3.3. Obtain new <i>components</i> as part of the resolution, where necessary 3.4. Store or dispose of <i>components</i> in accordance with

ELEMENT	PERFORMANCE CRITERIA
	<i>organisational guidelines</i> and <i>environmental guidelines</i>
4. Prepare maintenance report and verify solution	4.1. Prepare maintenance report in line with <i>organisational guidelines</i> and <i>support agreements</i> 4.2. Escalate <i>maintenance requirements</i> to appropriate area, as required 4.3. Follow up with the <i>client</i> to determine <i>solution</i> success and close the report

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Diagnostic skills on networks
- Solving unknown problems in a range of contexts
- Inventory skills
- Customer service skills in a range of contexts at various levels

Required knowledge

- Organisational information relating to logging calls, and contracting and maintenance arrangements
- Inventory processes
- Technical support agreements
- Technical systems

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.

EVIDENCE GUIDE	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: - Assessment must substantiate the ability to document network-related problems, determine the required resources, solve the client problems or escalate the problem in accordance with organisational guidelines. The network is to be maintained with minimal disruption to clients. To demonstrate competency in this unit the learner will require access to: - Hardware - Diagnostic tools and software - Records and reports
Context of and specific resources for assessment	The breadth, depth and complexity of knowledge and skills in this competency would cover selecting, adapting and transferring skills and knowledge to new environments and providing technical advice and some leadership in resolution of specified problems. This would be applied across a range of roles in a variety of contexts with some complexity in the extent and choice of options available. Assessment must ensure: - Performance of a defined range of skilled operations, usually within a range of broader related activities involving known routines, methods and procedures, where some discretion and judgement is required in the selection of equipment, services or contingency measures and within known time constraints would be characteristic. - Applications may involve some responsibility for others. Participation in teams including group or team coordination may be involved.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the

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	implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • ICAD3218B Create user documentation • ICAD4217B Create technical documentation An individual demonstrating this competency would be able to: • Demonstrate some relevant theoretical knowledge • Apply a range of well-developed skills • Apply known solutions to a variety of predictable problems • Perform processes that require a range of well-developed skills where some discretion and judgement is required • Interpret available information, using discretion and judgement • Take responsibility for own outputs in work and

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	- learning - Take limited responsibility for the output of others - Maintain knowledge of industry products and services

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.

<i>Problem</i> may include:	routine or non-routine problems that may affect the immediate work environment, particularly in relation to using equipment such as workstations, servers
<i>Support agreements</i> may include:	- time - cost - warranty - replacement - performance from escalated support levels
<i>Organisation guidelines</i> may include but are not limited to:	- security procedures - logged call procedures - client liaison policy - preventative maintenance and diagnostic policy - maintenance agreements - warranties - contracting arrangements relating to IT purchasing
<i>Client</i> may include but is not limited to:	- internal departments - external organisations - individual people - employees
<i>Maintenance requirements</i> may	on-site response

RANGE STATEMENT	
include:	- remote diagnostics - return to depot
<i>Environmental guidelines</i> may include but are not limited to:	- recycling - safe disposal of any packaging (e.g. cardboard, polystyrene, paper, plastic) - correct disposal of redundant hardware (e.g. hard-drives, circuit boards)
<i>Components</i> may include:	- motherboards - CMOS battery - central processing unit (CPU) - CD and DVD drives - interface cards - drives - fax/modem cards - RAM upgrades - CPU upgrades
<i>Solution</i> may include but is not limited to:	- new hardware - hardware upgrades - new software - software upgrades - user training - implementing a new system

Unit Sector(s)

Unit sector	Support

Co-requisite units

Co-requisite units	

Competency field

Competency field	

ICAS3115B Maintain equipment and software in working order

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to carry out maintenance and fault repair according to organisational procedures, in order to keep equipment and software operating. The following units are linked and form an appropriate cluster: • ICAT3025B Run standard diagnostic tests • ICAS3034B Determine and action network problems • ICAI3021B Connect internal hardware components • ICAU3019B Migrate to new technology No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units	

Prerequisite units		

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. Determine and undertake required equipment maintenance	1.1.Examine and review specified <i>equipment</i> and <i>maintenance</i> procedures, in order to determine those procedures that can be handled internally 1.2.Organise and undertake internal <i>maintenance</i> , as specified in the <i>maintenance</i> procedures 1.3.Report problems promptly to <i>appropriate person</i>
2. Diagnose and repair faults	2.1.Assess an existing problem situation and identify the main problem area 2.2.Test the suspected faulty <i>equipment</i> or <i>software</i> for possible failures or performance degradation, utilising available technology 2.3.Organise and analyse the test results 2.4.Review and analyse historical fault data for

ELEMENT	PERFORMANCE CRITERIA
	information of relevance to existing faults 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 2.6. Liaise with appropriate person to obtain approval for the plans 2.7. Obtain necessary components and repair the equipment or software in a timely, organised manner, following OH&S standards
3. Update documentation and make recommendations for future maintenance	3.1. Record maintenance and fault data and equipment modifications, in accordance with organisational standards 3.2. Identify and report instances where preventative measures are needed 3.3. Review and update maintenance and fault data and report outcomes periodically to appropriate person

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Risk analysis of maintenance procedures
- Reading and interpretation of technical manuals
- Technical diagnostic skills
- Problem solving skills for a defined range of unpredictable problems
- Language, literacy and communication skills necessary to process and present verbal and written information
- Analysis and evaluation of information in a defined range of areas
- Record keeping skills

Required knowledge

- Broad knowledge of equipment and software maintenance practices
- Familiarity with current industry-accepted hardware and software testing and diagnostic tools, with the ability to utilise them effectively
- Relevant service-level agreements (SLAs) in order to determine the conditions of

REQUIRED SKILLS AND KNOWLEDGE

the SLA cover

- Knowledge of the client warranty claims, repair or replacement procedures
- Detailed knowledge of the system's current functionality
- Broad knowledge of quality assurance practices
- Operation and purpose of specified equipment
- Operation of technical diagnostic tools
- Detailed knowledge of help desk response level escalation 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.

Overview of assessment

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

Evidence of the following is essential:

- Assessment must confirm the ability to undertake maintenance according to maintenance procedures, resolve a defined range of equipment and software problems, and maintain accurate records according to organisational guidelines.

To demonstrate competency in this unit the learner will require access to:

- Technical environment with a variety of operational equipment and software
- Technical manuals and tools
- Maintenance procedures
- Equipment and/or software

Context of and specific resources for assessment

Maintaining equipment and software in good order relates to house-keeping within the organisation. The outcomes from maintaining software and equipment in sound working order are reliability and stability for end users, consistency of performance and less down time.

EVIDENCE GUIDE

	The breadth, depth and complexity of knowledge and skills in this competency would cover selecting, adapting and transferring skills and knowledge to new environments and providing technical advice and some leadership in resolution of specified problems. This would be applied across a range of roles in a variety of contexts with some complexity in the extent and choice of options available. Assessment must ensure: • Performance of a defined range of skilled operations, usually within a range of broader related activities involving known routines, methods and procedures, where some discretion and judgement is required in the selection of equipment, services or contingency measures and within known time constraints would be characteristic. • Applications may involve some responsibility for others. Participation in teams including group or team coordination may be involved.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills.

EVIDENCE GUIDE	
	The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • ICAT3025B Run standard diagnostic tests • ICAS3034B Determine and action network problems • ICAI3021B Connect internal hardware components • ICAU3019B Migrate to new technology An individual demonstrating this competency would be able to: • Demonstrate some relevant theoretical knowledge • Apply a range of well-developed skills • Apply known solutions to a variety of predictable problems • Perform processes that require a range of well-developed skills where some discretion and judgement is required • Interpret available information, using discretion and judgement • Take responsibility for own outputs in work and learning • Take limited responsibility for the output of others • Maintain knowledge of industry products and services

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

RANGE STATEMENT	
situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Appropriate person may include:	• supervisor • teacher • authorised business representative • client
Hardware may include but is not limited to:	• workstations • personal computers • modems or other connectivity devices • networks • DSL modems • remote sites • servers
Equipment may include but is not limited to:	• workstations • personal computers • modems or other connectivity devices • printers • DSL modems • hard drives • monitors • switches • hubs • personal digital assistant (PDA) • other peripheral devices
Software may include but is not limited to:	• commercial, in-house, packaged or customised software
Client may include but is not limited to:	• internal departments • external organisations • individual people • employees
Components may include:	• motherboards • CMOS battery • central processing unit (CPU) • CD and DVD drives • interface cards • drives • fax/modem cards • RAM upgrades • CPU upgrades

RANGE STATEMENT	
Maintenance may include:	• on-site response • remote diagnostics • return to depot
OH&S standards may include:	• correct posture • lighting • type of desk • type of monitor • style of chair • typing position • repetitive strain injury prevention • ventilation • light position • correct lifting method • length of time in front of computer

Unit Sector(s)

Unit sector	Support

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAS3120C Configure and administer a network operating system

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to create the network configuration required by a client and to set up and use administrative tools to manage the network. The following units are linked and form an appropriate cluster: • ICAT3025B Run standard diagnostic tests No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		
	ICAI3020B	Install and optimise operating system software

Prerequisite units		
	ICAS3032B	Provide network systems administration

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. Review network policies	1.1. Review <i>organisational policies</i> for <i>network</i> use and administration arrangements 1.2. Identify <i>network</i> administration tools both built into the <i>network operating system</i> and third-party tools that can be used to enforce <i>organisational policies</i> 1.3. Determine and document settings and parameters that should be used in order to meet policies and procedures 1.4. Make necessary recommendations to <i>appropriate person</i> for ways of overcoming weaknesses in administration tools
2. Create an interface with existing system	2.1. Identify and document the current <i>system</i> and <i>components</i> and configuration through audits of

ELEMENT	PERFORMANCE CRITERIA
	hardware and software 2.2. Identify and map system interaction by identifying what data is required by particular users and how often the data is accessed 2.3. Examine existing applications and plan required upgrades/reconfigurations to new system or applications 2.4. Test reconfiguration for successful interface with existing system
3. Set up and manage the network file system	3.1. Evaluate the network requirements of the user and design an appropriate file and folder structure 3.2. Create the designed file and folder structure using appropriate administration and system tools 3.3. Set the security, access and sharing of file system to meet user requirements 3.4. Identify and implement the virus protection requirements for the network in line with organisational procedures 3.5. Test the file system to ensure that appropriate access is available to the user groups 3.6. Document the created file system in accordance with organisational standards
4. Manage user services	4.1. Evaluate the network requirements of the user and design an appropriate set of services that should be provided 4.2. Implement the services required by using the appropriate administration and system tools 4.3. Create users and groups as required to facilitate user security and network access in accordance with user authorisation 4.4. Test successful access by users to authorised network data and resources and record outcomes
5. Monitor user accounts	5.1. Modify default user settings to ensure that they match security policies 5.2. Modify existing user settings for non-compliant security according to security and access policies 5.3. Check that appropriate legal notices at log on are displayed 5.4. Use appropriate utilities to check strength of passwords 5.5. Review procedures and take action to ensure that

ELEMENT	PERFORMANCE CRITERIA
	users who leave the organisation or area have their accounts disabled or deleted 5.6. Use information services to identify well-known and up-to-date security gaps and secure these with appropriate hardware and software
6. Provide and support backup security	6.1. Scan and, if required, clean the network of viruses before back-up 6.2. Review security requirements for users and data to be stored on network 6.3. Determine risks to which data is exposed and provide appropriate prevention and recovery processes 6.4. Implement systems to provide back-up and service restoration capability in the event of a disaster 6.5. Document and disseminate the disaster recovery procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Effective communication skills in relation to dealing with clients and team members (e.g. informing a client of certain technical procedures, such as virus checking a disk), with the ability to adapt the explanation of technical concepts to the level that is appropriate to the background knowledge of the client
- Administering and configuring network operating system
- Being able to undertake open-ended questioning techniques and to exercise active listening skills in relation to dealing with clients and team members (e.g. eliciting information for network troubleshooting)

Required knowledge

- Network operating systems that are currently industry standards, and knowing where to access the various system administration tools, as well as third-party tools that may be useful for monitoring various aspects of network performance or traffic
- Networking technologies, with broad knowledge of their general features and capabilities (e.g. AppleTalk, Ethernet, Novell, Linux)
- How network security is implemented in a LAN, such as users and groups settings, as well as setting file and folder permissions

REQUIRED SKILLS AND KNOWLEDGE

- How anti-virus software operates, how to install it and the importance of undertaking regular and timely updates, such as that of the virus data file or a newer version of the virus search engine

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

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

Evidence of the following is essential:

- Assessment must confirm knowledge of the facilities available in the operating environment.
- Assessment must confirm the ability to use network administrative tools and manage a network.
- Assessment must confirm the ability to create the network configuration required by the client and provide timely client service.

To demonstrate competency in this unit the learner will require access to:

- User network requirements
- Network administration tools
- Access policy
- Live network
- Server

Context of and specific resources for assessment

Many organisations rely heavily on computer network infrastructure to enhance the efficiency of their activities. Consequently, it is imperative that their networks be maintained to reflect current design and usage and that no security breaches adversely affect the system. This requires constant monitoring and reviewing of the network, in order to keep up with new functionality, added workload in network traffic and new virus protection measures.

EVIDENCE GUIDE

	The breadth, depth and complexity of knowledge and skills in this competency would cover selecting, adapting and transferring skills and knowledge to new environments and providing technical advice and some leadership in resolution of specified problems. This would be applied across a range of roles in a variety of contexts with some complexity in the extent and choice of options available. Assessment must ensure: • Performance of a defined range of skilled operations, usually within a range of broader related activities involving known routines, methods and procedures, where some discretion and judgement is required in the selection of equipment, services or contingency measures and within known time constraints would be characteristic. • Applications may involve some responsibility for others. Participation in teams including group or team coordination may be involved.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Assessment will usually include observation of real or simulated work processes and procedures and/or

EVIDENCE GUIDE	
	performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • ICAT3025B Run standard diagnostic tests An individual demonstrating this competency would be able to: • Demonstrate relevant administration skills and an understanding of the theoretical knowledge underpinning the network operating system • Apply a range of well-developed configuration skills to resolve problems • Apply known solutions to a variety of predictable configuration problems • Interpret available network systems knowledge and information, using discretion and judgement Additionally, an individual demonstrating this competency would be able to: • Demonstrate some relevant theoretical knowledge • Apply a range of well-developed skills • Apply known solutions to a variety of predictable problems • Perform processes that require a range of well-developed skills where some discretion and judgement is required • Interpret available information, using discretion and judgement • Take responsibility for own outputs in work and learning • Take limited responsibility for the output of others • Maintain knowledge of industry products and services

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.	
<i>Network</i> may include but is not limited to:	• large and small LANs • WANs • VPNs • the internet • the use of the PSTN for dial-up modems only • private lines • data • voice
<i>Appropriate person</i> may include:	• supervisor • teacher • authorised business representative • client
<i>Network operating system</i> may include but is not limited to:	• Novell NetWare 5 or above or any operating system that has multi-user ability • Linux • Mac OS • Windows 2000 or above
<i>Organisational policies</i> may include but are not limited to:	• how and what the organisation will operate • maintenance policy • security policy • diagnostic policy • OH&S policy
<i>System</i> may include but is not limited to:	• network • application • software • business • computers • financial system • management system

RANGE STATEMENT	
	information system
Components may include:	- motherboards - CMOS battery - central processing unit (CPU) - CD and DVD drives - interface cards - drives - fax/modem cards - RAM upgrades - CPU upgrades
Software may include but is not limited to:	Commercial, in-house, packaged or customised software
Hardware may include but is not limited to:	- workstations - personal computers - modems or other connectivity devices - networks - DSL modems - remote sites - servers
User may include:	- a person within a department - a department within the organisation - a third party
Applications may include:	- database programs - word processors - email programs - internet browsers - system browsers - spreadsheets
File system may involve:	- multiple or single servers - multiple or single logical disks and complex directory - folder structures
Information services may include:	- internet - chat rooms - forums - newsgroups
Back-up may involve:	simple, single tape unit back-up to more comprehensive and complex back-up facilities across the network

Unit Sector(s)

Unit sector	Support

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAS3121B Administer network peripherals

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to manage an environment of networked peripheral devices, in order to provide services to client users. The following units are linked and form an appropriate cluster: • ICAI3020B Install and optimise operating system software • ICAI4029C Install network hardware to a network • ICAS3034B Determine and action network problems No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units	

Prerequisite units		

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. Install peripherals to a network	1.1. Plan the location of <i>peripherals</i> to provide appropriate services to <i>users</i> and to take into consideration <i>OH&S standards</i> 1.2. Connect <i>peripherals</i> to <i>network</i>, using vendor-approved method and technology 1.3. Connect <i>peripherals</i> to computers in the <i>network</i> using parallel, serial or other direct connection methods 1.4. Add <i>peripheral</i> accessories or upgrades to <i>printer</i> such as memory or high-volume paper trays 1.5. Test <i>peripherals</i> for correct operation
2. Configure peripheral services to manage peripherals	2.1. Install <i>software</i> required to manage local and <i>network-connected peripherals</i> 2.2. Use meaningful names for <i>peripherals</i> and control queues

ELEMENT	PERFORMANCE CRITERIA
	2.3. Configure security and access to allow appropriate users to make use of peripherals 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 3.2. Use peripheral management software supplied as part of the network operating system or by third parties 3.3. Create templates for use on the network 3.4. Configure settings on the network to create maintenance schedules, usage logs, and cost centre usage statistics 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 4.2. Replace consumables and components when required 4.3. Fix peripheral mishaps and malfunctions 4.4. Monitor peripheral usage and traffic and recommend additional peripherals if needed 4.5. Determine failures of peripheral services or devices and rectify as required

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Ability to plan and discuss network issues with clients and team members in a manner that promotes team spirit and cooperation in carrying out project tasks.
- Communication skills for educating users about the causes of network problems and how to minimise their recurrence.
- Ability to use operating system and the peripheral device's logging or monitoring features to monitor the health of the peripheral.
- A familiarity with the general construction and operation of the peripheral device,

REQUIRED SKILLS AND KNOWLEDGE

in order to facilitate its troubleshooting.

- Awareness of network documentation conventions when configuring the peripheral device's name or new profile.

Required knowledge

- Current peripheral devices, such as scanners, multi-use devices, external modems
- How to configure peripherals for network use, with drivers and cable connections.

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

Evidence of the following is essential:

- Assessment must confirm knowledge of peripheral technologies and how network peripherals (hardware and software) are installed and configured.
- Assessment must confirm the ability to maintain networked peripherals in working order.

To demonstrate competency in this unit the learner will require access to:

- Live network
- Peripherals
- Documentation for records and reports

Context of and specific resources for assessment

The continuing development of new, more advanced and complex peripheral devices requires the network manager to be able to introduce and integrate the devices into the organisation's networked system. A competent learner should be able to efficiently engage in related installation and maintenance procedures in accordance with vendor specifications. This process includes the ability to troubleshoot the system in case the equipment functioned abnormally.

EVIDENCE GUIDE

	The breadth, depth and complexity of knowledge and skills in this competency would cover selecting, adapting and transferring skills and knowledge to new environments and providing technical advice and some leadership in resolution of specified problems. This would be applied across a range of roles in a variety of contexts with some complexity in the extent and choice of options available. Assessment must ensure: • Performance of a defined range of skilled operations, usually within a range of broader related activities involving known routines, methods and procedures, where some discretion and judgement is required in the selection of equipment, services or contingency measures and within known time constraints would be characteristic. • Applications may involve some responsibility for others. Participation in teams including group or team coordination may be involved.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Assessment will usually include observation of real or simulated work processes and procedures and/or

EVIDENCE GUIDE	
	performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • ICAI3020B Install and optimise operating system software • ICAI4029C Install network hardware to a network • ICAS3034B Determine and action network problems Demonstration of competency would involve: • Demonstrating basic network operational knowledge in relation to a range of common peripherals • Applying knowledge of normal operating mode and previous troubleshooting data to resolve operational problems with peripherals • Assessing and recording information related to network solutions and problems from varied sources • Taking limited responsibility for administering networks Additionally, an individual demonstrating this competency would be able to: • Demonstrate some relevant theoretical knowledge • Apply a range of well-developed skills • Apply known solutions to a variety of predictable problems • Perform processes that require a range of well-developed skills where some discretion and judgement is required • Interpret available information, using discretion and judgement • Take responsibility for own outputs in work and learning • Take limited responsibility for the output of others

EVIDENCE GUIDE

	• Maintain knowledge of industry products and services

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.

Peripherals may include but are not limited to:

- Printers, scanners, tape cartridges
- Speakers, multimedia kits
- Personal computer fax/modems
- Input equipment may include mouse, touch pad, keyboard, pens
- Mobile phones, palmtops and personal digital assistants (PDAs), laptops and desktop computers
- Bluetooth devices, universal serial bus (USB), Firewire (IEEE 1394)

User may include:

- a person within a department
- a department within the organisation
- a third party

OH&S standards may include:

- correct posture
- lighting
- type of desk
- type of monitor
- style of chair
- typing position
- repetitive strain injury prevention
- ventilation
- light position
- correct lifting method
- length of time in front of computer

Network may include but is not

- large and small LANs

RANGE STATEMENT	
limited to:	• WANs • VPNs • the internet • the use of the PSTN for dial-up modems only • private lines • data • voice
Printer may include but is not limited to:	• laser printers • ink jet printers (mono or colour)
Software may include but is not limited to:	• commercial, in-house, packaged or customised software
Applications may include:	• database programs • word processors • email programs • internet browsers • system browsers • spreadsheets
Consumables may include but is not limited to:	• ink cartridges • toner cartridges • ribbons • floppy disks • CD-R • CD-RW
Network operating system may include but is not limited to:	• Novell NetWare 5 or above or any operating system that has multi-user ability • Linux • Mac OS • Windows 2000 or above
Components may include:	• motherboards • CMOS battery • central processing unit (CPU) • CD and DVD drives • interface cards • drives • fax/modem cards • RAM upgrades • CPU upgrades

Unit Sector(s)

Unit sector	Support

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAS3234B Care for computer hardware

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to manage the selection, maintenance and location of hardware. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

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. Establish safe work practices	1.1.Determine, record and apply relevant legal requirements and <i>OH&S standards</i> to the installation and maintenance of computer <i>hardware</i> 1.2.Determine, record and apply requirements specified by <i>hardware</i> manufacturers 1.3.Determine, record and apply <i>safe work practices</i>, taking into account legal and manufacturer requirements
2. Establish location requirements for hardware and peripherals	2.1.Determine and apply suitable <i>environmental conditions</i> for hardware and peripherals 2.2.Determine and apply <i>system protection devices</i> 2.3.Determine and apply requirements when moving <i>hardware</i> 2.4.Determine and apply suitable storage principles for <i>hardware</i> and associated <i>peripherals</i> and media
3. Establish maintenance practices	3.1.Determine maintenance requirements specified by the <i>equipment</i> manufacturer 3.2.Produce <i>maintenance</i> schedules, including removal of dust and grease build-up 3.3.Perform diagnostic functions, including replacing suspect <i>components</i> with other serviceable <i>components</i> and reloading of associated <i>software</i> 3.4.Determine whether unserviceable <i>components</i> are replaceable through warranty, replacement or upgrade 3.5.Perform diagnostic functions using the <i>operating</i>

ELEMENT	PERFORMANCE CRITERIA
	<i>system</i> and third-party diagnostic tools
4. Determine appropriate hardware quality standards	4.1. Consider and apply business requirements in respect of hardware matters 4.2. Determine and apply quality standards to the selection of appropriate hardware and associated peripherals

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Diagnosis of hardware problems
- Ability to work safely, in respect of the specific hardware
- Selection of appropriate hardware for a given situation
- Problem solving skills
- Communication and comprehension of basic workplace documents
- Clear and precise communication
- Ability to set up and maintain hardware
- Interpretation of user manuals and help functions

Required knowledge

- General OH&S principles and responsibilities
- OH&S principles specific to equipment powered by mains electricity
- Viruses, worms and other security issues
- System hardware and associated peripherals functions
- Potential environmental effects of common types of hardware
- Importance of maintenance
- Handling of high-impedance devices
- Span of quality levels in common hardware
- Software related to hardware operations

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

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

Evidence of the following is essential:

- Assessment must ensure the ability to establish safe work practices, establish siting requirements for system hardware and associated peripheral devices, establish maintenance practices and determine appropriate hardware quality standards.

To demonstrate competency in this unit the learner will require access to:

- Hardware
- Software and diagnostic tools
- Records and reports

Context of and specific resources for assessment

Hardware encompasses all the physical connections that allow electronic communication to take place. Hardware is intertwined with software and this unit addresses software/hardware connections.

The breadth, depth and complexity of knowledge and skills in this competency would cover selecting, adapting and transferring skills and knowledge to new environments and providing technical advice and some leadership in resolution of specified problems. This would be applied across a range of roles in a variety of contexts with some complexity in the extent and choice of options available.

Assessment must ensure:

- Performance of a defined range of skilled operations, usually within a range of broader related activities involving known routines, methods and procedures, where some discretion and judgement is required in the selection of equipment, services or contingency measures and within known time constraints would

EVIDENCE GUIDE	
	be characteristic. • Applications may involve some responsibility for others. Participation in teams including group or team coordination may be involved.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. An individual demonstrating this competency would be able to: • Understand hardware related issues for safe and secure operation of electronic components • Demonstrate basic theoretical knowledge of hardware and software interoperability

EVIDENCE GUIDE

	• Safely remove and replace hardware components • Conduct maintenance on hardware parts Additionally, an individual demonstrating this competency would be able to: • Demonstrate some relevant theoretical knowledge • Apply a range of well-developed skills • Apply known solutions to a variety of predictable problems • Perform processes that require a range of well-developed skills where some discretion and judgement is required • Interpret available information, using discretion and judgement • Take responsibility for own outputs in work and learning • Communicate with team members to clarify job requirements • Take limited responsibility for the output of others • Maintain knowledge of industry products and services

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.

OH&S standards may include:

- correct posture
- lighting
- type of desk
- type of monitor
- style of chair
- typing position
- repetitive strain injury prevention

RANGE STATEMENT	
	• ventilation • light position • correct lifting method • electrical safety • monitor time • exposure
Hardware may include but is not limited to:	• workstations • personal computers • modems or other connectivity devices • networks • DSL modems • remote sites • servers
Environmental conditions may consist of but is not limited to:	• dust • heat • extreme cold • temperature stability • air circulation • moisture
Business requirements may include:	• cost and quality • robustness • industry standard components • capability for further system upgrades
Equipment may include but is not limited to:	• workstations • personal computers • modems or other connectivity devices • printers • hard drives • DSL modems • monitors • switches • hubs • personal digital assistant (PDA) • other peripheral devices
Components may include:	• motherboards • CMOS battery • central processing unit (CPU) • CD and DVD drives • interface cards

RANGE STATEMENT	
	• drives • fax/modem cards • RAM upgrades • CPU upgrades
Software may include but is not limited to:	• commercial, in-house, packaged or customised software
Safe work practices may include but are not limited to:	• handling of mains electricity • handling of high-impedance devices • handling of hazardous material
System protection devices may include but are not limited to:	• surge protection • uninterruptible power supplies
Peripherals may include but are not limited to:	• Printers, scanners, tape cartridges • Speakers, multimedia equipment • Personal computer fax/modems • Input equipment may include mouse, touch pad, keyboard, pens • Mobile phones, palmtops and personal digital assistants (PDAs), laptops and desktop computers • Bluetooth devices, universal serial bus (USB), Firewire (IEEE 1394)
Maintenance may include:	• on-site response • remote diagnostics • return to depot
Operating system may include but is not limited to:	• Linux 6.0 or above • Windows 98 or above • Apple OS 8 or above

Unit Sector(s)

Unit sector	Support

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAS4022B Determine and action client computing problems

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to record and prioritise client support activities, determine the required resources, solve client computing problems or escalate as necessary. There may be benefit in concurrent learning with the following unit: • ICAT4221B Locate equipment, system and software faults The following units are linked and form an appropriate cluster: • ICAS4112B Optimise system performance • ICAS4113C Identify and resolve common database performance problems • ICAS4127B Support system software No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

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. Determine client problem	1.1. Determine <i>client problem</i> by using questioning and/or other techniques 1.2. Document responses of <i>client</i> for follow-up action 1.3. Examine logged requests to determine specific <i>requirements</i> 1.4. Take action where required to gain further information 1.5. Refer to a database of known <i>problems</i> to identify possible resolution options
2. Prioritise client problems	2.1. Determine the scale of the <i>problem</i> based on information gathered 2.2. Establish and record relevant <i>constraints</i>

ELEMENT	PERFORMANCE CRITERIA
	2.3.Undertake an impact analysis of the problem to determine severity and risks 2.4.Prioritise the problem according to the organisation's escalation procedures 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 the appropriate process to follow when referring problems to third parties 3.2.Provide third party with client and problem details as required 3.3.Document the 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 4.2.Complete maintenance in line with organisational guidelines 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 5.2.Forward maintenance report to client for feedback
6. Confirm problem resolution	6.1.Obtain feedback from the client to ensure requirements have been met 6.2.Forward client feedback to appropriate person for sign-off and record in known problems database as appropriate

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Customer service
- Decision making involving discretion and judgement
- Time management for self and others

REQUIRED SKILLS AND KNOWLEDGE

- Common problem identification and resolution
- Questioning and active listening for conveying and clarifying information
- Literacy skills for interpretation of technical manuals

Required knowledge

- Principles of equal employment opportunity and anti-discrimination
- Principles of OH&S
- Broad general knowledge of operating systems functions and basic features
- Current industry-accepted hardware and software products, with broad knowledge of general features and capabilities and detailed knowledge in some areas
- Broad knowledge of escalation procedures
- Hardware and software supported by the organisation
- Work group procedures
- In-house or vendor support available
- Security and network guidelines 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.

Overview of assessment

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

Evidence of the following is essential:

- Assessment must confirm the ability to record and prioritise client support activities, determining the required resources, solving the client problem or escalating according to organisational guidelines or practices.

To demonstrate competency in this unit the learner will require access to:

- Hardware
- Software and diagnostic tools
- Documentation for records and reports

EVIDENCE GUIDE	
Context of and specific resources for assessment	The breadth, depth and complexity of knowledge and skills in this competency would cover a broad range of varied activities or application in a wider variety of contexts most of which are complex and non-routine. Leadership and guidance would be involved when organising activities of self and others as well as contributing to technical solutions of a non-routine or contingency nature. Assessment must ensure: • Performance of a broad range of skilled applications including the requirement to evaluate and analyse current practices, develop new criteria and procedures for performing current practices and provision of some leadership and guidance to others in the application and planning of the skills would be characteristic. • Applications may involve responsibility for, and limited organisation of, others.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills.

EVIDENCE GUIDE	
	The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • ICAS4112B Optimise system performance • ICAS4113C Identify and resolve common database performance problems • ICAS4127B Support system software • ICAT4221B Locate equipment, system and software faults An individual demonstrating this competency would be able to: • Demonstrate understanding of a broad knowledge base incorporating some theoretical concepts • Apply solutions to a defined range of unpredictable problems • Identify and apply skill and knowledge areas to a wide variety of contexts, with depth in some areas • Identify, analyse and evaluate information from a variety of sources • Take responsibility for own outputs in relation to specified quality standards • Take limited responsibility for the quantity and quality of the output of others • Maintain knowledge of industry products and services

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

RANGE STATEMENT	
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.	
Client may include but is not limited to:	• internal departments • external organisations • individual people • employees
Problem may be in reference to:	• business • system • application • network • people in the organisation
Requirements may be in reference to:	• business • system • application • network • people in the organisation
Constraints may include but is not limited to:	• time • budget • resource • hardware • software • policy • legal constraints
Advice and support may include provision of:	• client documentation • manuals and documentation from vendor. • Advice on software used by the organisation may include but is not limited to formatting spreadsheets, creation of graphs, setting up of word processing documents for printing, setting up an email system; advice on hardware supported by the organisation, including but not limited to operation of printers, setting of screen resolution, formatting of disks, and configuration of printers and scanners.
Organisational guidelines may include but are not limited to:	• use of emails and internet access • content of emails • downloading information and accessing particular websites

RANGE STATEMENT	
	• opening mail with attachments • virus risk • dispute resolution • document procedures and templates • communication methods • financial control mechanisms
Maintenance may include:	• on-site response • remote diagnostics • return to depot • business hours only support • 24 hour, 7 days per week support • telephone support • real-time on on-line support • second-level support
Components may include:	• motherboards • CMOS battery • central processing unit (CPU) • CD and DVD drives • interface cards • drives • fax/modem cards • RAM upgrades • CPU upgrades
Environmental guidelines may include but is not limited to:	• recycling • safe disposal of packaging (e.g. cardboard, polystyrene, paper, plastic) • correct disposal of redundant hardware (e.g. hard-drives, circuit boards)
Appropriate person may include:	• supervisor • teacher • authorised business representative • client

Unit Sector(s)

Unit sector	Support

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAS4023B Provide one-to-one instruction

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to convey technical information to an individual client for their specific use. The following units are linked and form an appropriate cluster: • ICAA4041C Determine and confirm client business expectations and needs No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

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. Determine client need	1.1. Consider the initial reason for the instruction and determine appropriate questions to ask the <i>client</i> 1.2. Arrange a time and meet with the <i>client</i> 1.3. Review the responses from the <i>client</i> 1.4. Determine the <i>instruction</i> the <i>client</i> requires
2. Organise instruction resources	2.1. Determine the resources required to perform the <i>instruction</i> 2.2. Prepare the <i>instruction</i> plan 2.3. Acquire the resources according to <i>organisational guidelines</i> 2.4. Prepare the resources for the <i>instruction</i> session 2.5. Arrange a time with the <i>client</i> for the <i>instruction</i> session
3. Provide appropriate instruction	3.1. Provide <i>instruction</i> to the <i>client</i> 3.2. Supervise the <i>client</i> performing the <i>instruction</i> unassisted 3.3. Document the <i>instruction</i> session according to <i>organisational guidelines</i>

ELEMENT	PERFORMANCE CRITERIA
	3.4.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 4.2.Obtain client evaluation and feedback to ensure the requirements of the client are met 4.3.Review the client feedback and discuss suggestions with appropriate person

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Strong customer service
- Range of interpersonal and instructional communication
- Decision making involving discretion and judgement
- Time management for self and others
- Problem solving known problems in a variety of contexts
- Questioning and active listening for conveying and clarifying information
- Literacy skills for interpretation of technical manuals

Required knowledge

- Technical and organisational systems
- Broad knowledge of operating systems functions and basic features
- Current industry-accepted hardware and software products, with broad knowledge of general features and capabilities and detailed knowledge in some areas
- Broad knowledge of escalation procedures
- Hardware and software supported by the organisation
- IT terminology
- Telephone, fax and on-line functions and procedures
- Work group procedures
- In-house or vendor support available
- Security and network guidelines 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.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: - Assessment must confirm the ability to convey technical information to an individual client for their specific use in a clear, concise and coherent manner with the meaning of technical jargon explained. To demonstrate competency in this unit the learner will require access to: - Client requirements either directly or through a peer or supervisor
Context of and specific resources for assessment	Providing one-to-one instruction requires sensitivity and skill in interpersonal communication and consideration should be given to privacy, cultural accommodations, and knowledge and understanding of the learner. The breadth, depth and complexity of knowledge and skills in this competency would cover a broad range of varied activities or application in a wider variety of contexts most of which are complex and non-routine. Leadership and guidance would be involved when organising activities of self and others as well as contributing to technical solutions of a non-routine or contingency nature. Assessment must ensure: Performance of a broad range of skilled applications including the requirement to evaluate and analyse current practices, develop new criteria and procedures for performing current practices and provision of some leadership and guidance to others in the application and planning of the skills would be

EVIDENCE GUIDE	
	characteristic. Applications may involve responsibility for, and limited organisation of, others.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. - Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. - Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: - ICAA4041C Determine and confirm client business expectations and needs An individual demonstrating this competency would be able to: - Demonstrate empathy and understanding of the

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	learner • Apply cultural accommodations when dealing with different cultures • Provide a set of solutions to a variety of predictable one on one problems • Perform one on one processes that require a range of well-developed skills where some discretion and judgement is required • Interpret available information using discretion and judgement • Take responsibility for outcomes when dealing with clients • Work may involve some responsibility for others • Participation in teams, including group or team coordination may be involved Additionally, an individual demonstrating this competency would be able to: • Demonstrate understanding of a broad knowledge base incorporating some theoretical concepts • Apply solutions to a defined range of unpredictable problems • Identify and apply skill and knowledge areas to a wide variety of contexts, with depth in some areas • Identify, analyse and evaluate information from a variety of sources • Take responsibility for own outputs in relation to specified quality standards • Take limited responsibility for the quantity and quality of the output of others • Maintain knowledge of industry products and services

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

RANGE STATEMENT	
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.	
Client may include but is not limited to:	• internal departments • external organisations • individual people • employees
Organisational guidelines may include but are not limited to:	• use of email and internet access • content of emails • downloading information and accessing particular websites • opening mail with attachments • virus risk • dispute resolution • document procedures and templates • communication methods • financial control mechanisms
Instruction may include:	• advice and support on a one-to-one basis • provision of client documentation, manuals • instruction with software supported by the organisation, including but not limited to formatting spreadsheet, creation of graphs, setting up of word processing document for printing, using an email system, browser, server • instruction with hardware supported by the organisation, including but not limited to operation of printers, setting of screen resolution, formatting of disks, reconfiguration of printers and use of scanners • instruction does not include delivery of formal accredited training or general classroom/workshop situations • instruction does not include delivery to more than one individual
Documentation may follow:	• ISO/IEC/AS standards • audit trails • naming standards • version control • project management templates • report writing principles

RANGE STATEMENT	
<i>Appropriate person</i> may include:	• supervisor • teacher • authorised business representative • client
<i>Further instruction requirements</i> may include:	• on-site instruction • questions and answers • active listening to client and other employees • hand off to ICT technical expert area • policy and procedures relating to IT training
<i>Requirements</i> may be in reference to:	• business • system • application • network • people in the organisation

Unit Sector(s)

Unit sector	Support

Co-requisite units

Co-requisite units	

Competency field

Competency field	

ICAS4033B Assist with policy development for client support procedures

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to contribute to the formulation of client support procedures to be included within organisational policy. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

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. Determine support issues	1.1. Review current <i>client</i> support procedures followed by the organisation if appropriate 1.2. Gather feedback from <i>client</i> detailing positive and negative aspects of their contact with the organisation 1.3. Gather feedback from <i>user</i> who executes <i>client</i> support procedures, detailing problems with current methods
2. Develop client support procedures	2.1. Create or update <i>client</i> support procedures using information gathered from the <i>client</i> and the <i>user</i> 2.2. Forward new <i>client</i> support procedures to <i>appropriate person</i> for review
3. Provide recommended changes for client support policy	3.1. Evaluate feedback on <i>client</i> support policy 3.2. Incorporate changes to <i>client</i> support policy 3.3. Determine the impact the new policy will have on <i>organisational guidelines</i> and <i>client</i> interactions 3.4. Prepare a report detailing changes in policy and the impact on the <i>client</i> and the <i>user</i> in a clear and concise manner 3.5. Forward the report and the updated policy to <i>appropriate person</i> for approval
4. Update documented	4.1. Amend policies to include new <i>client</i> support

ELEMENT	PERFORMANCE CRITERIA
client support policy	procedures 4.2. Issue new policies to <i>clients</i> and <i>users</i> in line with <i>organisational guidelines</i> 4.3. Maintain policy updates in line with <i>organisational guidelines</i>

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Interpretation of technical manuals
- Questioning and active listening to convey and clarify complex information
- Literacy skills for general and technical workplace documentation
- Report writing involving evaluation and analytical skills

Required knowledge

- Organisational guidelines for client maintenance and administration
- Organisational policy for access and security
- The review process
- Current trends and issues in IT

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

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

Evidence of the following is essential:

- Assessment must confirm the ability to review and create client support procedures, taking account of

EVIDENCE GUIDE	
	existing policies, procedures and emerging client needs. To demonstrate competency in this unit the following resources will be needed: • Peers and supervisors to ascertain the extent and quality of the contribution required • Information about systems or networks to be supported • Technical manuals and tools • Current business requirements • Documentation standards
Context of and specific resources for assessment	The breadth, depth and complexity of knowledge and skills in this competency would cover a broad range of varied activities or application in a wider variety of contexts most of which are complex and non-routine. Leadership and guidance would be involved when organising activities of self and others as well as contributing to technical solutions of a non-routine or contingency nature. Assessment must ensure: • Performance of a broad range of skilled applications including the requirement to evaluate and analyse current practices, develop new criteria and procedures for performing current practices and provision of some leadership and guidance to others in the application and planning of the skills would be characteristic. • Applications may involve responsibility for, and limited organisation of, others.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1.

EVIDENCE GUIDE	
	- Competency in this unit should to be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. - Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process.
Guidance information for assessment	The interdependence of units for assessment purposes may vary with the particular project or scenario. Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: - ICAW4027B Relate to clients on a business level An individual demonstrating this competency would be able to: - Demonstrate understanding of a broad knowledge base incorporating some theoretical concepts - Apply solutions to a defined range of unpredictable problems - Identify and apply skill and knowledge areas to a wide variety of contexts, with depth in some areas - Identify, analyse and evaluate information from a variety of sources - Take responsibility for own outputs in relation to specified quality standards - Take limited responsibility for the quantity and quality of the output of others.

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.	
<i>Client</i> may include but is not limited to:	• internal departments • external organisations • individual people • employees
<i>Appropriate person</i> may include:	• supervisor • teacher • authorised business representative • client
<i>User</i> may include:	• a person within a department • a department within the organisation • a third party
<i>Organisational guidelines</i> may include but are not limited to:	• personal use of emails and internet access • content of emails • downloading information and accessing particular websites • opening mail with attachments • virus risk • dispute resolution • document procedures and templates • communication methods • financial control mechanisms

Unit Sector(s)

Unit sector	Support

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAS4106B Action and complete change requests

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to receive, review and carry out change requests, while utilising a change management system according to client requirements. The following units are linked and form an appropriate cluster: • ICAA4041C Determine and confirm client business expectations and needs • ICAS4116B Undertake capacity planning No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

Prerequisite units		

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. Review change requests	1.1. Receive and document requests for hardware and software changes, utilising a change management system and according to organisational help desk procedures 1.2. Gather and organise system data relevant to the change requests, using available diagnostic tools 1.3. Review the proposed changes against current and future business requirements and examine the system data, with work team, in order to select appropriate changes to be carried out 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 2.2. Undertake the selected system changes according to

ELEMENT	PERFORMANCE CRITERIA
	organisational guidelines and procedures and in accordance with manufacturer recommendations 2.3. Test the system changes for performance and identify problems 2.4. Resolve identified problems 2.5. Revise relevant client and technical documentation to reflect system changes according to organisational standards 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 the needs of client in using the changed system 3.2. Deliver prepared training appropriate for the client

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Timely actioning of change requests
- Ability to handle requests within a defined range of problems
- Basic language and communication skills to carry out the change requests and to follow up on progress
- Record keeping for requests and actions
- Report writing skills
- Customer service skills
- General analysis in relation to reviewing change procedures
- Cultural awareness in relation to client interaction
- Conflict resolution skills in relation to handling clients
- Low-level training needs analysis capability

Required knowledge

- Broad knowledge of help desk practices
- Current industry-accepted hardware and software products, with broad knowledge of general features and capabilities and detailed knowledge in some areas
- Broad knowledge of the role of stakeholders and the degree of stakeholder

REQUIRED SKILLS AND KNOWLEDGE

involvement

- General knowledge of the client business domain
- Detailed knowledge of the system's current functionality
- Broad knowledge of quality assurance practices
- Change management tools
- Broad knowledge of system testing
- Broad knowledge of the organisation's service-level agreements

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

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

Evidence of the following is essential:

- Assessment must confirm the ability to use and update a change management system. Assessment must confirm the ability to review and assess change requirements, and to plan and implement change procedures according to organisational guidelines and client requirements. Assessment must confirm the ability to prepare and deliver training appropriate for the client.

To demonstrate competency in this unit the learner will require access to:

- Change request documentation
- Physical system or network
- Technical manuals, appropriate diagnostic tools
- Current business requirements
- Documentation standards
- Change management system

Context of and specific resources for assessment

Users who submit change requests generally require that such requests are actioned promptly and in accord and

EVIDENCE GUIDE	
	with due process and organisational policies. Service providers need to ensure that appropriate records are kept, regular communication is undertaken with clients, suitable support is provided and that action is taken in accordance with organisational policies. The breadth, depth and complexity of knowledge and skills in this competency would cover a broad range of varied activities or application in a wider variety of contexts most of which are complex and non-routine. Leadership and guidance would be involved when organising activities of self and others as well as contributing to technical solutions of a non-routine or contingency nature. Assessment must ensure: • Performance of a broad range of skilled applications including the requirement to evaluate and analyse current practices, develop new criteria and procedures for performing current practices and provision of some leadership and guidance to others in the application and planning of the skills would be characteristic. • Applications may involve responsibility for, and limited organisation of, others.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full

EVIDENCE GUIDE	
	demonstration of competency. Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: - ICAA4041C Determine and confirm client business expectations and needs - ICAS4116B Undertake capacity planning An individual demonstrating this competency would be able to: - Demonstrate understanding of a broad knowledge base incorporating some theoretical concepts - Apply solutions to a defined range of unpredictable problems - Identify and apply skill and knowledge areas to a wide variety of contexts, with depth in some areas - Identify, analyse and evaluate information from a variety of sources - Take responsibility for own outputs in relation to specified quality standards - Take limited responsibility for the quantity and quality of the output of others - Maintain knowledge of industry products and services

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.	
Hardware may include but is not limited to:	- workstations - personal computers - modems or other connectivity devices - networks - DSL modems - remote sites - servers
Software may include but is not limited to:	commercial, in-house, packaged or customised software
System may include but is not limited to:	hardware and software components that run a computer
Requirements may be in reference to:	- business - system - application - network - people in the organisation
Client may include but is not limited to:	- internal departments - external organisations - individual people - employees
Organisational guidelines may include but are not limited to:	- personal use of emails and internet access - content of emails - downloading information and accessing particular websites - opening mail with attachments - virus risk - dispute resolution - document procedures and templates - communication methods - financial control mechanisms
Technical documentation may	project specifications

RANGE STATEMENT	
include:	• reports • help references • technical manuals • training materials and self-paced tutorials • on-line help • user guides • brochures
Standards may include:	• ISO/IEC/AS standards • organisational standards • project standards (for further information refer to the Standards Australia website at: www.standards.com.au)
Documentation may follow:	• ISO/IEC/AS standards • audit trails • naming standards • version control • project management templates and report writing • maintaining equipment inventory • client training • satisfaction reports
Help desk procedures may include:	• Customer contact centre or general contact point that then consults with a supplier or other technician • Customer contact centre staffed by technicians capable of solving problems • Real-time on-line support • Web-based support

Unit Sector(s)

Unit sector	Support

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAS4107B Manage resolution of system faults on a live system

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to manage reactive errors and failures on a live system. The following units are linked and form an appropriate cluster: • ICAS4022B Determine client computing problems and action • ICAS4114B Implement maintenance procedures • ICAS4127B Support system software No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		
	ICAS3024B	Provide basic system administration

Prerequisite units		
	ICAT3025B	Run standard diagnostic tests
	ICAT4221B	Locate equipment, system and software faults

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. Determine maintenance methodologies and repositories	1.1. Identify the nature of <i>modification</i> to the <i>system</i> 1.2. Confirm the existence and currency of <i>repositories</i> 1.3. Review <i>repositories</i> for changes and develop new back-up procedures 1.4. Prepare or check <i>modification</i> request forms and levels of authority for sign-off 1.5. Develop a hierarchy of <i>modifications</i> and the response for each 1.6. Determine the back-up and blackout strategies in place
2. Implement change management system	2.1. Follow <i>standards</i> and procedures for logging the change request

ELEMENT	PERFORMANCE CRITERIA
	2.2.Document the expected impact to the user base during implementation 2.3.Identify levels of possible failure and the related reporting procedures 2.4.Document the expected outcomes of the modification 2.5.Inform user of modification implications 2.6.Assign the modification to appropriate person for actioning
3. Report review of results	3.1.Complete all aspects of the change system and ensure the modification is tested and operational 3.2.Prepare the report and deliver to the appropriate person indicating the results of modification 3.3.Update and amend documentation and repositories

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Problem solving skills for a defined range of unpredictable problems involving participation in the development of strategic initiatives
- Plain English literacy and communication skills in relation to analysis, evaluation and presentation of information
- Teamwork skills involve the contribution to solutions and goals of a non-routine or contingency nature
- Group facilitation and presentation skills in relation to transferring and collecting information and gaining consensus on concepts
- Negotiation skills in relation to other team members and applied to a defined range of predictable problems
- Report writing skills for business requiring depth in some areas, analysis and evaluation of information in a defined range of areas
- Change management skills in relation to maintaining the continuity of ICT operations and business functions
- Customer service skills in relation to reviewing change procedures
- Skills in handling difficult clients in relation to reviewing change procedures
- Conflict resolution skills in relation to reviewing change procedures

REQUIRED SKILLS AND KNOWLEDGE

- Risk analysis skills in relation to reviewing change procedures
- Low-level training needs analysis skills
- Low-level programming skills

Required knowledge

- Broad knowledge of help desk and maintenance practices
- Current industry-accepted hardware and software products, with broad knowledge of general features and capabilities and detailed knowledge in some areas
- Broad knowledge of the role of stakeholders and the degree of stakeholder involvement
- Broad general knowledge of the client business domain
- Detailed knowledge of the system's current functionality
- Broad knowledge of quality assurance practices
- Broad knowledge of system testing
- Broad knowledge of change control procedures
- Detailed knowledge of the system under modification

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

Evidence of the following is essential:

- Assessment must confirm the ability to identify the expected outcomes of the modification and demonstrate the steps involved in the implementation of the modification. The learner must have a good knowledge of the implications of success and failure of the proposed modification and what steps or procedures to carry out in each of these scenarios.

To demonstrate competency in this unit the learner will require access to:

- Live system

EVIDENCE GUIDE	
	• Benchmarking/testing tools
Context of and specific resources for assessment	The breadth, depth and complexity of knowledge and skills in this competency would cover a broad range of varied activities or application in a wider variety of contexts most of which are complex and non-routine. Leadership and guidance would be involved when organising activities of self and others as well as contributing to technical solutions of a non-routine or contingency nature. Assessment must ensure: • Performance of a broad range of skilled applications including the requirement to evaluate and analyse current practices, develop new criteria and procedures for performing current practices and provision of some leadership and guidance to others in the application and planning of the skills would be characteristic. • Applications may involve responsibility for, and limited organisation of, others.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as

EVIDENCE GUIDE	
	questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • ICAS4022B Determine client computing problems and action • ICAS4114B Implement maintenance procedures • ICAS4127B Support system software An individual demonstrating this competency would be able to: • Demonstrate understanding of a broad knowledge base incorporating some theoretical concepts • Apply solutions to a defined range of unpredictable problems • Identify and apply skill and knowledge areas to a wide variety of contexts, with depth in some areas • Identify, analyse and evaluate information from a variety of sources • Take responsibility for own outputs in relation to specified quality standards • Take limited responsibility for the quantity and quality of the output of others • Maintain knowledge of industry products and services

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

RANGE STATEMENT	
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.	
Modification may include but is not limited to:	• error correction • system recovery • assistance • enhancement
System may include but is not limited to:	• hardware and software components that run a computer
Repositories may include but is not limited to:	• central repository • program library • databases
Standards may include:	• ISO/IEC/AS standards • organisational standards • project standards (for further information refer to the Standards Australia website at: www.standards.com.au)
Documentation may include:	• collection of records that describe the structure • purpose • operation • maintenance and data requirements for a computer program • operating system • hardware device
User may include:	• a person within a department • a department within the organisation • a third party
Appropriate person may include:	• supervisor • teacher • authorised business representative • client
Reporting procedures - help desk and maintenance structures will vary, some may be:	• Customer contact centre or general contact point that then consults with a supplier or other technician • Customer contact centre staffed by technicians capable of solving the problem • real-time on-line support • web-based support

Unit Sector(s)

Unit sector	Support

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAS4108B Complete database back-up and recovery

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to back-up and recover a database. The following units are linked and form an appropriate cluster: • ICAB4060B Identify physical database requirements • ICAB4061B Monitor physical database implementation • ICAB4136B Use structured query language to create database structures and manipulate data • ICAS4113C Identify and resolve common database performance problems • ICAS4114B Implement maintenance procedures • ICAS4125B Monitor and administer a database • ICAS4127B Support system software No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

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. Review database architecture	1.1. Identify the <i>architecture</i> of a <i>database</i> file system and consequently, determine the most appropriate methods for <i>back-up</i> and recovery 1.2. Identify and examine risks and failure scenarios that are likely or possible
2. Determine backup methods appropriate to database requirements	2.1. Evaluate a range of <i>back-up</i> and restoration methods based on organisational and security <i>standards</i> and on the assessment of likely or possible failure scenarios 2.2. Complete full off-line <i>back-ups</i> according to organisational and security <i>standards</i> with minimal down time

ELEMENT	PERFORMANCE CRITERIA
	2.3. Complete on-line file back-ups as determined by organisational and security standards and with minimal down time 2.4. Employ disk mirroring and redundant array of inexpensive disks (RAID) hard disk configurations to keep copies of files 2.5. Arrange off-site copies of back-up files
3. Establish recovery points and disaster recovery procedures	3.1. Determine database recovery points based on the back-up arrangements according to organisational guidelines 3.2. Test the restore process in order to ensure that the database can be restored to a given recovery point, with minimal down time 3.3. Complete the restoration of the database to the point of failure, without loss of committed transactions
4. Create and deploy standby database	4.1. Create or set up a standby database to meet organisational guidelines 4.2. Implement standby database to support critical business functions 4.3. Prepare documentation for standby database

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Analysis skills in relation to non-routine work processes
- Project planning skills in relation to set benchmarks and identified scope
- Report writing skills for business requiring depth in some areas, analysis and evaluation of information in a defined range of areas
- Problem solving skills in non-routine work processes
- Open file back-up procedures and restore operations
- Research skills for identifying, analysing and evaluating broad features of a particular business domain and best practice in back-up and recovery strategies

Required knowledge

- General knowledge of structured query language

REQUIRED SKILLS AND KNOWLEDGE

- Detailed knowledge of database administration
- Basic knowledge of tuning methodologies
- General knowledge of the principles of databases
- Broad knowledge of diagnostic tools
- Detailed knowledge of back-up and recovery methods
- Detailed knowledge of database security

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

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

Evidence of the following is essential:

- Assessment must confirm the ability to implement back-up and recovery procedures, with minimum disruption to the business and if necessary, to introduce contingency plans.

To demonstrate competency in this unit the learner will require access to:

- Documentation standards
- Back-up and recovery policies
- Database package with data
- Server and networked PC on which to conduct back-up and recovery procedures

Context of and specific resources for assessment

Modern business practice requires organisations to implement efficient and effective methods of capturing, storing and retrieving business-critical information and data. The security and back-up of data repositories is of critical importance to most organisations.

Organisational databases are no longer static repositories of information rather they are dynamic, interactive and

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frequently 'live'. Client and customer access to on-line information can occur at any time and a key capability of any database system is the successful back-up in an efficient and timely manner without disruption or loss of data.

This unit addresses these three major elements in maintaining the integrity of an electronic database system - through creating periodic 'snapshot' back-ups of the open data files and then restoring them to working order.

The breadth, depth and complexity of knowledge and skills in this competency would cover a broad range of varied activities or application in a wider variety of contexts most of which are complex and non-routine. Leadership and guidance would be involved when organising activities of self and others as well as contributing to technical solutions of a non-routine or contingency nature.

Assessment of this unit of competency will usually include observation of the back-up and restore procedures, including the planning and the carrying out of the back-up and restore procedures, from determining what would be the best time to back up, to back up media, to the actual restore processes, including the use of particular tools or systems.

Performance that involves evaluating and analysing current practices, to develop new criteria and procedures for performing current practices and for provision of some leadership and guidance to others, in the application of these skills.

Assessment must ensure:

- Performance of a broad range of skilled applications including the requirement to evaluate and analyse current practices, develop new criteria and procedures for performing current practices and provision of some leadership and guidance to others

EVIDENCE GUIDE	
	in the application and planning of the skills would be characteristic. • Applications may involve responsibility for, and limited organisation of, others
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • ICAB4060B Identify physical database requirements • ICAB4061B Monitor physical database implementation • ICAB4136B Use structured query language to create database structures and manipulate data • ICAS4113C Identify and resolve common database

EVIDENCE GUIDE

performance problems

- ICAS4114B Implement maintenance procedures
- ICAS4125B Monitor and administer a database
- ICAS4127B Support system software

An individual demonstrating this competency would be able to:

- Demonstrate broad knowledge of database concepts
- Identify and apply skill and knowledge areas to open file back-up procedures and restore operations

Additionally, an individual demonstrating this competency would be able to:

- Demonstrate understanding of a broad knowledge base incorporating some theoretical concepts
- Apply solutions to a defined range of unpredictable problems
- Identify and apply skill and knowledge areas to a wide variety of contexts, with depth in some areas
- Identify, analyse and evaluate information from a variety of sources
- Take responsibility for own outputs in relation to specified quality standards
- Take limited responsibility for the quantity and quality of the output of others
- Maintain knowledge of industry products and services

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.

RANGE STATEMENT	
Architecture may include but is not limited to:	• Operating system: Novell NetWare 5 or above or any operating system that has multi-user ability, Linux, Mac OS, Windows 2000 or above • Database software: Oracle, Sybase, Microsoft SQL server, Ingres, DB2, Informix, mSQL, MySQL, SQL server • Configuration: small memory model, large memory model, requests per second
Database may include but are not limited to:	• relational databases • object-relational databases • proprietary databases • commercial off the shelf (COTS) database packages
Standards may include:	• ISO/IEC/AS standards • organisational standards • project standards (for further information refer to the Standards Australia website at: www.standards.com.au)
Back-up may involve:	• single or multiple tape units or DVD or CD back-up to more comprehensive and complex back-up facilities across the network or the internet
Organisational guidelines may include but are not limited to:	• personal use of emails and internet access • content of emails • downloading information and accessing particular websites • opening mail with attachments • virus risk • dispute resolution • document procedures and templates • communication methods • financial control mechanisms
Documentation may follow:	• ISO/IEC/AS standards • audit trails • naming standards • version control • project management templates and report writing • maintaining equipment inventory • client training

RANGE STATEMENT	
	satisfaction reports

Unit Sector(s)

Unit sector	Support

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAS4109B Evaluate system status

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to evaluate the status of a running system, covering both hardware and software aspects to determine system performance and reliability. The following units are linked and form an appropriate cluster: • ICAS4107B Rectify system faults on a live system • ICAS4112B Optimise system performance • ICAS4127B Support system software No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		
	ICAT3025B	Run standard diagnostic tests

Prerequisite units		

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. Determine scope and evaluation parameters	1.1.Determine <i>scope</i> of the <i>system</i> evaluation 1.2.Comply with <i>organisational requirements</i> when planning a 'change of status' test 1.3.Review and demonstrate understanding of the reason for the evaluation, its objectives, deliverables and key performance indicators using appropriate capacity tools 1.4.Plan and document status evaluation and factor in time, environment, internal and external issues 1.5.Alert affected <i>users</i> if evaluation is likely to impact their operations 1.6.Develop a plan for the evaluation and identify the resources and methods to be used
2. Carry out evaluation	2.1.Organise the required resources as outlined in the plan, and put in place manual or computerised

ELEMENT	PERFORMANCE CRITERIA
	evaluation methods 2.2.Run the evaluation process in accordance with the agreed scope and evaluation parameters 2.3.Record the status as per procedural parameters and plan 2.4.Observe and document during evaluation the effects of changes to system status that are made in accordance with effect being evaluated 2.5.Observe and record effects that are not listed and that may require further investigation
3. Report on evaluation	3.1.Prepare a report to the appropriate person indicating the results of the status check 3.2.Highlight anomalies observed in the status check that are outside the expected results 3.3.Make recommendations for changes to improve the system

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Problem solving skills for a defined range of unpredictable problems involving participation in the development of strategic initiatives
- Plain English literacy and communication skills in relation to analysis, evaluation and presentation of information
- Teamwork skills involving the contribution to solutions and goals of a non-routine or contingency nature
- Group facilitation and presentation skills in relation to transferring and collecting information and gaining consensus on concepts
- Negotiation skills in relation to other team members and applied to a defined range of predictable problems
- Report writing skills for requiring depth in some areas
- Change management skills in relation to maintaining the continuity of IT operations and business functions
- Customer service skills in relation to reviewing change procedures
- Skills in handling difficult clients in relation to reviewing change procedures

REQUIRED SKILLS AND KNOWLEDGE
• Conflict resolution skills in relation to reviewing change procedures • Risk analysis skills in relation to reviewing change procedures • Low-level training needs analysis skills • Low-level programming skills
Required knowledge
• Broad knowledge of help desk and maintenance practices • Current industry-accepted hardware and software products, with broad knowledge of general features and capabilities and detailed knowledge in some areas • Broad understanding of the role and level of stakeholder involvement • Broad general knowledge of the client business domain • Detailed knowledge of the system's current functionality • Broad knowledge of quality assurance practices • One or more change management tools • Broad knowledge of system testing • Broad knowledge of change control procedures • Detailed knowledge of the system under evaluation • Broad knowledge of capacity planning

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	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: • Assessment must confirm the ability to identify comprehensive performance indicators to determine system performance and reliability in relation to both hardware and software. To demonstrate competency in this unit the learner will require access to: • Documentation standards

EVIDENCE GUIDE	
	• Back-up and recovery policies • Database package with data • Server and networked PC on which to conduct back-up and recovery procedures
Context of and specific resources for assessment	The breadth, depth and complexity of knowledge and skills in this competency would cover a broad range of varied activities or application in a wider variety of contexts most of which are complex and non-routine. Leadership and guidance would be involved when organising activities of self and others as well as contributing to technical solutions of a non-routine or contingency nature. Assessment must ensure: • Performance of a broad range of skilled applications including the requirement to evaluate and analyse current practices, develop new criteria and procedures for performing current practices and provision of some leadership and guidance to others in the application and planning of the skills would be characteristic. • Applications may involve responsibility for, and limited organisation of, others.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency.

EVIDENCE GUIDE	
	Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: - ICAS4107B Rectify system faults on a live system - ICAS4112B Optimise system performance - ICAS4127B Support system software An individual demonstrating this competency would be able to: - Demonstrate understanding of a broad knowledge base incorporating some theoretical concepts - Apply solutions to a defined range of unpredictable problems - Identify and apply skill and knowledge areas to a wide variety of contexts, with depth in some areas - Identify, analyse and evaluate information from a variety of sources - Take responsibility for own outputs in relation to specified quality standards - Take limited responsibility for the quantity and quality of the output of others - Maintain knowledge of industry products and services

Range Statement

RANGE STATEMENT

The range statement relates to the unit of competency as a whole. It allows for different

RANGE STATEMENT	
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.	
Scope may include:	• personnel • hardware • software • warranty • maintenance • support • networks • data • processes
Organisational requirements may be in relation to:	• work environment • problem solution processes • preventative maintenance and diagnostic policy • roles and technical responsibilities in the IT department • vendor and product service-level support agreements
Documentation may follow:	• ISO/IEC/AS standards • audit trails • naming standards • version control • project management templates and report writing • maintaining equipment inventory • client training • satisfaction reports
Appropriate person may include:	• supervisor • teacher • authorised business representative • client
System may include but is not limited to:	• network • network operating system • software • application • software

RANGE STATEMENT	
	• business • computers • financial system • management system • information system
<i>User</i> may include:	• a person within a department • a department within the organisation • a third party

Unit Sector(s)

Unit sector	Support

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAS4112B Optimise system performance

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to identify areas of poor system performance and take steps to improve and monitor performance. The following units are linked and form an appropriate cluster: • ICAI4030B Install software to networked computers • ICAI4097C Install and configure a network • ICAS4107B Rectify system faults on a live system • ICAS4113C Identify and resolve common database performance problems • ICAS4116B Undertake capacity planning • ICAS4127B Support system software No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		
	ICAI3110C	Implement system software changes

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 areas of poor performance	1.1. Collect system performance data, during various usage conditions and times, utilising available technical <i>tools</i> 1.2. Evaluate the collected system performance data in relation to organisational benchmarks and <i>client</i> feedback, to ascertain areas of poor performance
2. Investigate methods to improve system performance	2.1. Identify options to <i>improve performance</i> through discussing the system performance findings with <i>appropriate person</i> and accessing technical resources 2.2. Create a report including cost analysis for appropriate person, detailing alternative courses of

ELEMENT	PERFORMANCE CRITERIA
	action based on the identified options and designed to measurably improve performance 2.3. Present the report to appropriate person for decision as to the 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 3.2. Factor into the implementation plan, project budget and staff availability 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 in accordance with installation procedures and organisational guidelines, following the implementation plan 4.2. Measure and record the change in performance resulting from the system modification, in order to assess that the required level of optimisation has been achieved 4.3. Update appropriate documents according to organisational guidelines, to reflect the system optimisation
5. Monitor ongoing system performance	5.1. Implement and maintain a performance register 5.2. Review and assess benchmarks and performance regularly with the work team, to enable timely optimisation and updates

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Measuring system performance against predefined benchmarks
- Risk analysis skills in relation to reviewing change procedures
- Comprehension of technical manuals
- Adequate use of diagnostic tools
- Report writing and recording skills

REQUIRED SKILLS AND KNOWLEDGE

Required knowledge

- Current industry-standard hardware and software monitoring tools and the how to interpret information produced from monitoring
- Broad knowledge of the role of stakeholders and the degree of stakeholder involvement
- Detailed knowledge of the system's current functionality
- Broad knowledge of quality assurance practices
- One or more change management tools
- General knowledge of system performance, change control procedures and theoretical concepts
- Detailed knowledge of the system under modification
- Business scheduling requirements

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

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

Evidence of the following is essential:

- Assessment must confirm sufficient knowledge of the indicators of inadequate performance.
- Assessment must confirm the ability to keep the system balanced and performing well.
- Assessment must confirm the ability to analyse system performance.

To demonstrate competency in this unit the learner will require access to:

- System components and software for performance tuning
- Technical manuals and resources
- Fault logs
- Diagnostic tools

EVIDENCE GUIDE**Context of and specific resources for assessment**

As systems grow, they can become fragmented and congested with incompatible software and unused programs, which can lead to wasted CPU cycles and unnecessary overuse of RAM.

The role of optimising system performance can avoid spending money on unnecessary hardware and software when all that is required is careful management of current resources.

The breadth, depth and complexity of knowledge and skills in this competency would cover a broad range of varied activities or application in a wider variety of contexts most of which are complex and non-routine. Leadership and guidance would be involved when organising activities of self and others as well as contributing to technical solutions of a non-routine or contingency nature.

Assessment must ensure:

- Performance of a broad range of skilled applications including the requirement to evaluate and analyse current practices, develop new criteria and procedures for performing current practices and provision of some leadership and guidance to others in the application and planning of the skills would be characteristic.
- Applications may involve responsibility for, and limited organisation of, others.

Method of assessment

The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1.

- Competency in this unit should be assessed using

EVIDENCE GUIDE

	summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • ICAI4030B Install software to networked computers • ICAI4097C Install and configure a network • ICAS4107B Rectify system faults on a live system • ICAS4113C Identify and resolve common database performance problems • ICAS4116B Undertake capacity planning • ICAS4127B Support system software An individual demonstrating this competency would be able to: • Demonstrate understanding of a broad knowledge base incorporating some theoretical concepts • Apply solutions to a defined range of unpredictable problems • Identify and apply skill and knowledge areas to a wide variety of contexts, with depth in some areas • Identify, analyse and evaluate information from a variety of sources • Take responsibility for own outputs in relation to specified quality standards • Take limited responsibility for the quantity and

EVIDENCE GUIDE

	quality of the output of others • Maintain knowledge of industry products and services

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.

System performance including network capacity and throughput can be affected by:

- imbalances in disk utilisation and available space
- memory availability and utilisation
- processor utilisation
- disk speed
- allocation of files across disk space
- number of concurrent users
- work load
- physical limitations of system
- poor design in a program/s
- queue depth
- seek time
- i/o channel availability

Tools may include:

- software
- electronics equipment (e.g. volt-meter, oscilloscope, data analyser)

Client may include but is not limited to:

- internal departments
- external organisations
- individual people
- employees

Appropriate person may include:

- supervisor
- teacher
- authorised business representative
- client

RANGE STATEMENT	
Components may include:	• motherboards • CMOS battery • central processing unit (CPU) • CD and DVD drives • interface cards • drives • fax/modem cards • RAM upgrades • CPU upgrades
Organisational guidelines may include but are not limited to:	• personal use of emails and internet access • content of emails • downloading information and accessing particular websites • opening mail with attachments • virus risk • dispute resolution • document procedures and templates • communication methods • financial control mechanisms
Documentation may follow:	• ISO/IEC/AS standards • audit trails • naming standards • version control • project management templates • report writing principles
Improve performance may include:	• Load balancing between servers or other network devices (e.g. using switches or routers) • Tuning the disk sub-system • Reducing total load by tuning the operating system • Tuning applications to reduce the load they impose • Using various systems tools to adjust system parameters, including hardware or software upgrade

Unit Sector(s)

Unit sector	Support

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAS4113C Identify and resolve common database performance problems

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to identify and solve common database problems to improve performance. The following units are linked and form an appropriate cluster: • ICAB4060B Identify physical database requirements • ICAB4061B Monitor physical database implementation • ICAB4136B Use structured query language to create database structures and manipulate • ICAS4108B Complete database back up and recovery • ICAS4125B Monitor and administer a database No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

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. Diagnose problems	1.1. Determine appropriate database performance <i>diagnostic tool</i> to use based on organisational <i>database</i> requirements and vendor recommendations 1.2. Run <i>diagnostic tool</i> to identify issues causing degradation of database <i>performance</i> 1.3. Determine and record where inappropriate use of <i>database</i> and temporary table spaces occurs 1.4. Carry out appropriate fixes based on diagnostic results
2. Configure database	2.1. Adopt a distributed files <i>architecture</i> to minimise I/O (input/output) contention 2.2. Ensure that <i>database</i> back-up procedures are

ELEMENT	PERFORMANCE CRITERIA
	appropriate for method of data storage 2.3. Reconfigure rollback segments 2.4. Configure the database and test its performance
3. Tune database	3.1. Track the module performance according to specifications 3.2. Monitor and tune the efficiency of structured query language, as required 3.3. Monitor and measure the performance of shared pool, blocks and buffers 3.4. Detect, identify and resolve contentions that may arise in the real-time operation of the database 3.5. Reconfigure the database according to specifications

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Analysis capability in relation to normal routine and non-routine work processes
- Project planning skills in relation to set benchmarks and identified scope
- Report writing skills for business, requiring depth in some areas, analysis and evaluation of information in a defined range of areas
- Problem solving skills in non-routine work processes

Required knowledge

- Broad knowledge of SQL
- Detailed knowledge of database administration
- Detailed knowledge of tuning methodologies
- General knowledge of the principles of database design
- Detailed knowledge of diagnostic tools

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

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

Evidence of the following is essential:

- Assessment must confirm the ability to correctly identify and solve common database problems to improve database performance.

To demonstrate competency in this unit the following resources will be needed:

- Diagnostic tools
- Database operating on a network

Context of and specific resources for assessment

Resolving database issues can be complex and take considerable time. The core role in this competency is to take part in common database performance problem solving.

All database applications can be performance enhanced with special care and code optimisations.

This unit should be flexible enough to allow for the creation of specialised database programs that are poor in performance so that problem solving processes can be applied.

There are many open source database offerings that may provide a suitable code base from which to work.

The breadth, depth and complexity of knowledge and skills in this competency would cover a broad range of varied activities or application in a wider variety of contexts most of which are complex and non-routine. Leadership and guidance would be involved when organising activities of self and others as well as contributing to technical solutions of a non-routine or

EVIDENCE GUIDE	
	contingency nature. Assessment must ensure: • Performance of a broad range of skilled applications including the requirement to evaluate and analyse current practices, develop new criteria and procedures for performing current practices and provision of some leadership and guidance to others in the application and planning of the skills would be characteristic. • Applications may involve responsibility for, and limited organisation of, others.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should to be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process.
Guidance information for assessment	The interdependence of units for assessment purposes may vary with the particular project or scenario. Holistic assessment with other units relevant to the industry

EVIDENCE GUIDE

sector, workplace and job role is recommended, for example:

- ICAB4060B Identify physical database requirements
- ICAB4061B Monitor physical database implementation
- ICAB4136B Use structured query language to create database structures and manipulate
- ICAS4108B Complete database back-up and recovery
- ICAS4125B Monitor and administer a database

An individual demonstrating this competency would be able to:

- Determine performance benchmarks from a database code structure
- Apply solutions to improve database performance
- Interpret available information and request clarification where needed
- Take responsibility for outputs in work and learning situations

Additionally, an individual demonstrating this competency would be able to:

- Demonstrate understanding of a broad knowledge base incorporating some theoretical concepts
- Apply solutions to a defined range of unpredictable problems
- Identify and apply skill and knowledge areas to a wide variety of contexts, with depth in some areas
- Identify, analyse and evaluate information from a variety of sources
- Take responsibility for own outputs in relation to specified quality standards
- Take limited responsibility for the quantity and quality of the output of others
- Maintain knowledge of industry products and services

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.	
<i>Diagnostic tools</i> may include:	• software applications external to the database server • the server software or may be inbuilt to the server software
<i>Database</i> may include but is not limited to:	• relational databases • object-relational databases • proprietary databases • commercial off the shelf (COTS) database packages
<i>Architecture</i> may include but is not limited to:	• Operating system: Novell NetWare 5 or above or any operating system that has multi-user ability, Linux, Mac OS, Windows 2000 or above • Database software: Oracle, Sybase, Microsoft SQL server, Ingres, DB2, Informix, mSQL, MySQL, SQL server • Configuration: small memory model, large memory model, requests per second
<i>Performance</i> may include but is not limited to:	• improvements to response time • simultaneous access • latch contention • record or table locking • compacting database files • repairing the database • splitting database files • archiving old records • creating indexes • preventing events causing waits
<i>Structured Query Language</i> may include:	• proprietary extensions: AS/NZS 3968.0:1994 Information technology - database languages - SQL - definition of data structures and basic operations

Unit Sector(s)

Unit sector	Support

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAS4114B Implement maintenance procedures

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to set up maintenance procedures to keep equipment and software operating effectively. The following units are linked and form an appropriate cluster: • ICAA4041C Determine and confirm client business expectations and needs • ICAS4116B Undertake capacity planning No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		
	ICAT3025B	Run standard diagnostic tests

Prerequisite units		

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. Determine best practices for equipment and software maintenance	1.1. Identify equipment and software that is to be maintained and implement processes to ensure future acquisitions of equipment and software are identified 1.2. Identify vendor documentation, peer organisations or research information detailing best practices in equipment and software maintenance to improve system performance and reliability 1.3. Develop recommended maintenance and operations guidelines for equipment and software maintenance based on the above research 1.4. Obtain requirements from user in the area of equipment maintenance and reliability 1.5. Document procedures for maintenance based upon best practices
2. Identify resources to	2.1. Identify and record the level of support that can be

ELEMENT	PERFORMANCE CRITERIA
provide equipment and software maintenance	provided by in-house resources 2.2. Identify and record the support to be supplied by external or third-party organisations 2.3. Develop or update service-level agreement with internal user and third-party suppliers
3. Revise practices, where appropriate	3.1. Monitor and review maintenance operation 3.2. Identify problem areas including failures to meet service-level agreements, and consider changes to maintenance procedures 3.3. Assess changes in consultation with user, support staff and third party suppliers 3.4. Design and implement improvements to maintenance procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Problem solving skills for a defined range of unpredictable problems involving participation in the development of strategic initiatives
- Plain English literacy and communication skills in relation to analysis, evaluation and presentation of information
- Teamwork skills involve the contribution to solutions and goals of a non-routine or contingency nature
- Negotiation skills in relation to other team members and applied to a defined range of predictable problems
- Report writing skills for business requiring depth in some areas, analysis and evaluation of information in a defined range of areas
- Change management skills in relation to maintaining the continuity of IT operations and business functions
- Customer service skills
- Skills in handling difficult clients
- Conflict resolution skills
- Risk analysis skills
- Low-level training needs analysis skills
- Low-level programming skills

REQUIRED SKILLS AND KNOWLEDGE

Required knowledge

- Broad understanding of help desk and maintenance practices
- Current industry-standard hardware and software products, with broad knowledge of general features and capabilities and detailed knowledge in some areas
- Broad knowledge of the role of stakeholders and the degree of stakeholder involvement
- Broad knowledge of the client business domain
- Detailed knowledge of the system's current functionality
- Broad knowledge of quality assurance practices
- One or more change management tools
- Broad knowledge of system performance
- Broad knowledge of maintenance procedures
- Business scheduling requirements
- Broad knowledge of diagnostic tools

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

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

Evidence of the following is essential:

- Assessment must confirm the ability to set up efficient and responsive maintenance procedures to keep equipment and software operating.

To demonstrate competency in this unit the learner will require access to:

- Technical environment with a variety of operational equipment
- Technical manuals and tools

Context of and specific resources for assessment

The breadth, depth and complexity of knowledge and skills in this competency would cover a broad range of

EVIDENCE GUIDE	
	varied activities or application in a wider variety of contexts most of which are complex and non-routine. Leadership and guidance would be involved when organising activities of self and others as well as contributing to technical solutions of a non-routine or contingency nature. Assessment must ensure: • Performance of a broad range of skilled applications including the requirement to evaluate and analyse current practices, develop new criteria and procedures for performing current practices and provision of some leadership and guidance to others in the application and planning of the skills would be characteristic. • Applications may involve responsibility for, and limited organisation of, others.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment

EVIDENCE GUIDE	
	process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • ICAA4041C Determine and confirm client business expectations and needs • ICAS4116B Undertake capacity planning An individual demonstrating this competency would be able to: • Demonstrate understanding of a broad knowledge base incorporating some theoretical concepts • Apply solutions to a defined range of unpredictable problems • Identify and apply skill and knowledge areas to a wide variety of contexts, with depth in some areas • Identify, analyse and evaluate information from a variety of sources • Take responsibility for own outputs in relation to specified quality standards • Take limited responsibility for the quantity and quality of the output of others • Maintain knowledge of industry products and services

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.	
<i>Equipment</i> may include but is not	• workstations

RANGE STATEMENT	
limited to:	• personal computers • modems and other connectivity devices • printers • DSL modems • hard drives • monitors • switches • hubs • personal digital assistants • other peripheral devices
Software may include but is not limited to:	• commercial, in-house, packaged or customised software
Documentation may follow:	• ISO/IEC/AS standards • audit trails • naming standards • version control • project management templates and report writing • maintaining equipment inventory • client training • satisfaction reports
Requirements may be in reference to:	• business • system • application • network • people in the organisation
User may include:	• a person within a department • a department within the organisation • a third party
Service-level agreement may exist for:	• many different infrastructure services, including communications carriers, ISPs, ASPs and SLAs for vendor products, workload and performance considerations, expectations regarding servicing, penalties, charge back to business units
Best practices may include:	• schedule of maintenance • user recommended activities • technical specialist activities • identification and supply of parts • repair of parts

Unit Sector(s)

Unit sector	Support

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAS4116B Undertake capacity planning

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to monitor and assess the current and future capacity requirements of a system and to plan and install capacity enhancements. The following units are linked and form an appropriate cluster: • ICAI3021B Connect internal hardware components • ICAS4106B Action and complete change requests • ICAS4109B Evaluate system status No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

Prerequisite units		

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. Analyse existing system capacity	1.1. Review the existing system configuration information, both hardware and software , to determine capacity issues 1.2. Investigate the current workload of the system and analyse its effect on the capacity to perform 1.3. Examine the current service-level agreement to determine the agreed-upon capacity standards 1.4. Examine and analyse the fault logs for those caused by capacity problems 1.5. Discuss and review capacity issues with users 1.6. Document the information gathered about the existing system workload and capacity according to organisational guidelines
2. Determine future capacity requirements	2.1. Interview the user in order to gather data about future capacity requirements of the system

ELEMENT	PERFORMANCE CRITERIA
	2.2. Organise and analyse the future requirements data and then evaluate to obtain a forecast workload for the system 2.3. Using the data and information gathered, compare the existing workload with the forecast workload and evaluate, to determine capacity problem areas 2.4. Estimate the resources and equipment required to resolve predicted capacity problems 2.5. Undertake a financial analysis of the estimated capacity requirements 2.6. Organise and document relevant information according to organisational guidelines 2.7. Evaluate documentation in order to create a report, detailing recommendations for capacity enhancements, for presentation to appropriate person
3. Develop plan for capacity enhancements	3.1. Develop a plan for implementing the recommended enhancements, with prioritised tasks and minimum disruption to users 3.2. Factor into the implementation plan the availability of finances, staff and other requirements 3.3. Submit the implementation plan to appropriate person for approval and revision
4. Install capacity enhancements	4.1. Install the capacity enhancements in accordance with installation procedures, organisational guidelines and implementation plan 4.2. Measure the increase in capacity and performance resulting from installed equipment in order to assess that capacity requirements have been met 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 5.2. Implement and maintain a performance database 5.3. Review and assess benchmarks and performance regularly with work team, to enable timely capacity enhancements and updates of benchmarks

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Problem solving skills directed at problems involving the development of capacity planning initiatives
- Language, literacy and communication skills necessary to process and present written and verbal information
- Literacy skills for interpretation of technical manuals and forecasting data
- Interpersonal skills in relation to other team members, clients and vendors
- Project planning skills in relation to scope, time, cost, quality, communications, risk management and forecasting skills
- Report writing skills for business
- Analysis and evaluation of information in a defined range of areas
- Questioning and active listening at a range of user/vendor levels
- Ability to modify the current system to incorporate the planned changes by installing hardware and software elements

Required knowledge

- Broad knowledge of component performance management
- Broad knowledge of performance monitoring tools
- Broad knowledge of the role of stakeholders and the degree of stakeholder involvement
- Detailed knowledge of the system's current functionality
- Broad knowledge of quality assurance practices
- General knowledge of the client business domain
- Current industry-accepted hardware and software products, with broad knowledge of general features and capabilities and detailed knowledge in some areas
- Service-level agreements

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.

EVIDENCE GUIDE	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: - Assessment must confirm the ability to predict capacity requirements resulting from business growth, with forecasts being realistic and achievable; to monitor and accurately assess current and future capacity requirements of a system; to plan and install capacity enhancements; and to create and maintain required documentation. To demonstrate competency in this unit the learner will require access to: - A live system - Service-level agreements - Fault logs - Users - Hardware components for installation
Context of and specific resources for assessment	Capacity planning is the process of measuring a system's ability to carry out its intended function. For example, to serve content a web server provides web pages to its visitors at an acceptable speed. If visits were to double in one day, or multiply one thousand-fold, like some of the large news sites, how well-prepared would the organisation be in coping with this volume of traffic. This unit also establishes the general concepts and methodology involved in performing capacity planning, so that one can adapt the testing to a business. The breadth, depth and complexity of knowledge and skills in this competency would cover a broad range of varied activities or application in a wider variety of contexts most of which are complex and non-routine. Leadership and guidance would be involved when organising activities of self and others as well as contributing to technical solutions of a non-routine or contingency nature. Assessment must ensure:

EVIDENCE GUIDE	
	• Performance of a broad range of skilled applications including the requirement to evaluate and analyse current practices, develop new criteria and procedures for performing current practices and provision of some leadership and guidance to others in the application and planning of the skills would be characteristic. • Applications may involve responsibility for, and limited organisation of, others.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • ICAI3021B Connect internal hardware components • ICAS4106B Action and complete change requests

EVIDENCE GUIDE

	• ICAS4109B Evaluate system status An individual demonstrating this competency would be able to: • Demonstrate understanding of a broad knowledge base incorporating some theoretical concepts • Apply solutions to a defined range of unpredictable problems • Identify and apply skill and knowledge areas to a wide variety of contexts, with depth in some areas • Identify, analyse and evaluate information from a variety of sources • Take responsibility for own outputs in relation to specified quality standards • Take limited responsibility for the quantity and quality of the output of others • Maintain knowledge of industry products and services

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.

<i>System</i> may include but is not limited to:	• hardware and software components that run a computer
<i>Software</i> may include but is not limited to:	• commercial, in-house, packaged or customised software
<i>Hardware</i> may include but is not limited to:	• workstations • personal computers • modems or other connectivity devices • networks

RANGE STATEMENT	
	• DSL modems • remote sites • servers
Service-level agreement	• May be specified for different infrastructure services, including communications carriers, ISPs, ASPs and for vendor products. • SLAs should consider business processes and requirements, clearly specify and quantify service levels, and identify evaluation or audit of service levels. May include workload and performance considerations, expectations regarding servicing, penalties, charge back to business units.
User may include:	• a person within a department • a department within the organisation • a third party
Equipment may include but is not limited to:	• workstations • personal computers • modems or other connectivity devices • printers • hard drives • DSL modems • monitors • switches • hubs • personal digital assistant (PDA) • other peripheral devices
Documentation may follow:	• ISO/IEC/AS standards • audit trails • naming standards • version control • project management templates • report writing principles
Organisational guidelines may include but are not limited to:	• personal use of emails and internet access • content of emails • downloading information and accessing particular websites • opening mail with attachments • virus risk • dispute resolution

RANGE STATEMENT	
	• document procedures and templates • communication methods • financial control mechanisms
Requirements may be in reference to:	• business • system • application • network • people in the organisation
Problem may be in reference to:	• business • system • application • network • people in the organisation • there may be a business need or opportunity that must be addressed
Appropriate person may include:	• supervisor • teacher • authorised business representative • client
Forecast workload may be ascertained from:	• Trends in existing workload • Corporate business plans • User interviews • User questionnaires • Application development personnel • Outside influences (e.g. legal requirements) • Competitive pressures • Economic trends
Database may include but is not limited to:	• Oracle • Sybase • Microsoft SQL server • Ingres • DB2 • Informix • mSQL • MySQL • SQL server

Unit Sector(s)

Unit sector	Support

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAS4119B Monitor and administer system security

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to monitor and administer security functions of a system. The following units are linked and form an appropriate cluster: • ICAS4124B Monitor and administer network security • ICAT4194B Ensure basic website security • ICAT4195B Ensure dynamic website security No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		
	ICAI3020B	Install and optimise operating system software

Prerequisite units		
	ICAS3024B	Provide basic system administration

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. Ensure user accounts are controlled	1.1.Modify default <i>user</i> settings to ensure that they conform to <i>security policy</i> 1.2.Modify previously created <i>user</i> settings to ensure they conform to updated <i>security policy</i> 1.3.Ensure legal notices displayed at logon are appropriate 1.4.Use the appropriate utilities to check strength of passwords and consider tightening rules for password complexity 1.5.Take action to ensure password procedures are reviewed with appropriate other internal departments 1.6.Monitor email to uncover breaches in compliance with <i>legislation</i> 1.7.Access information services to identify security gaps and take appropriate action using <i>hardware</i> and

ELEMENT	PERFORMANCE CRITERIA
	<i>software</i> or patches
2. Secure file and resource access	2.1. Review inbuilt security and access features of the <i>operating system</i> and consider need for further action 2.2. Develop or review the file security categorisation scheme, and develop an understanding of the role of users in setting security 2.3. Monitor and record <i>security threats</i> to the <i>system</i> 2.4. Implement a virus checking process and schedule for the <i>server, computer</i> and other <i>system</i> components 2.5. Investigate and implement inbuilt or additional <i>encryption</i> facilities
3. Monitor threats to the network	3.1. Use third-party software or utilities to evaluate and report on <i>system</i> security 3.2. Review logs and audit reports to identify security <i>threats</i> 3.3. Carry out spot checks and other <i>security strategies</i> to ensure that procedures are being followed 3.4. Prepare and present an audit report and recommendations to <i>appropriate person</i> 3.5. Obtain approval for recommended changes to be made

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Problem solving skills for a defined range of unpredictable problems
- Plain English literacy and communication skills in relation to analysis, evaluation and presentation of information
- Research skills for identifying, analysing and evaluating broad features of a particular business domain and best practice in system security methodologies and technologies
- Report writing skills for business requiring depth in some areas, analysis and evaluation of information in a defined range of areas
- Questioning and active listening skills
- Project planning skills in relation to set benchmarks and identified scope

REQUIRED SKILLS AND KNOWLEDGE

Required knowledge

- Current industry-accepted hardware and software products, with broad knowledge of general features and capabilities
- Broad knowledge of the client business domain, business function and organisation
- Systems technologies, with broad knowledge of general features and capabilities and substantial depth in some areas
- Risk analysis, with broad knowledge of general features
- Broad knowledge of specific security technology
- Broad knowledge of privacy issues and legislation

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

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

Evidence of the following is essential:

- Assessment must confirm knowledge of security features available in the operating environment.
- Assessment must confirm the ability to monitor and administer security functions on the system. This may include use of third-party diagnostic tools.

To demonstrate competency in this unit the learner will require access to:

- Security policy
- Standards
- Live system

Context of and specific resources for assessment

The breadth, depth and complexity of knowledge and skills in this competency would cover a broad range of varied activities or application in a wider variety of contexts most of which are complex and non-routine. Leadership and guidance would be involved when organising activities of self and others as well as

EVIDENCE GUIDE	
	contributing to technical solutions of a non-routine or contingency nature. Assessment must ensure: • Performance of a broad range of skilled applications including the requirement to evaluate and analyse current practices, develop new criteria and procedures for performing current practices and provision of some leadership and guidance to others in the application and planning of the skills would be characteristic. • Applications may involve responsibility for, and limited organisation of, others.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.

EVIDENCE GUIDE

Guidance information for assessment

Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example:

- ICAS4124B Monitor and administer network security
- ICAT4194B Ensure basic website security
- ICAT4195B Ensure dynamic website security

An individual demonstrating this competency would be able to:

- Demonstrate understanding of a broad knowledge base incorporating some theoretical concepts
- Apply solutions to a defined range of unpredictable problems
- Identify and apply skill and knowledge areas to a wide variety of contexts, with depth in some areas
- Identify, analyse and evaluate information from a variety of sources
- Take responsibility for own outputs in relation to specified quality standards
- Take limited responsibility for the quantity and quality of the output of others
- Maintain knowledge of industry products and services

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.

User may include:

- a person within a department
- a department within the organisation
- a third party

RANGE STATEMENT	
Security policy may be in relation to:	• theft • viruses • standards (including archival, back-up, network) • privacy • audits and alerts, usually relates directly to the security objectives of the organisation
Legislation may include:	• privacy legislation • copyright • liability statements
Hardware may include but is not limited to:	• workstations • personal computers • modems or other connectivity devices • networks • DSL modems • remote sites • servers
Software may include but is not limited to:	• commercial, in-house, packaged or customised software
Appropriate person may include:	• supervisor • teacher • authorised business representative • client
Operating system may include but is not limited to:	• Linux 6.0 or above • Windows 98 or above • Apple OS 8 or above
Server may include:	• Application/web servers • BEA Weblogic servers • IBM VisualAge and WebSphere • Novell NDS servers • Email servers • File and print servers • FTP servers • Firewall servers • Proxy/cache servers
System may include but is not limited to:	• hardware and software components that run a computer
Computer may include:	• laptops

RANGE STATEMENT	
	• workstations • servers • other devices
Encryption may include:	• features or protocols such as RSA public key • PGP (pretty good privacy) • symmetric ciphers • asymmetric public-key ciphers • sniffers • PKI • SSH • Deslogin • PKZIP • secure socket layer (SSL) • digital signatures
Security threats may include:	• eavesdropping • manipulation • impersonation • penetration • denial of service • by-pass • hacking • viruses
Security strategies may include:	• privacy • authentication • authorisation and integrity • usually relates directly to the security objectives of the organisation

Unit Sector(s)

Unit sector	Support

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAS4124B Monitor and administer network security

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to monitor and administer security functions on a network and wireless access according to organisational policies. The following units are linked and form an appropriate cluster: • ICAD4043B Develop and present a feasibility report • ICAS4119B Monitor and administer systems security • ICAS5202B Ensure privacy for users No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		
	ICAS3032B	Provide network systems administration

Prerequisite units		

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. Ensure user accounts are controlled	1.1. Review organisation's network and security policy to ensure up-to-date knowledge and understanding of policies 1.2. Modify default and previously created user settings to ensure that they conform with organisational security policy 1.3. Investigate log-on procedures for security and appropriateness and modify log-on requirements, using relevant utilities, where applicable 1.4. Review and monitor user wireless access of mobile equipment to the network where applicable 1.5. Ensure that appropriate procedures are put in place to deal with user accounts that are no longer required 1.6. Access information resources to identify and understand current, documented security gaps and

ELEMENT	PERFORMANCE CRITERIA
	their associated repair procedure 1.7. Ascertain the security repairs applicable to the current network and discuss with appropriate person to gain approval for repair implementation 1.8. Obtain and implement the appropriate hardware and software necessary for network security repair
2. Secure file and resource access	2.1. Review inbuilt security and access features of the operating system and document areas for concern 2.2. Analyse the file security categorisation scheme and the role of users in setting file security, in relation to organisational security policy and recommend revision, if necessary 2.3. Implement, if necessary, a process for ongoing updates of virus checking software, at server and workstation levels 2.4. Investigate and implement inbuilt or additional encryption facilities, as appropriate, to meet organisational security needs
3. Monitor threats to the system	3.1. Investigate the current security of the network, including physical aspects, utilising appropriate third-party testing software where applicable 3.2. Review logs and audit reports to identify and record security threats, intrusions or attempts 3.3. Carry out spot checks and other activities to ensure that procedures are not being bypassed 3.4. Evaluate the findings of the state of security and prepare recommendations for improvement 3.5. Prepare documentation in a report for presentation to appropriate person to gain approval for changes to be made

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Problem solving skills related to intrusion detection

REQUIRED SKILLS AND KNOWLEDGE

- Analysis and systems evaluation
- Research skills for identifying and analysing network security methodologies and technologies
- Report writing skills for evaluating system security status in line with organisational security policies
- Questioning and active listening skills
- Hardware and software installation skills related to improving network security

Required knowledge

- Current industry-accepted hardware and software security products, with broad knowledge of general features and capabilities
- Broad knowledge of the client business domain, business function and organisation
- Broad knowledge of features and capabilities of networking technologies, with substantial depth in security areas
- Broad knowledge of risk analysis
- Broad knowledge of privacy issues and privacy legislation
- General knowledge of security information sources

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

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

Evidence of the following is essential:

- Assessment must confirm an understanding of the organisation's network security and access policies.
- Assessment must confirm knowledge of the security features available in the operating environment and the ability to monitor and administer security functions on the network. This may include use of third-party diagnostic tools.

To demonstrate competency in this unit the following resources will be needed:

EVIDENCE GUIDE	
	• A live network with security restrictions • Security and access policies • Security information resources • Hardware and software that will improve security
Context of and specific resources for assessment	Security planning and monitoring aids in preventing intrusion into a network. With computers containing and manipulating significant data about our finances, purchasing habits and other private information, monitoring and administering network security is an ongoing challenge for organisations which collect and use such information. This unit provides a starting point for monitoring and administering network security. Activities undertaken in this unit should be done in a closed-off LAN/WAN/WLAN and the skills developed not used on live open networks. The breadth, depth and complexity of knowledge and skills in this competency would cover a broad range of varied activities or application in a wider variety of contexts most of which are complex and non-routine. Leadership and guidance would be involved when organising activities of self and others as well as contributing to technical solutions of a non-routine or contingency nature. Assessment must ensure: • Performance of a broad range of skilled applications including the requirement to evaluate and analyse current practices, develop new criteria and procedures for performing current practices and provision of some leadership and guidance to others in the application and planning of the skills would be characteristic. • Applications may involve responsibility for, and limited organisation of, others.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to

EVIDENCE GUIDE

	this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should to be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Due to the inherent risks involved in activities such as dealing with the security of potentially sensitive information, it is strongly recommend that work and assessment be carried out on a system separate from the organisation's main field of network activity or in a simulated environment. Where a workplace context is used, specific control for security must be adhered to in all circumstances. • Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process.
Guidance information for assessment	The interdependence of units for assessment purposes may vary with the particular project or scenario. Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • ICAD4043B Develop and present a feasibility report • ICAS4119B Monitor and administer systems security • ICAS5202B Ensure privacy for users An individual demonstrating this competency would be

EVIDENCE GUIDE

	able to: • Use detection tools to detect intrusion • Monitor and administer activities of users • Apply emergency solutions to a variety security problems • Interpret available information and request clarification where needed Additionally, an individual demonstrating this competency would be able to: • Demonstrate understanding of a broad knowledge base incorporating some theoretical concepts • Apply solutions to a defined range of unpredictable problems • Identify and apply skill and knowledge areas to a wide variety of contexts, with depth in some areas • Identify, analyse and evaluate information from a variety of sources • Take responsibility for own outputs in relation to specified quality standards • Take limited responsibility for the quantity and quality of the output of others • Maintain knowledge of industry products and services

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.

<i>Network</i> may include:	• large and small LANs • WLANs • VPNs • Intranets

RANGE STATEMENT	
	the internet
Security policy may be in relation to:	- theft - viruses - standards (including archival, back-up, network) - privacy - audits and alerts - usually relates directly to the security objectives of the organisation and file access levels
Appropriate person may include:	- supervisor - teacher - authorised business representative - client
Hardware may include but is not limited to:	- mobile equipment - workstations - personal computers - modems or other connectivity devices - networks - DSL modems - remote sites - servers
Software may include but is not limited to:	commercial, in-house, packaged or customised software
Operating system may include but is not limited to:	- Linux 6.0 or above - Windows 98 or above - Apple OS 8 or above
Documentation may follow:	- ISO/IEC/AS standards - audit trails - naming standards - version control - project management templates - report writing principles
Server may include:	- Application/web servers - BEA Weblogic servers - IBM VisualAge and WebSphere - Novell NDS servers - Email servers - Voice servers

RANGE STATEMENT	
	• File and print servers • FTP servers • Firewall servers • Proxy/cache servers
Requirements may be in reference to:	• business • system • application • network • people in the organisation
Security threats may include:	• eavesdropping • manipulation • impersonation • penetration • denial of service • by-pass • hacking • viruses • spoofing • associations
Encryption may include features or protocols such as:	• RSA public key • PGP (pretty good privacy) • connection orientation • WEP • WPA • AAA • symmetric ciphers • asymmetric public-key ciphers • sniffers • PKI • SSH • Deslogin • PKZIP • secure socket layer (SSL) • digital signatures

Unit Sector(s)

Unit sector	Support

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAS4125B Monitor and administer a database

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to manage, monitor and administer a database. The following units are linked and form an appropriate cluster: • ICAB4060B Identify physical database requirements • ICAB4061B Monitor physical database implementation • ICAS4108B Complete database back up and recovery • ICAS4113C Identify and resolve common database performance problems • ICAS4114B Implement maintenance procedures No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units	

Prerequisite units		
	ICAS3024B	Provide basic system administration

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. Start up a database	1.1. Configure system for database start-up 1.2. Monitor database start-up and operation for irregularities
2. Manage database	2.1. Take action to ensure that a data dictionary has been compiled and that data structures are in place 2.2. Maintain data integrity constraints according to business requirements 2.3. Create and design indexes and multiple-field keys according to business requirements 2.4. Monitor the locking options chosen for the database 2.5. Confirm that recent back-ups of the database have been stored and that back-ups can be retrieved as a full working copy

ELEMENT	PERFORMANCE CRITERIA
	2.6. Monitor the data storage space for ongoing viability and resize as needed 2.7. Update data according to organisational guidelines
3. Manage database access	3.1. Allocate or remove access privileges according to user status 3.2. Monitor network server log-in log file for illegal log-in attempts or for security breaches 3.3. Manage system resources in the context of database administration

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Analysis skills in relation to working database processes
- Report writing skills for business
- Database management skills requiring depth in some areas
- Analysis and evaluation of information relating to database performance
- Problem solving skills in database processes
- Research skills for identifying, analysing and evaluating features of a particular database

Required knowledge

- General knowledge of structured query language (SQL)
- General knowledge of database administration
- Detailed knowledge of tuning methodologies
- General knowledge of the principles of databases
- Detailed knowledge of database management tools
- Detailed knowledge of back-up and recovery methodologies
- Detailed knowledge of database security

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	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: - Assessment must confirm the ability to consistently manage and administer a database. To demonstrate competency in this unit the learner will require access to: - A live database, preferably on a LAN on which there is a server that offers log-in functionality
Context of and specific resources for assessment	Databases offer shared collections of logically related data, designed to meet the information needs of multiple users. These stores of data describe entities and the relationships between the entities and are generally supported by a database management system which is the software mechanism for managing the data. Databases are in place for most organisations and provide the fundamental underpinnings for online facilities required for data provision and data retrieval. The effective management and administration of databases are of critical importance to businesses which rely on accurate and up to date information availability. Applications involve responsibility for database administration. The breadth, depth and complexity of knowledge and skills in this competency would cover a broad range of varied activities or application in a wider variety of contexts most of which are complex and non-routine. Leadership and guidance would be involved when organising activities of self and others as well as contributing to technical solutions of a non-routine or contingency nature.

EVIDENCE GUIDE	
	Assessment must ensure: • Performance of a broad range of skilled applications including the requirement to evaluate and analyse current practices, develop new criteria and procedures for performing current practices and provision of some leadership and guidance to others in the application and planning of the skills would be characteristic. • Applications may involve responsibility for, and limited organisation of, others.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended,

EVIDENCE GUIDE

for example:

- ICAB4060B Identify physical database requirements
- ICAB4061B Monitor physical database implementation
- ICAS4108B Complete database back-up and recovery
- ICAS4113C Identify and resolve common database performance problems
- ICAS4114B Implement maintenance procedures

An individual demonstrating this competency would be able to:

- Demonstrate skills in administering a database
- Monitor data and provide solutions to a defined range of unpredictable problems
- Identify and apply skills and knowledge related to database problems
- Identify, analyse and evaluate information from a variety of sources
- Take limited responsibility for the administration of a database

Additionally, an individual demonstrating this competency would be able to:

- Demonstrate understanding of a broad knowledge base incorporating some theoretical concepts
- Apply solutions to a defined range of unpredictable problems
- Identify and apply skill and knowledge areas to a wide variety of contexts, with depth in some areas
- Identify, analyse and evaluate information from a variety of sources
- Take responsibility for own outputs in relation to specified quality standards
- Take limited responsibility for the quantity and quality of the output of others
- Maintain knowledge of industry products and services

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.

<i>Database</i> may include but is not limited to:	• relational databases • object-relational databases • proprietary databases • commercial off the shelf (COTS) database packages such as Oracle, PostgreSQL, Sybase, Microsoft SQL server, Microsoft Access, Ingres, DB2, DB4, Informix, mSQL, MySQL, SQL server
<i>Business requirements</i> may include:	• customer • supplier • payroll • inventory • tax requirements
<i>Network server</i> may include but is not limited to:	• Novell NetWare 5 or above or any operating system that has multi-user ability • Linux • Mac OS • Windows 2000 or above
<i>System</i> may include but is not limited to:	• hardware and software components that run a computer
<i>Organisational guidelines</i> may include but are not limited to:	• personal use of emails and internet access • content of emails • downloading information and accessing particular websites • opening mail with attachments • virus risk • dispute resolution • document procedures and templates • communication methods • financial control mechanisms.
<i>User</i> may include:	• a person within a department • a department within the organisation

RANGE STATEMENT	
	a third party

Unit Sector(s)

Unit sector	Support

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAS4127B Support system software

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to operate and support system software. The following units are linked and form an appropriate cluster: • ICAS4107B Rectify system faults on a live system • ICAS4119B Monitor and administer systems security No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		
	ICAI3020B	Install and optimise operating system software

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. Maintain system software	1.1. Evaluate system effectiveness against <i>organisational requirements</i> and benchmarks, to determine if maintenance activities should be commenced 1.2. Use system utilisation, file and <i>disk</i> structure, performance reports and files to identify peak periods and possible performance problems 1.3. Monitor <i>system</i> data levels to determine whether <i>system</i> performance is consistent with predetermined standards 1.4. Troubleshoot the <i>system</i>, if required, with appropriate <i>system</i> tools 1.5. Monitor and retune the <i>system</i>, where applicable, to improve performance
2. Set up and manage the system files	2.1. Evaluate <i>system requirements</i> and monitor the appropriateness of file and folder structures 2.2. Use the appropriate administration and tools to create file and folder structures 2.3. Set security, access and sharing of file system to meet <i>requirements</i>

ELEMENT	PERFORMANCE CRITERIA
	2.4. Identify the virus protection requirements of the network in line with policies and organisational requirements 2.5. Scan the system for viruses and remove detected viruses 2.6. Test the file system to ensure that appropriate access is available to the user groups 2.7. Ensure log-on scripts and custom written utilities and programs conform to organisational guidelines for simple programming constructs 2.8. Document the file system created in accordance with organisational guidelines
3. Monitor and manage system usage and security	3.1. Monitor user access against user access levels 3.2. Review security requirements for user and data to be stored on network 3.3. Determine risks that data is exposed to, and formulate appropriate prevention and recovery processes 3.4. Implement a system to provide back-up and to restore services in the event of a disaster 3.5. Document disaster recovery procedures
4. Carry out system backup	4.1. Confirm the back-up schedule meets organisational requirements 4.2. Ensure system back-ups are completed according to organisational, scheduling and system requirements 4.3. Ensure that a secure off-site location for the storage of back-up media is provided and used 4.4. Ensure system back-ups 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 5.2. Optimise the restored system according to organisational requirements 5.3. Ensure system restores are documented according to organisational requirements

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Managing system support
- Analysis skills in relation to routine and non-routine work processes
- Report writing skills for business requiring depth in some areas, analysis, and evaluation of information in a defined range of areas
- Problem solving skills in non-routine work processes
- Plain English literacy and communication skills in relation to dealing with users and team members

Required knowledge

- Detailed understanding of using system software and system tools
- Broad knowledge of vendor products and trends in product development
- Broad general knowledge of the client business domain
- Broad knowledge of quality assurance practices
- Broad general knowledge of change management systems
- Broad knowledge of OH&S requirements in relation to work safety, environmental factors and ergonomic considerations

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

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

Evidence of the following is essential:

- Assessment must confirm the ability to monitor and maintain system software performance according to vendor and organisational benchmarks utilising a wide range of features and system tools.

To demonstrate competency in this unit the learner will

EVIDENCE GUIDE	
	require access to: • Organisational performance benchmarks • Live system • Client user requirements
Context of and specific resources for assessment	Breadth, depth and complexity of knowledge and skills would prepare a person to perform a range of tasks necessary in supporting systems software. Operations must be undertaken in accordance with organisational policies and procedures. Managing the system software should be done under competent supervision where there is a clearly defined range of contexts for ensuring minimal disruption of services to the organisation. The breadth, depth and complexity of knowledge and skills in this competency would cover a broad range of varied activities or application in a wider variety of contexts most of which are complex and non-routine. Leadership and guidance would be involved when organising activities of self and others as well as contributing to technical solutions of a non-routine or contingency nature. Assessment must ensure: • Performance of a broad range of skilled applications including the requirement to evaluate and analyse current practices, develop new criteria and procedures for performing current practices and provision of some leadership and guidance to others in the application and planning of the skills would be characteristic. • Applications may involve responsibility for, and limited organisation of, others.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to

EVIDENCE GUIDE

	this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • ICAS4107B Rectify system faults on a live system • ICAS4119B Monitor and administer systems security An individual demonstrating this competency would be able to: • Demonstrate relevant understanding of policies and procedures related to support system software, with theoretical knowledge of implementation issues in the system context • Apply known solutions to a variety of predictable software problems and perform processes that require some discretion • Interpret available website for managing systems software information using discretion and judgement

EVIDENCE GUIDE

	• Maintain knowledge of industry products and services Additionally, an individual demonstrating this competency would be able to: • Demonstrate understanding of a broad knowledge base incorporating some theoretical concepts • Apply solutions to a defined range of unpredictable problems • Identify and apply skill and knowledge areas to a wide variety of contexts, with depth in some areas • Identify, analyse and evaluate information from a variety of sources • Take responsibility for own outputs in relation to specified quality standards • Take limited responsibility for the quantity and quality of the output of others

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.

Organisational requirements may be in relation to:

- work environment
- problem solution processes
- preventative maintenance and diagnostic policy
- roles and technical responsibilities in the IT department
- vendor and product service-level support agreements

System may include but is not limited to:

- hardware and software components that run a computer, databases, applications, servers, operating systems, gateways, application

RANGE STATEMENT	
	service provider and ISP
Organisational guidelines may include but are not limited to:	• personal use of emails and internet access • content of emails • downloading information and accessing particular websites • opening mail with attachments • virus risk • dispute resolution • document procedures and templates • communication methods • financial control mechanisms
Network may include but is not limited to:	• large and small LANs • VPNs • WANs • the internet • the use of the PSTN for dial-up modems only • private lines • data • voice
Security requirements may include but are not limited to:	• security levels • trusted sites • privacy • SSL • encryption
User may include:	• a person within a department • a department within the organisation • a third party
Policies may include:	• incident response procedures • network intrusion detection systems • forensic procedures • training • awareness raising strategies
System requirements may include but are not limited to:	• system functionality • geography • environment • client user • cost constraints
Disk may include but are not limited to:	• diskettes (floppy disks) • CD

RANGE STATEMENT

	• CD-RW • DVD RW • zip disk • solid state hard drive

Unit Sector(s)

Unit sector	Support

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAS4134C Provide first-level remote help desk support

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to resolve first-level user support difficulties remotely. The following units are linked and form an appropriate cluster: • ICAS4022B Determine client computing problems and action • ICAS4107B Rectify system faults on a live system • ICAS4114B Implement maintenance procedures • ICAS4119B Monitor and administer systems security • ICAS4127B Support system software • ICAW4027B Relate to clients on a business level No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units	

Prerequisite units		
	ICAS3031B	Provide advice to clients

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. Determine the user support issue	1.1. Determine the eligibility status of the individual experiencing the <i>user support</i> difficulty against <i>organisational guidelines</i> for <i>user support</i> services 1.2. Clarify the <i>user support</i> difficulty or change request with <i>client</i> , using active listening and questioning techniques where possible 1.3. Confirm the nature of the <i>user support</i> difficulty or change request with <i>client</i> , using technical language that is understandable by the <i>client</i>
2. Identify the hardware or software being used by the customer/client	2.1. Identify the <i>software, hardware</i> , network connection or <i>application</i> , being used by the <i>client</i> 2.2. Identify the outcome the <i>client</i> is trying to achieve and the stage of the process they have reached, using active listening and questioning techniques

ELEMENT	PERFORMANCE CRITERIA
	2.3. Step the client back to the beginning of the process using plain English 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 that may permit it to recur 3.2. 'Walk'/talk the client successfully through a complete recovery and resolution process for the issue or change request where required 3.3. Provide sufficient instruction to the client to enable effective handling and resolution of the issue, if it recurs 3.4. Offer the client the next level escalation of the process if a resolution or change request is not possible under current circumstances, and explain costs involved
4. Maintain communication link	4.1. Confirm resolution of difficulty with client in accordance with client service policy 4.2. Confirm client satisfaction with the current service in accordance with client service policy 4.3. Inform client of additional support or services available, in accordance with the organisation's client service policy 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 4.5. Complete the client contact records in accordance with the client service requirements

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Up-selling skills, with some discretion and judgement required

REQUIRED SKILLS AND KNOWLEDGE
• Customer service skills in relation to communicating on product and service matters with potential customers • Using systems for recording and accessing information • Active listening skills for identifying client problems and identifying where in the process the problem has occurred • Ability to interpret user manuals, for the purpose of resolving client problems and guiding clients through manuals
Required knowledge
• Customer service policies • How to apply escalation procedures in a clearly defined range of contexts • User support policies of limited complexity related to known or commonly-used options • OH&S procedures related to the work environment and organisational requirements

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	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: • Assessment must confirm the ability to successfully resolve first-level user support difficulties remotely, while demonstrating customer service skills. To demonstrate competency in this unit the following resources will be needed: • Customer service policies • User support policies • Escalation procedures • Communications hardware (e.g. telephone hook-up) for dealing with clients remotely

EVIDENCE GUIDE

Context of and specific resources for assessment

The operation of remote help desk support is an increasingly important aspect of service provision within an overall client support framework as even internal clients are often no longer co-located with technical support resources. In the interests of business efficiency, many vendor and commercial support resources have been located centrally and consequently are remote from their client base.

The rapid expansion of information technology into small businesses and domestic environments has also increased the importance of IT product and service providers providing effective and plain English first-level support and subsequent problem escalation options for an increasing diverse client base.

Clients of IT service providers are partners in the support process and the application of this competency requires some degree of client instruction to enable handling of subsequent and similar issues or to understand the need for escalation to higher order support.

This competency is sufficiently flexible to allow for creativity in support options in relation to the specialised needs of clients.

The scope and complexity of knowledge and skills is dependent on the tasks undertaken as part of providing service support.

The breadth, depth and complexity of knowledge and skills in this competency would cover a broad range of varied activities or application in a wider variety of contexts most of which are complex and non-routine. Leadership and guidance would be involved when organising activities of self and others as well as contributing to technical solutions of a non-routine or contingency nature.

Assessment must ensure:

EVIDENCE GUIDE	
	• Performance of a broad range of skilled applications including the requirement to evaluate and analyse current practices, develop new criteria and procedures for performing current practices and provision of some leadership and guidance to others in the application and planning of the skills would be characteristic. • Applications may involve responsibility for, and limited organisation of, others.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should to be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process.
Guidance information for assessment	The interdependence of units for assessment purposes may vary with the particular project or scenario. Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • ICAS4022B Determine client computing problems and action

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- ICAS4107B Rectify system faults on a live system
- ICAS4114B Implement maintenance procedures
- ICAS4119B Monitor and administer systems security
- ICAS4127B Support system software
- ICAW4027B Relate to clients on a business level

An individual demonstrating this competency would be able to:

- Relate to client needs
- Provide logical answers in line with policies and procedures
- Take into consideration cultural needs
- Manage time and priorities by quickly assessing the level of support needed and then directing the problem resolution accordingly
- Determine level of priority of the help desk issue
- Apply solutions to a variety of predictable end-user problems
- Interpret available information and use appropriate interview techniques to request clarification where needed
- Maintain knowledge of industry products and services

Additionally, an individual demonstrating this competency would be able to:

- Demonstrate understanding of a broad knowledge base incorporating some theoretical concepts
- Apply solutions to a defined range of unpredictable problems
- Identify and apply skill and knowledge areas to a wide variety of contexts, with depth in some areas
- Identify, analyse and evaluate information from a variety of sources
- Take responsibility for own outputs in relation to specified quality standards
- Take limited responsibility for the quantity and quality of the output of others

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.

User support may include:

- customer contact centre by phone
- email
- real-time website support
- other real-time support structures

Organisational guidelines may include but are not limited to:

- personal use of emails and internet access
- mobile equipment
- content of emails
- downloading information and accessing particular websites
- opening mail with attachments
- virus risk
- dispute resolution
- document procedures and templates
- communication methods
- financial control mechanisms

Client may include but is not limited to:

- internal departments
- external organisations
- individual people
- employees

Application may include:

- database programs
- data and voice integration
- word processors
- email programs
- internet browsers
- system browsers
- spreadsheets

Hardware may include but is not limited to:

- workstations
- personal computers
- modems or other connectivity devices
- networks
- wireless connections
- DSL modems

RANGE STATEMENT	
	- remote sites - servers
<i>Software</i> may include but is not limited to:	commercial, in-house, packaged or customised software

Unit Sector(s)

Unit sector	Support

Co-requisite units

Co-requisite units	

Competency field

Competency field	

ICAS4191B Maintain website performance

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to ensure that a website maintains its performance levels during peak traffic times and during full utilisation access. The following units are linked and form an appropriate cluster: • ICAS4124B Monitor and administer network security No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

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. Benchmark website performance	1.1. Review <i>client</i> performance expectations from <i>specifications</i> and <i>business requirements</i> 1.2. Test administration and maintenance <i>requirements</i> against <i>specifications</i> and <i>business requirements</i> 1.3. Establish performance benchmarks from <i>specifications</i> and <i>business requirements</i> 1.4. Ensure performance benchmarks are tested 1.5. Record measured performance benchmarks against <i>specifications</i>
2. Track website performance	2.1. Measure actual website performance against performance benchmarks in key areas and record outcomes 2.2. Establish procedures and policies for maintaining stability of actions and processes related to the website 2.3. Identify faults or suggest improvements to the website 2.4. Implement improvements according to <i>business requirements</i> and in line with <i>policies</i> and procedures

ELEMENT	PERFORMANCE CRITERIA
	2.5. Establish automatic fault reporting procedures and processes 2.6. Monitor and maintain website security measures 2.7. Implement administration and maintenance schedules 2.8. Establish preventative maintenance and administration indicators and ensure an alert system is enabled 2.9. Track user activities and make changes to policies or procedures, depending on findings
3. Tune performance	3.1. Compare actual website performance against benchmarks over an appropriate period and make changes based on inconsistencies 3.2. Record performance inconsistencies and incorporate learning into revised policies and procedures 3.3. Use diagnostic and software tools to identify and correct website faults 3.4. Plan and action preventative maintenance on a regular basis, to ensure continuous and consistent performance of website 3.5. Complete and record 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 process performance problems 4.2. Review security tools and procedures and conduct improvements where necessary 4.3. Document and implement maintenance schedules 4.4. Review maintenance and administration documentation in line with policies and procedures, in order to identify areas for performance improvement 4.5. Update the website on a regular basis, including information, links, multi-media links and back-end software 4.6. Provide a timely and appropriate response to client to provide improvement or maintenance suggestions

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Website development
- Website analysis
- Technical test design
- Test implementation
- Test evaluation
- Evaluation feedback
- Evaluation analysis
- Fault diagnosis
- Fault correction
- Implementing administration and maintenance schedules

Required knowledge

- Website architecture
- Basic website security
- Basic workload (web traffic) metrics
- Basic business process design
- Customer and business liaison

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

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

Evidence of the following is essential:

- Assessment must confirm the ability to develop and maintain actual website performance against benchmarks, to ensure that the website meets specifications.
- Where performance criteria are not met, faults must

EVIDENCE GUIDE

	be identified and appropriate remedial action taken. - Assessment must verify the ability to implement scheduled and non-scheduled maintenance and to effectively monitor and tune website performance. To demonstrate competency in this unit the learner will require access to: - Web servers and websites - Technical requirements - Web traffic diagnostic tools, including timing tools to gauge website response times
Context of and specific resources for assessment	The effective and efficient operation of an organisation's website is of critical importance when business transactions are conducted online. Additionally, a website provides a 'new window' into an organisation and as such provides existing and potential clients with an indication of organisational credibility, effectiveness and efficiency. The rapid growth in the use of websites as the primary media for client interaction, places considerable strategic and operational importance on activities around effective website monitoring and performance. Testing the website under different conditions of load is essential to understanding how it behaves from the client's perspective. Thus, testing tools should include some way of simulating traffic from numerous users. Breadth, depth and complexity of knowledge and skills would prepare a person to perform basic skills in managing website performance. Operations must be in accordance with organisational policies and procedures. Managing the performance of a website should be done under competent supervision where there is a clearly defined range of contexts for ensuring that ongoing demands on the site are met.

EVIDENCE GUIDE

	The breadth, depth and complexity of knowledge and skills in this competency would cover a broad range of varied activities or application in a wider variety of contexts most of which are complex and non-routine. Leadership and guidance would be involved when organising activities of self and others as well as contributing to technical solutions of a non-routine or contingency nature. Assessment must ensure: • Performance of a broad range of skilled applications including the requirement to evaluate and analyse current practices, develop new criteria and procedures for performing current practices and provision of some leadership and guidance to others in the application and planning of the skills would be characteristic. • Applications may involve responsibility for, and limited organisation of, others.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors,

EVIDENCE GUIDE	
	subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • ICAS4124B Monitor and administer network security An individual demonstrating this competency would be able to: • Demonstrate understanding of policies and procedures related to website performance, with theoretical knowledge of security issues • Apply known solutions to a variety of predictable website problems • Interpret available website information using discretion and judgement • Take responsibility for outputs in managing website performance • Maintain knowledge of industry products and services Additionally, an individual demonstrating this competency would be able to: • Demonstrate understanding of a broad knowledge base incorporating some theoretical concepts • Apply solutions to a defined range of unpredictable problems • Identify and apply skill and knowledge areas to a wide variety of contexts, with depth in some areas • Identify, analyse and evaluate information from a variety of sources • Take responsibility for own outputs in relation to specified quality standards • Take limited responsibility for the quantity and quality of the output of others

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.	
<i>Specifications</i> may include but is not limited to:	• technical requirements • user problem statement • current system functionality
<i>Client</i> may include but is not limited to:	• internal departments • external organisations • individual people • employees
<i>Requirements</i> may be in reference to:	• business • system • application • network • people in the organisation
<i>Business requirements</i> may include:	• customer • supplier • payroll • inventory • tax requirements of the organisation
<i>Standards</i> may include:	• ISO/IEC/AS standards • organisational standards • project standards (for further information refer to the Standards Australia website at: www.standards.com.au)
<i>System</i> may include but is not limited to:	• hardware and software components that run a computer
<i>Software</i> may include but is not limited to:	• commercial, in-house, packaged or customised software
<i>Documentation</i> may follow:	• ISO/IEC/AS standards • audit trails • naming standards

RANGE STATEMENT	
	• version control • project management templates • report writing principles
<i>Policies</i>	• Incident response procedures • network intrusion detection systems • forensic procedures • training • awareness raising policy

Unit Sector(s)

Unit sector	Support

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAS4200B Monitor traffic and compile website traffic reports

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to monitor website traffic and compile traffic reports as specified. The following units are linked and form an appropriate cluster: • ICAS4191B Maintain website performance • ICAT4186B Conduct operational acceptance tests of websites No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

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. Select web traffic monitoring tools	1.1. Identify and analyse available site analysis software with reference to organisational requirements and website architecture 1.2. Choose and install the most suitable site analysis software according to vendor requirements or alternatively choose the internet service provider services that will achieve the tasks required 1.3. Identify the required report options with reference to organisational requirements and website architecture 1.4. Develop a traffic monitoring program
2. Monitor web traffic	2.1. Specify required traffic reports according to information requirements 2.2. Generate required traffic reports 2.3. Analyse reports to identify improvements to server/site performance 2.4. Apply forecasting methodologies to predict traffic peaks
3. Make	3.1. Recommend changes in hardware and/or software

ELEMENT	PERFORMANCE CRITERIA
recommendations for improvements	3.2. Implement changes as directed 3.3. Continue traffic monitoring program as required

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Use of current web server log file analysis software
- Use of current traffic tracking software
- Use of current forecasting methodology for identifying traffic peaks

Required knowledge

- Queues and bottlenecks
- Server design and functionality
- Features and functionality of network device drivers
- Features and functionality of network operating systems
- Website architecture
- Website security issues
- Queuing systems
- Workload metrics
- Features and functionality of commercially available log file analysis software (e.g. GetStats, AccessWatch, WebReporter, Accrue Insight, RefStats, WebTrends)
- Features and functionality of commercially available traffic tracking software (e.g. I/PRO, Guestbook)
- Copyright and intellectual property
- The Commonwealth Privacy Act 2000.
- Australian Computer Society Code of Ethics

Evidence Guide

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the

EVIDENCE GUIDE	
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 of the following is essential: - Assessment must confirm the ability to monitor site traffic and compile traffic reports as specified. To demonstrate competency in this unit the learner will require access to: - Web server - E-business website - Analysis software
Context of and specific resources for assessment	Managing website reports should be done under supervision with a clearly defined range of contexts for ensuring security. The breadth, depth and complexity of knowledge and skills in this competency would cover a broad range of varied activities or application in a wider variety of contexts most of which are complex and non-routine. Leadership and guidance would be involved when organising activities of self and others as well as contributing to technical solutions of a non-routine or contingency nature. Assessment must ensure: - Performance of a broad range of skilled applications including the requirement to evaluate and analyse current practices, develop new criteria and procedures for performing current practices and provision of some leadership and guidance to others in the application and planning of the skills would be characteristic. - Applications may involve responsibility for, and limited organisation of, others.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In

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	undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. - Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. - Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: - ICAS4191B Maintain website performance - ICAT4186B Conduct operational acceptance tests of websites An individual demonstrating this competency would be able to: - Demonstrate understanding of policies and procedures related to reporting and understanding website traffic, with theoretical knowledge of complex measurements and issues in the internet context - Apply known solutions to a variety of predictable website problems and perform processes that require some discretion

EVIDENCE GUIDE

	• Interpret available website information using discretion and judgement • Take responsibility for outputs in managing website monitoring • Maintain knowledge of industry products and services Additionally, an individual demonstrating this competency would be able to: • Demonstrate understanding of a broad knowledge base incorporating some theoretical concepts • Apply solutions to a defined range of unpredictable problems • Identify and apply skill and knowledge areas to a wide variety of contexts, with depth in some areas • Identify, analyse and evaluate information from a variety of sources • Take responsibility for own outputs in relation to specified quality standards • Take limited responsibility for the quantity and quality of the output of others

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.

Organisational requirements may be in relation to:

- work environment
- problem solution processes
- preventative maintenance and diagnostic policy
- roles and technical responsibilities in the IT department
- vendor and product service-level support

RANGE STATEMENT	
	agreements
Software may include but is not limited to:	commercial, in-house, packaged or customised software
Information requirements may include:	- memos - letters - minutes - agendas - other business documents required by the organisation
Hardware may include but is not limited to:	- workstations - personal computers - modems or other connectivity devices - networks - DSL modems - remote sites - servers

Unit Sector(s)

Unit sector	Support

Co-requisite units

Co-requisite units	

Competency field

Competency field	

ICAS4201B Transfer content to a website using commercial packages

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to transfer content from a remote location to a web server using a range of commercial IT products. The end objective is the successful upload of new or revised information on a website. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

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. Configure the file transfer protocol client	1.1. Review and select <i>file transfer protocol client</i> based on features and functions 1.2. Ensure that the <i>file transfer protocol client</i> is suitable for the technical environment 1.3. Enter client details, including user ID, password and host name/ID into the correct profile fields to create a permanent profile 1.4. Choose settings such as auto-detect, save profile and password depending on organisational security and <i>privacy policy</i> and <i>organisational guidelines</i> 1.5. Test and verify configuration by connecting to the web hosting server
2. Plan and prepare for data transfer	2.1. Prepare data content and back it up on the local <i>computer</i> or <i>server</i> 2.2. Identify data as compressed or uncompressed with tools available on the <i>server</i> to manage uploaded data 2.3. Ensure files are in an appropriate form for recognition and interaction by the <i>operating system</i> 2.4. Ensure the receiving directory structure is applicable for the data to be uploaded
3. Establish connection	3.1. Log on to remote <i>server</i> using administrative, guest

ELEMENT	PERFORMANCE CRITERIA
to server	or anonymous accounts 3.2.Proceed through security layers based on organisational guidelines 3.3.Initiate file transfer protocol client program and locate destination directory
4. Transfer data to remote server	4.1.Select files to be transferred and choose correct mode (ASCII or binary) 4.2.Run anti-virus software on downloaded files 4.3.Move, rename, copy, and delete files on the server as necessary and as permissions allow 4.4.Store and order files according requirements and file extensions 4.5.Conduct appropriate steps for downloaded files such as translation, decompression or de-archival of the files for use 4.6.Confirm data transfer and content functionality and close connection

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Website analysis
- Website publishing
- File transfer
- Directory maintenance
- Information architecture
- Connecting to remote servers
- File back-up

Required knowledge

- Website server architecture (e.g. Linux, Windows, UNIX)
- Server operating systems
- Server access security procedures
- FTP server and client software

REQUIRED SKILLS AND KNOWLEDGE

- Copyright and intellectual property information
- The Commonwealth Privacy Act 2000
- Internet protocols
- Security issues - denial of service, viruses, hackers
- Australian Computer Society Code of Ethics

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

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

Evidence of the following is essential:

- Assessment must confirm the ability to configure an FTP client, prepare content to be transferred, connect to the server and transfer content.

To demonstrate competency in this unit the learner will require access to:

- Web servers
- E-business website
- FTP client software
- Server security password and access procedures

Context of and specific resources for assessment

This competency requires the application of file transfer protocol (FTP) client software as a means of uploading or changing content on a website. FTP is the most common method for transferring data across the internet. Most web browsers connect to FTP sites transparently and download data without the user being aware that they are on an FTP server.

The breadth, depth and complexity of knowledge and skills in this competency would cover a broad range of varied activities or application in a wider variety of

EVIDENCE GUIDE	
	contexts most of which are complex and non-routine. Leadership and guidance would be involved when organising activities of self and others as well as contributing to technical solutions of a non-routine or contingency nature. Assessment must ensure: • Performance of a broad range of skilled applications including the requirement to evaluate and analyse current practices, develop new criteria and procedures for performing current practices and provision of some leadership and guidance to others in the application and planning of the skills would be characteristic. • Applications may involve responsibility for, and limited organisation of, others.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment

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	purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. An individual demonstrating this competency would be able to: • Demonstrate uploading and downloading of data • Make changes to settings of files located on a server • Set up folders and directories for anonymous sharing • Create upload folders and directories as a repository for users to place files • Maintain knowledge of industry products and services Additionally, an individual demonstrating this competency would be able to: • Demonstrate understanding of a broad knowledge base incorporating some theoretical concepts • Apply solutions to a defined range of unpredictable problems • Identify and apply skill and knowledge areas to a wide variety of contexts, with depth in some areas • Identify, analyse and evaluate information from a variety of sources • Take responsibility for own outputs in relation to specified quality standards • Take limited responsibility for the quantity and quality of the output of others

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

RANGE STATEMENT	
situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
File transfer protocol (FTP) client - variables may include but are not limited to a wide variety of commercially available tools, such as:	• AxY FTP for Windows, Linux and Unix • Cftp for Unix • Curl for Unix supports FTP, HTTP, Telnet • GFTP with GUI for Unix supports FTP, HTTP and SSH • Lftp command-line FTP for Solaris, IRIX, HP-UX, Digital UNIX and Linux • NFTP command-line FTP for Windows, Linux, OS/2 • NcFTP client command-line FTP and HTTP URLs for Solaris FreeBSD, AIX and Linux • WS_FTP for MS Windows
Client may include but is not limited to:	• internal departments • external organisations • individual people • employees
Operating system may include but is not limited to:	• Linux 6.0 or above • Windows 98 or above • Apple OS 8 or above
Computer may include:	• laptops • workstations • servers • other devices
Server may include:	• Application/web servers • BEA Weblogic servers • IBM VisualAge and WebSphere • Novell NDS servers • Email servers • File and print servers • FTP servers • Firewall servers • Proxy/cache servers
Requirements may be in reference to:	• business • system • application • network • people in the organisation

RANGE STATEMENT	
Software may include but is not limited to:	commercial, in-house, packaged or customised software
Organisational guidelines may include but are not limited to:	- personal use of emails and internet access - content of emails - downloading information and accessing particular websites - opening mail with attachments - virus risk - dispute resolution - document procedures and templates - communication methods - financial control mechanisms
Privacy policy include:	- information on the types of information held - the purpose of holding the information - how it is collected - the approved uses and disclosure of information held

Unit Sector(s)

Unit sector	Support

Co-requisite units

Co-requisite units	

Competency field

Competency field	

ICAS5102B Establish and maintain client user liaison

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to establish and maintain client user liaison in an IT environment, post implementation. This occurs after the business critical functions have been determined. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

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. Determine support areas	1.1. Identify and record information technology used in the organisational unit 1.2. Identify <i>stakeholders</i> of the <i>system</i> 1.3. Identify organisational structure, culture and politics in relation to support requirements 1.4. Determine what level of support is required by each organisational unit
2. Develop support procedures	2.1. Contact organisational units, as required, to verify support needs 2.2. Establish procedures for providing required support, including method of contact, frequency of meetings and reports 2.3. Document agreed procedure (<i>service-level agreement</i>)
3. Assign support personnel	3.1. Identify IT skills required to assist each organisational unit with support activities 3.2. Assign personnel according to <i>human resource processes</i> 3.3. Verify availability of selected personnel 3.4. Provide support using agreed procedures 3.5. Obtain feedback from the <i>appropriate person</i> on a regular basis

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Plain English literacy and communication skills in relation to analysis, evaluation and presentation of information such as reporting on service history issues are necessary. These could be in response to particular problems or in response to an approach to quality assurance processes aimed at a general improvement.
- Teamwork skills involve the contribution to solutions and goals of a non-routine or contingency nature (e.g. when a major system upgrade is needed and a workgroup approach is employed to implement it).
- Group facilitation and presentation skills in relation to transferring and collecting information and gaining consensus on concepts, such as when there are alternatives to decide upon, in installing new technology or in altering the service process for the current system.
- Project planning skills in relation to how to deliver on scope, time, cost and quality, and how to promote communications and manage risk.
- Negotiation skills in relation to other team members and applied to a defined range of predictable problems, such as organising equitable workloads for each team member when extra (weekend or night) work is necessary for a major network upgrade.
- Report writing skills for business, requiring depth in some areas, analysis and evaluation of information in a defined range of areas (e.g. outlining possible alternatives in technology or equipment changes).
- Customer service skills, including a semi-educational role when dealing with end-user problems, so that, by explaining relevant concepts, the learner can empower the end-user to attempt remedial action, the next time a similar problem occurs

Required knowledge

- General knowledge of the role that IT plays in the client's business domain. Knowing what equipment supplies business-critical services (e.g. web server for e-business, internet file transaction security for client accounts)
- Awareness of who the stakeholders are, what role they play in the organisation and how dependent they are on the IT infrastructure (e.g. salespeople and other mobile workforces may need a remote access communication service while travelling.)
- Detailed knowledge of the IT system's current functionality in supplying the essential and desirable services to the organisation. (e.g. what servers are engaged in providing the services such as email, web, proxy, firewall, back-up)

REQUIRED SKILLS AND KNOWLEDGE

- Broad knowledge of quality assurance practices in relation to how the service is supplied (e.g. are response times for help desk issues adequate for maintaining the organisation's desired business activity level?)
- Current industry-accepted hardware and software products, capabilities of IT devices, and detailed knowledge of areas related to the organisation's services, (e.g. specialised knowledge of website security, dynamic data exchange or on-line open file back-up system)

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

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

Evidence of the following is essential:

- Assessment must confirm the ability to establish and maintain client liaison in an IT environment. Evidence of communication and reporting mechanisms consistent with the identified role and as agreed between the parties must be demonstrated.

To demonstrate competency in this unit the learner will require access to:

- Service-level agreements
- Documented support requirements

Context of and specific resources for assessment

The demonstration of this competency is most relevant in the post-implementation phase of a project when the allocation of personnel and specification of support activities is most prominent. This competency articulates and addresses the elements and steps that need to be carried out, in order to establish a more formalised approach to post-implementation support. It emphasises the three-way interrelationship between the user client, support staff and equipment.

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	The breadth, depth and complexity covering planning and initiation of alternative approaches to skills or knowledge applications across a broad range of technical and/or management requirements, evaluation and coordination would be characteristic. The demonstration of competency may also require self-directed application of knowledge and skills, with substantial depth in some areas where judgement is required in planning and selecting appropriate equipment, services and techniques for self and others. Assessment must ensure: • Applications involve participation in development of strategic initiatives as well as personal responsibility and autonomy in performing complex technical operations or organising others. It may include participation in teams including teams concerned with planning and evaluation functions. Group or team coordination may also be involved.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors,

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	subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. An individual demonstrating this competency would be able to: • Demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas • Analyse and plan approaches to technical problems or management requirements • Transfer and apply theoretical concepts and/or technical or creative skills to a range of situations • Evaluate information, using it to forecast for planning or research purposes • Take responsibility for own outputs in relation to broad quantity and quality parameters • Take some responsibility for the achievement of group outcomes • Maintain knowledge of industry products and services

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.	
<i>Stakeholders</i> may include:	• sponsor • user • development team

RANGE STATEMENT	
	project team
Human resource processes may include but is not limited to:	- checking job and person specifications - observation of work activities - review of performance reports - professional recommendations or referrals
Service-level agreement	- May exist for many different infrastructure services, including communications carriers, ISPs, ASPs and SLAs for vendor products - SLAs should consider business processes and requirements, clearly specify and quantify service levels, identify evaluation or audit of service levels. May include workload and performance considerations, expectations regarding servicing, penalties, charge back to business units
System may include but is not limited to:	- databases - applications - servers - operating systems - gateways - application service provider (ASP) - ISP
Appropriate person may include:	- supervisor - teacher - authorised business representative - client

Unit Sector(s)

Unit sector	Support

Co-requisite units

Co-requisite units	

Co-requisite units		

Competency field

Competency field	

ICAS5103B Establish and maintain client user liaison during support activity

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to liaise with client users while providing support. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		
	ICAW4027B	Relate to clients on a business 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. Identify support procedures	1.1. Identify support required by client 1.2. Review support call documentation to identify client contact person 1.3. Review service-level agreement (SLA) and appropriate procedures to determine action, and include escalation procedures 1.4. Verify support requirements with client contact
2. Undertake support	2.1. Provide support activity required by the client 2.2. Maintain communication with client contact throughout support activity by email, phone or other specific process 2.3. Document action taken for support activity 2.4. Acknowledge protocol differences during support activity
3. Gather feedback	3.1. Submit resolution documentation to client contact 3.2. Contact client contact to determine satisfaction with support process 3.3. Conduct follow-up action, as required

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Plain English literacy and communication skills in relation to analysis, evaluation and presentation of information
- Teamwork skills involve the contribution to solutions and goals of a non-routine or contingency nature
- Group facilitation and presentation skills in relation to transferring and collecting information and gaining consensus on concepts
- Project planning skills in relation to scope, time, cost, quality, communications and risk management
- Negotiation skills in relation to other team members and applied to a defined range of predictable problems
- Report writing skills for business requiring depth in some areas, analysis and evaluation of information in a defined range of areas
- Customer service skills

Required knowledge

- Help desk and maintenance practices
- Current industry-accepted hardware and software products, with broad knowledge of general features and capabilities and detailed knowledge in some areas
- Role of stakeholders and degree of stakeholder involvement
- Client business domain
- System's current functionality
- Quality assurance practices

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

Critical aspects for assessment and evidence required to demonstrate

Evidence of the following is essential:

- Assessment must confirm the ability to liaise with a

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competency in this unit	client user while providing support coherent with the agreed standards. To demonstrate competency in this unit the learner will require access to: • Service-level agreements • Escalation procedure • Documentation processes
Context of and specific resources for assessment	The breadth, depth and complexity covering planning and initiation of alternative approaches to skills or knowledge applications across a broad range of technical and/or management requirements, evaluation and coordination would be characteristic. The demonstration of competency may also require self-directed application of knowledge and skills, with substantial depth in some areas where judgement is required in planning and selecting appropriate equipment, services and techniques for self and others. Assessment must ensure: • Applications involve participation in development of strategic initiatives as well as personal responsibility and autonomy in performing complex technical operations or organising others. It may include participation in teams including teams concerned with planning and evaluation functions. Group or team coordination may also be involved.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be

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	assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. An individual demonstrating this competency would be able to: - Demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas - Analyse and plan approaches to technical problems or management requirements - Transfer and apply theoretical concepts and/or technical or creative skills to a range of situations - Evaluate information, using it to forecast for planning or research purposes - Take responsibility for own outputs in relation to broad quantity and quality parameters - Take some responsibility for the achievement of group outcomes - Maintain knowledge of industry products and services

Range Statement

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.

<i>Client</i> may include but is not limited to:	• internal departments • external organisations • individual people • employees
<i>Service-level agreement</i>	• May exist for many different infrastructure services, including communications carriers, ISPs, ASPs and SLAs for vendor products. • SLAs should consider business processes and requirements, clearly specify and quantify service levels, identify evaluation or audit of service levels. May include workload and performance considerations, expectations regarding servicing, penalties, and charge back to business units.
<i>Protocol</i>	• Each organisation has a defined protocol that can vary from encouraging open communication between staff to a strict following of policy and process.

Unit Sector(s)

Unit sector	Support

Co-requisite units

Co-requisite units	

Competency field

Competency field	

ICAS5104B Determine maintenance strategy

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to determine and operationalise maintenance strategies and supporting processes to achieve continuity of IT operations and business functions. The following units are linked and form an appropriate cluster: • ICAS5111B Review and manage delivery of maintenance services No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		
	ICAT3025B	Run standard diagnostic tests

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 analyse maintenance needs	1.1. Identify risks to business continuity due to system malfunction including quantification of possible loss 1.2. Identify core business functions and determine the service requirements for those functions 1.3. Develop a maintenance philosophy to meet business needs and apply it to dealings with the <i>client</i>
2. Identify and analyse IT system components to be maintained	2.1. Review <i>systems architecture</i> and configuration documentation for currency 2.2. Conduct an <i>equipment</i> and/or <i>software</i> audit if appropriate information is not available 2.3. Determine and document the warranty status of <i>components</i> and/or <i>software</i> according to vendor, project or organisational requirements 2.4. Identify critical <i>components</i> and/or <i>software</i> and document recommendations regarding possible service arrangements
3. Develop service level agreements	3.1. Determine the views and requirements of the <i>client</i> in order to identify maintenance requirements 3.2. Prepare <i>service-level agreements</i> to match client

ELEMENT	PERFORMANCE CRITERIA
	user and business requirements
4. Formulate maintenance strategy	4.1. Examine maintenance options against cost constraints, risks to business continuity and service-level agreements 4.2. Identify a specific maintenance strategy based on cost, business and service-level agreements requirements 4.3. Create a preventative maintenance schedule based on cost, business and service-level agreements requirements 4.4. Negotiate a maintenance strategy with client and make changes to service-level agreements where necessary 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 5.2. Determine response time standards with client and suppliers 5.3. Create escalation procedures with client and suppliers 5.4. Set-up the help desk or other support function in accordance with agreed standards and procedures and in line with industry best practices

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Problem solving skills for a range of unpredictable problems involving IT-based equipment used for client's business activities
- Ability to analyse current system practices and system composition and to suggest improvements to them, as part of the development of strategic initiatives
- Communication skills in relation to analysis, evaluation and presentation of information

REQUIRED SKILLS AND KNOWLEDGE

- Teamwork skills involve the contribution to solutions and goals of a non-routine or contingency nature, such as problems that may appear in a networked PC environment (LAN and WAN), particularly with newly installed equipment
- Presentation skills in relation to providing information (e.g. reporting and making recommendations on new models of component maintenance schedules in response to perhaps pre-existing inadequate measures)
- Negotiation skills in relation to clients and applied to a defined range of predictable problems related to maintenance of client equipment
- Report writing skills for business, involving analysis and evaluation of information in such areas as maintenance schedules for IT equipment, level of service required, SLA, cost and viability, response time levels, escalation procedures with clients, warranty conditions with suppliers and presenting proposals for improvements to the servicing system in general
- Change management skills in relation to maintaining the continuity of IT operations and business functions, in carrying out upgrading of the system in its service levels or repair or replacement of equipment or software, in order to avoid unnecessary disruption to client business activities
- Customer service skills in relation to maintaining the continuity of IT operations and business functions.
- Communication and conflict resolution skills for handling difficult clients
- Risk analysis skills in relation to maintaining the continuity of IT operations and business functions

Required knowledge

- Broad knowledge of help desk and maintenance practices, such as general composition and operation of information database for tracking hardware, software and operational issues, such as troubleshooting, repair and warranty. Also, knowledge of determining level of support to a client (e.g. support levels one to four)
- Current industry-accepted hardware and software products, with broad knowledge of general features and capabilities and detailed knowledge in areas pertaining to particular client business activity. (e.g. help desk software, including a database for storing hardware and software details, product warranty and service difficulty records, such as repair, replacement and reconfiguration)
- General knowledge of the relationships between the stakeholders and the service provider. This includes knowing the rights of the stakeholder and the obligations of the learner inferred by the contract of service
- Broad knowledge of the client business domain and of the features of the IT system that support the client's business activity
- Detailed knowledge of how the system has been set up to process data and what data elements are stored
- Broad knowledge of quality assurance practices with reference to maintenance, warranty and repair of network equipment and software

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

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

Evidence of the following is essential:

- Assessment must confirm the ability to determine maintenance strategies and support processes for maintaining the continuity of IT operations and business functions that relate directly to the core and other business support functions.

To demonstrate competency in this unit the learner will require access to:

- Systems architecture documentation
- Warranty documents

Context of and specific resources for assessment

This competency provides for both the determination of an appropriate level of IT technical support and re-evaluation of the current service agreement for a client. The underlying principle is one of quality assurance and service provision to the client.

The breadth, depth and complexity covering planning and initiation of alternative approaches to skills or knowledge applications across a broad range of technical and/or management requirements, evaluation and coordination would be characteristic.

The demonstration of competency may also require self-directed application of knowledge and skills, with substantial depth in some areas where judgement is required in planning and selecting appropriate equipment, services and techniques for self and others.

Assessment must ensure:

EVIDENCE GUIDE	
	Applications involve participation in development of strategic initiatives as well as personal responsibility and autonomy in performing complex technical operations or organising others. It may include participation in teams including teams concerned with planning and evaluation functions. Group or team coordination may also be involved.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. - Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. - Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: ICAS5111B Review and manage delivery of maintenance services An individual demonstrating this competency would be

EVIDENCE GUIDE

	able to: • Demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas • Analyse and plan approaches to technical problems or management requirements • Transfer and apply theoretical concepts and/or technical or creative skills to a range of situations • Evaluate information, using it to forecast for planning or research purposes • Take responsibility for own outputs in relation to broad quantity and quality parameters • Take some responsibility for the achievement of group outcomes • Maintain knowledge of industry products and services

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.

<i>Client</i> may include but is not limited to:	• internal departments • external organisations • individual people • employees
<i>Equipment</i> may include but is not limited to:	• workstations • personal computers • modems or other connectivity devices • printers • DSL modems • hard drives • monitors • switches

RANGE STATEMENT	
	• hubs • personal digital assistant (PDA) • other peripheral devices
Systems architecture may include but is not limited to:	• Operating system: Novell NetWare 5 or above or operating system that has multi-user ability, Linux, Mac OS, Windows 2000 or above • Database software: Oracle, Sybase, Microsoft SQL server, Ingres, DB2, Informix, mSQL, MySQL, SQL server • Configuration: small memory model, large memory model, requests per second
Software may include but is not limited to:	• commercial, in-house, packaged or customised software
Components may include:	• motherboards • CMOS battery • central processing unit (CPU) • CD and DVD drives • interface cards • drives • fax/modem cards • RAM upgrades • CPU upgrades
Service-level agreement	• May exist for many different infrastructure services, including communications carriers, ISPs, ASPs and SLAs for vendor products. • SLAs should consider business processes and requirements, clearly specify and quantify service levels, identify evaluation or audit of service levels. May include workload and performance considerations, expectations regarding servicing, penalties, charge back to business units.
Appropriate person may include:	• supervisor • teacher • authorised business representative • client

Unit Sector(s)

Unit sector	Support

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAS5105B Coordinate change requests

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to analyse change requests and prioritise them. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		
	ICAP4037B	Contribute to the development of a strategy plan

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. Classify and monitor change requests	1.1.Receive and record change requests from the <i>client</i> 1.2.Classify and prioritise change requests according to business guidelines and <i>service-level agreements</i>
2. Determine priority settings	2.1.Identify risks to business continuity and prioritise changes that reduce risks for implementation 2.2.Evaluate the costs and benefits of implementing changes against the current <i>system</i> 2.3.Examine the benefits and costs of how and when a change is made including risks to business continuity 2.4.Schedule change analysis in accordance with 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 3.2.Determine impact to the <i>system</i> and organisation of methodology and timing of change 3.3.Notify the reason for the change to key <i>stakeholders</i> 3.4.Determine the resources necessary to carry out the change development, taking into account time and cost constraints 3.5.Develop a change plan based on change analysis 3.6.Review the change plan documentation to ensure it

ELEMENT	PERFORMANCE CRITERIA
	is completed in accordance with system documentation standards 3.7. Forward the change plan to the 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 4.2. Complete follow-up work and make recommendations for changes in procedures or documentation

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Problem solving skills for a defined range of unpredictable problems involving participation in the development of strategic initiatives
- Plain English literacy and communication skills in relation to analysis, evaluation and presentation of information
- Teamwork skills involving the contribution to solutions and goals of a non-routine or contingency nature
- Group facilitation and presentation skills in relation to transferring and collecting information and gaining consensus on concepts
- Negotiation skills in relation to other team members and applied to a defined range of predictable problems
- Report writing skills for business requiring depth in some areas, and analysis and evaluation of information in a defined range of areas
- Change management skills in relation to maintaining the continuity of IT operations and business functions
- Customer service skills in relation to reviewing change procedures
- Skills in handling difficult clients in relation to reviewing change procedures
- Conflict resolution skills in relation to reviewing change procedures
- Risk analysis skills in relation to reviewing change procedures

Required knowledge

- Broad knowledge of help desk and maintenance practices
- Current industry-accepted hardware and software products, with broad knowledge

REQUIRED SKILLS AND KNOWLEDGE

- of general features and capabilities and detailed knowledge in some areas
- Broad knowledge of the role of stakeholders and the degree of stakeholder involvement
- Broad knowledge of the client business domain
- Detailed knowledge of the system's current functionality
- Broad knowledge of quality assurance practices
- One or more change management tools

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

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

Evidence of the following is essential:

- Assessment must confirm sufficient knowledge of one or more change management systems and the ability to review change procedures and make appropriate recommendations.

To demonstrate competency in this unit the learner will require access to:

- Service-level agreements
- Business requirements
- Documentation standards

Context of and specific resources for assessment

The breadth, depth and complexity covering planning and initiation of alternative approaches to skills or knowledge applications across a broad range of technical and/or management requirements, evaluation and coordination would be characteristic.

The demonstration of competency may also require self-directed application of knowledge and skills, with substantial depth in some areas where judgement is

EVIDENCE GUIDE	
	required in planning and selecting appropriate equipment, services and techniques for self and others. Assessment must ensure: • Applications involve participation in development of strategic initiatives as well as personal responsibility and autonomy in performing complex technical operations or organising others. It may include participation in teams including teams concerned with planning and evaluation functions. Group or team coordination may also be involved.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.

EVIDENCE GUIDE

	An individual demonstrating this competency would be able to: • Demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas • Analyse and plan approaches to technical problems or management requirements • Transfer and apply theoretical concepts and/or technical or creative skills to a range of situations • Evaluate information, using it to forecast for planning or research purposes • Take responsibility for own outputs in relation to broad quantity and quality parameters • Take some responsibility for the achievement of group outcomes • Maintain knowledge of industry products and services

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.

<i>Client</i> may include but is not limited to:	• internal departments • external organisations • individual people • employees
<i>Documentation</i> may follow:	• ISO/IEC/AS standards • audit trails • naming standards • version control • project management templates • report writing principles

RANGE STATEMENT	
Appropriate person may include:	• supervisor • teacher • authorised business representative • client
Service-level agreement	• May exist for many different infrastructure services, including communications carriers, ISPs, ASPs and SLAs for vendor products. • SLAs should consider business processes and requirements, clearly specify and quantify service levels, identify evaluation or audit of service levels. May include workload and performance considerations, expectations regarding servicing, penalties, charge back to business units.
System may include but is not limited to:	• databases • applications • servers • operating systems • gateways • application service provider • ISP
Stakeholders may include:	• sponsor • user • development team • project team

Unit Sector(s)

Unit sector	Support

Co-requisite units

Co-requisite units		

Co-requisite units		

Competency field

Competency field	

ICAS5111B Review and manage delivery of maintenance services

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to review and manage the delivery of maintenance services. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

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. Review service standards	1.1. Review <i>service-level agreements</i> 1.2. Identify actual fault reporting and restoration performance and compare with <i>service-level agreements</i> to ensure they meet requirements 1.3. Record areas of discrepancy
2. Review infrastructure	2.1. Identify internal support and <i>maintenance options</i> 2.2. Undertake a review of infrastructure to understand service delivery context 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 3.2. Document discrepancies identified 3.3. Determine cost-effective solutions and impact 3.4. Implement solutions
4. Organise reviews	4.1. Determine guidelines for regular reviews with <i>stakeholders</i> 4.2. Undertake reviews as per agreed guidelines 4.3. Document review process and submit to the <i>stakeholder</i> 4.4. Ensure effective reporting procedures are in place and used

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Problem solving skills for a defined range of unpredictable problems involving participation in the development of strategic initiatives
- Plain English literacy and communication skills in relation to analysis, evaluation and presentation of information
- Teamwork skills involving the contribution to solutions and goals of a non-routine or contingency nature
- Group facilitation and presentation skills in relation to transferring and collecting information and gaining consensus on concepts
- Negotiation skills in relation to other team members and applied to a defined range of predictable problems
- Report writing skills for business requiring depth in some areas, analysis and evaluation of information in a defined range of areas
- Change management skills in relation to maintaining the continuity of IT operations and business functions
- Customer service skills in relation to reviewing change procedures
- Skills in handling difficult clients in relation to reviewing change procedures
- Conflict resolution skills in relation to reviewing change procedures
- Risk analysis skills in relation to reviewing change procedures

Required knowledge

- Help desk and maintenance practices
- Current industry-accepted hardware and software products, with broad knowledge of general features and capabilities
- The role of stakeholders and the degree of stakeholder involvement
- General knowledge of the client business domain
- Detailed knowledge of the system's current functionality
- Broad knowledge of change control procedures
- Detailed knowledge of the system under modification
- Broad knowledge of capacity planning
- Context of changes being implemented
- Business scheduling requirements

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

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

Evidence of the following is essential:

- Assessment must confirm sufficient knowledge of compliance with service-level agreement.
- Assessment must confirm the ability to critically analyse and prioritise requests according to business requirements.

To demonstrate competency in this unit the learner will require access to:

- Clients wishing to define and review a service-level agreement
- Established IT service infrastructure

Context of and specific resources for assessment

Reports measuring performance against agreement

The provision of maintenance services are often specified under formal service-level agreements (SLAs). These agreements need to consider business processes and requirements as well as clearly specifying and quantifying service levels. Other provisions which could be included relate to evaluation or audit of service levels particularly workload and performance considerations, as well as expectations regarding servicing, penalties, and charge-back arrangements to business units.

Changes to service-level agreements involve reviewing current maintenance services in order to determine gaps in services to clients.

The breadth, depth and complexity covering planning and initiation of alternative approaches to skills or knowledge applications across a broad range of technical and/or management requirements, evaluation and coordination would be characteristic.

EVIDENCE GUIDE	
	The demonstration of competency may also require self-directed application of knowledge and skills, with substantial depth in some areas where judgement is required in planning and selecting appropriate equipment, services and techniques for self and others. Assessment must ensure: • Applications involve participation in development of strategic initiatives as well as personal responsibility and autonomy in performing complex technical operations or organising others. It may include participation in teams including teams concerned with planning and evaluation functions. Group or team coordination may also be involved.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for	Holistic assessment with other units relevant to the

EVIDENCE GUIDE**assessment**

industry sector, workplace and job role is recommended.

An individual demonstrating this competency would be able to:

- Demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas
- Analyse and plan approaches to technical problems or management requirements
- Transfer and apply theoretical concepts and/or technical or creative skills to a range of situations
- Evaluate information, using it to forecast for planning or research purposes
- Take responsibility for own outputs in relation to broad quantity and quality parameters
- Take some responsibility for the achievement of group outcomes
- Maintain knowledge of industry products and services

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.

Service-level agreement

- May exist for many different infrastructure services, including communications carriers, ISPs, ASPs and SLAs for vendor products.
- SLAs should consider business processes and requirements, clearly specify and quantify service levels, identify evaluation or audit of service levels. May include workload and performance considerations, expectations regarding servicing, penalties, charge back to business units.

RANGE STATEMENT	
Stakeholders may include:	• sponsor • user • development team • project team
Maintenance options may include:	• On-site response • Remote diagnostics • Return to depot • On-line real-time support • Web-based support • Business hours only support • Continuous support and technical help • Telephone support • Second-level support

Unit Sector(s)

Unit sector	Support

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAS5118C Manage system security

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to implement and manage security on an operational system. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

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 threats to system	1.1. Identify and understand the organisation's <i>system</i> 1.2. Conduct risk analysis on <i>system</i> and record outcomes 1.3. Evaluate <i>threats</i> to the <i>system</i> and record findings 1.4. Identify and document human interactions with <i>system</i>
2. Determine risk category	2.1. Conduct a risk assessment on the <i>system</i> and categorise risks 2.2. Conduct a risk assessment on human operations and interactions with the <i>system</i> and categorise risks 2.3. Match risk plans to risk categories 2.4. Determine and plan resources by risk categories
3. Identify appropriate controls	3.1. Identify and put in place effective controls to manage risk 3.2. Design policies and procedures to cover user access s of the <i>system</i> 3.3. Conduct training in the use of <i>system</i> -related policies and procedures 3.4. Monitor high-risk categories at specified periods 3.5. Identify and record system breakdowns
4. Include controls in the system	4.1. Develop <i>security plan</i> and procedures to include in management system 4.2. Develop <i>security</i> recovery plan 4.3. Implement <i>system</i> controls to reduce risks in human interaction with the <i>system</i>

ELEMENT	PERFORMANCE CRITERIA
5. Monitor system tools and procedures	5.1. Review and monitor risks and controls using a management review process 5.2. Review risk analysis process based on security benchmarks from vendors, security specialists and organisational reviews 5.3. Plan to re-evaluate system and identify new <i>threats</i> and risks

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Research skills for identifying, analysing and evaluating weaknesses and strengths of security systems
- Best practice in systems security methodologies and technologies
- Problem solving skills for a mixed mode environment of people and systems processes
- Management of unpredictable problems involving participation in group solutions and analysis
- Ability to communicate clear concepts and solutions to complex issues in an unambiguous manner
- Report writing skills requiring depth in some areas, analysis and evaluation of information in a defined range of areas
- Questioning and active listening skills

Required knowledge

- Systems management and process control in relation to security
- Specific knowledge of the client organisation
- Systems technologies, with broad knowledge of general features and capabilities, and substantial depth in some areas
- Risk analysis techniques, with broad knowledge of general features, and depth in security procedures
- Broad knowledge of general features of specific security technology, with substantial depth in some areas

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	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: • Assessment must confirm knowledge of security risks and options available in the operating environment. • Assessment must confirm the ability to implement and manage security functions on a system. To demonstrate competency in this unit the following resources will be needed: • Live system • Utility tools
Context of and specific resources for assessment	System security is an increasingly important preoccupation for both ICT and business professionals. As more organisations expand their operations using the internet and linking their infrastructure to mass communications media, managing systems effectively becomes paramount. Understanding systems is key to managing risk in a cost-effective and secure manner and effective system security is important not only for improving business operations, but in some cases preventing business loss by avoiding security breaches and threats. Analysis involves participation in development of strategic reviews, determining security outcomes, as well as dependence on organisational information in a complex mixture of people and processes. The breadth, depth and complexity covering planning and initiation of alternative approaches to skills or knowledge applications across a broad range of technical

EVIDENCE GUIDE

	and/or management requirements, evaluation and coordination would be characteristic. The demonstration of competency may also require self-directed application of knowledge and skills, with substantial depth in some areas where judgement is required in planning and selecting appropriate equipment, services and techniques for self and others. Assessment must ensure: • Applications involve participation in development of strategic initiatives as well as personal responsibility and autonomy in performing complex technical operations or organising others. It may include participation in teams including teams concerned with planning and evaluation functions. Group or team coordination may also be involved.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should to be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment

EVIDENCE GUIDE	
	process.
Guidance information for assessment	The interdependence of units for assessment purposes may vary with the particular project or scenario. Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. An individual demonstrating this competency would be able to: • Demonstrate understanding of security in relation to processes and people • Develop plans and policies and theoretical issues in security, with substantial depth in some key areas • Analyse and plan to solve technical problems • Determine management requirements • Apply theoretical concepts to technical issues • Demonstrate creative skills in a range of complex situations • Evaluate information, using it to forecast for planning purposes • Take key responsibility for the achievement of security outcomes • Maintain knowledge of industry products and services Additionally, an individual demonstrating this competency would be able to: • Demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas • Analyse and plan approaches to technical problems or management requirements • Transfer and apply theoretical concepts and/or technical or creative skills to a range of situations • Evaluate information, using it to forecast for planning or research purposes • Take responsibility for own outputs in relation to broad quantity and quality parameters • Take some responsibility for the achievement of group outcomes

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.

System may include but is not limited to:

- databases
- applications
- servers
- operating systems
- gateways
- application service provider
- ISP

Threats may include:

- Eavesdropping
- manipulation
- impersonation
- penetration
- denial of service and by-pass
- hackers
- viruses

Security may include but is not limited to:

- IPSec
- SSL
- PKM
- LEAP
- WEP
- WPA
- AAA
- Diameter
- tokens
- smart cards

Security plan may include:

- theft
- viruses
- standards (including archival, back-up, network)
- privacy
- audits

RANGE STATEMENT

	alerts and usually relates directly to the security objectives of the organisation

Unit Sector(s)

Unit sector	Support

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAS5122C Identify and resolve network problems

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to troubleshoot local area network problems. The following units are linked and form an appropriate cluster: • ICAA5150C Evaluate vendor products and equipment • ICAI5087B Acquire system components • ICAI5174B Install high end switches in multi switched local area networks • ICAI5176C Install and configure router • ICAI4188B Install and maintain a server • ICAI5196B Implement secure encryption technologies • ICAS5192B Configure an internet gateway No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		
	ICAI4097C	Install and configure a network

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. Implement regular network monitoring	1.1. Set up appropriate logs to monitor network activity and to produce a management information base (MIB) 1.2. Use network tools to benchmark the network and to establish a reference point for network performance 1.3. Identify critical activity levels and network capacity 1.4. Regularly review documents and logs to facilitate network tuning 1.5. Make recommendations to management for additional network resources to improve performance or to pro-actively avoid problems
2. Troubleshoot network	2.1. Communicate with help desk and other support

ELEMENT	PERFORMANCE CRITERIA
problems	services to quickly identify network problems 2.2. Use various tools and knowledge of network topology and protocols to identify network problems 2.3. Advise users and clients of progress and solutions in a timely manner 2.4. Complete support documentation

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Plain English literacy and communication skills in relation to dealing with clients and team members.
- Analytical/logical skills for identifying, analysing and evaluating support issues and network problems
- Project-planning skills in relation to scope, time, cost, quality, communications and risk management
- Problem solving skills for a defined range of unpredictable problems

Required knowledge

- Current industry-accepted hardware, cabling and software products, with broad knowledge of general features and capabilities
- General knowledge of the client business domain, business function and organisation
- Networking technologies (e.g. TCP/IP, OSI protocol stacks, IEEE, IETF, ITU standards), with broad knowledge of features and capabilities, and substantial depth in protocols such as Ethernet, AppleTalk, Novell, Linux or Unix protocols
- Network management tools, with broad knowledge of general features and capabilities, with substantial depth in troubleshooting areas
- Detailed knowledge of organisational maintenance response level escalation procedures (e.g. level one, phone operator; level two, technical personnel; level three, specialised person)

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

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

Evidence of the following is essential:

- Assessment must confirm knowledge of the troubleshooting and monitoring facilities available in the operating environment. It must also confirm the ability to undertake logical troubleshooting processes and network support activities. It should include constant monitoring of the network to maintain network activities.

To demonstrate competency in this unit the following resources will be needed:

- Live system
- Network support tools

Context of and specific resources for assessment

Troubleshooting local area network problems requires a focus on:

- Applying both software- and hardware-based tools
- Logical troubleshooting methods derived from knowledge and understanding of network topologies and protocols
- Using a management information base of accumulated fault resolution information to determine the nature and location of the fault
- Problem resolution related to wide area network (WAN) connections that the LAN uses for general use of the internet or for connection to other remote LANs belonging to the organisation should also be considered.
-

The application of this competency would generally require a degree of instruction as part of the problem solution stage, in order to empower the client to resolve or manage recurrences of similar problems. Additionally, this competency may involve participation in the development of strategic initiatives or solutions as part of

EVIDENCE GUIDE

	a more long-term approach to network planning. In applying the skills and methods within this competency, the aim should be to minimise network down time. The breadth, depth and complexity covering planning and initiation of alternative approaches to skills or knowledge applications across a broad range of technical and/or management requirements, evaluation and coordination would be characteristic. The demonstration of competency may also require self-directed application of knowledge and skills, with substantial depth in some areas where judgement is required in planning and selecting appropriate equipment, services and techniques for self and others. Assessment must ensure: • Applications involve participation in development of strategic initiatives as well as personal responsibility and autonomy in performing complex technical operations or organising others. It may include participation in teams including teams concerned with planning and evaluation functions. Group or team coordination may also be involved.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should to be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full

EVIDENCE GUIDE	
	demonstration of competency. Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process.
Guidance information for assessment	The interdependence of units for assessment purposes may vary with the particular project or scenario. Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: - ICAA5150C Evaluate vendor products and equipment - ICAI5087B Acquire system components - ICAI5174B Install high-end switches in multi-switched local area networks - ICAI5176C Install and configure router - ICAI4188B Install and maintain a server - ICAI5196B Implement secure encryption technologies - ICAS5192B Configure an internet gateway An individual demonstrating this competency would be able to: - Demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas - Analyse and plan approaches to technical problems or management requirements - Transfer and apply theoretical concepts and/or technical or creative skills to a range of situations - Evaluate information, using it to forecast for planning or research purposes - Take responsibility for own outputs in relation to broad quantity and quality parameters - Take some responsibility for the achievement of group outcomes

EVIDENCE GUIDE

	• Maintain knowledge of industry products and services

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.

Network may include but is not limited to:

- large and small LANs
- VPNs
- WANs
- wireless networks
- the Internet
- the use of the PSTN for dial-up modems only
- DSL connections
- private lines
- data
- voice

Network topology may include:

- ring
- star
- bus
- hierarchical
- hybrid

User may include:

- a person within a department
- a department within the organisation
- a third party

Network tools may include but are not limited to:

- network performance software
- data and voice integration measurements
- policing and shaping tools
- frequency analysers
- cable testing
- equipment testing
- carrier connection tests

RANGE STATEMENT**Documentation** may follow:

- ISO/IEC/AS standards
- audit trails
- naming standards
- version control
- project management templates
- report writing principles

Unit Sector(s)

Unit sector	Support

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAS5123C Manage network security

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to implement and manage security functions throughout a network. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		
	ICAS4124B	Monitor and administer network security

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 threats to network	1.1. Conduct a network infrastructure analysis to understand network complexity 1.2. Determine risk category of each point on the network 1.3. Analyse approved user point of contact with network 1.4. Determine non-authorised user points of contact with the network 1.5. Conduct risk analysis on each identified category 1.6. Audit and document logs of current system
2. Determine risk of network failure	2.1. Undertake security analysis of risk data on each network category 2.2. Review log usage files 2.3. Analyse user points of contact with the network for weaknesses 2.4. Conduct threat assessment matrix on network 2.5. Design network security requirements that fit with organisational systems plans and procedures 2.6. Design audit trails that incorporate user tracking to determine risk
3. Plan suitable control methods for the	3.1. Plan control methods for managing user access

ELEMENT	PERFORMANCE CRITERIA
network	3.2. Review controls over data input, output, files permissions, log-on and processing 3.3. Manage external and internal permission structures 3.4. Design automatic intrusion notification processes in line with systems management policy 3.5. Document controls for security and risk issues 3.6. Obtain approval from approved security senior management for the design of the control
4. Incorporate controls into the network	4.1. Add network controls to the network in line with system security policies and procedures 4.2. Document user access security provisions by user classification at program, record or field level, and include procedures for controlling the security provisions according to client requirements
5. Implement additional security facilities	5.1. Review external or intranet access, using appropriate software control mechanisms 5.2. Evaluate firewalls and record findings and preferences in rank order 5.3. Investigate and consider use of a 'demilitarised zone' (DMZ) 5.4. Install and configure firewall in accordance with manufacturer recommendations and security standards 5.5. Make recommendations for additional equipment 5.6. Install approved equipment and configure to provide required levels of security

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Investigation skills for identifying, analysing and evaluating security systems logs for weaknesses, invalid users and intruders
- Application of best practice in systems security methodologies and technologies
- Problem solving skills for complex networks, including systems processes

REQUIRED SKILLS AND KNOWLEDGE

- Rapid deployment of solutions to problems involving failure
- Ability to analyse network information and determine actions
- Report writing skills
- Questioning and active listening skills

Required knowledge

- Network management and security process controls
- Specific and detailed knowledge of the organisation's network infrastructure
- Security technologies and capabilities of software and hardware solutions, with substantial depth in some areas
- Logging analysis techniques, with broad knowledge of general features, with depth in security procedures
- Broad knowledge related to emerging security issues, with substantial depth in related weaknesses of installed network infrastructure

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

Evidence of the following is essential:

- Assessment must confirm knowledge of emerging security issues, security features of hardware and software, limitations in vendor solutions, operating systems and software.
- Assessment must confirm the ability to implement and manage security functions on a network.

To demonstrate competency in this unit the following resources will be needed:

- Live system
- Network support tools

Context of and specific resources for

Managing network security is a complex process

EVIDENCE GUIDE**assessment**

involving internal and external threats and choices between a range of potential solutions. With many small to medium enterprises joining larger organisations in providing both domestic and global e-commerce facilities, it is increasingly important to provide secure networks. This can only be done with a comprehensive plan that takes into account the whole organisation system as well as the network.

Analysis involves participation in development of network security planning and implementation.

The breadth, depth and complexity covering planning and initiation of alternative approaches to skills or knowledge applications across a broad range of technical and/or management requirements, evaluation and coordination would be characteristic.

The demonstration of competency may also require self-directed application of knowledge and skills, with substantial depth in some areas where judgement is required in planning and selecting appropriate equipment, services and techniques for self and others.

Assessment must ensure:

- Applications involve participation in development of strategic initiatives as well as personal responsibility and autonomy in performing complex technical operations or organising others. It may include participation in teams including teams concerned with planning and evaluation functions. Group or team coordination may also be involved

Method of assessment

The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1.

EVIDENCE GUIDE	
	- Competency in this unit should to be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. - Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process.
Guidance information for assessment	The interdependence of units for assessment purposes may vary with the particular project or scenario. Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. An individual demonstrating this competency would be able to: - Demonstrate understanding of security in relation to network solutions - Describe in detail issues related to security in some key areas - Analyse and plan to solve compromised networks - Determine network security requirements - Apply theoretical scenarios in line with security and technical issues - Demonstrate skills in a range of complex security situations - Evaluate security information and use it for planning purposes - Take responsibility for the achievement of security outcomes - Maintain knowledge of industry products and services Additionally, an individual demonstrating this

EVIDENCE GUIDE

	competency would be able to: • Demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas • Analyse and plan approaches to technical problems or management requirements • Transfer and apply theoretical concepts and/or technical or creative skills to a range of situations • Evaluate information, using it to forecast for planning or research purposes • Take responsibility for own outputs in relation to broad quantity and quality parameters • Take some responsibility for the achievement of group outcomes

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.

<i>Network</i> may include but is not limited to:	• large and small LANs • WLANs • VPNs • WANs • the internet • the use of the PSTN for dial-up modems and DSL • private lines • data • voice
<i>Demilitarised Zone (DMZ)</i>	• May include a computer or small sub-network that sits between a trusted internal network , such as a corporate private LAN , and an untrusted external network, such as the public

RANGE STATEMENT	
	Internet. Typically, the DMZ contains devices accessible to Internet traffic, such as Web (HTTP) servers, FTP servers, SMTP (e-mail) servers and DNS servers.
User may include:	- a person within a department - a department within the organisation - a third party
Security may include but is not limited to:	- IPSec - SSL - PKM - LEAP - WEP - WPA - AAA - Diameter - tokens - smart cards
Threat assessment may include:	- eavesdropping - manipulation - impersonation - penetration - denial of service and by-pass - spoofing - authorisations - hackers - viruses using logging - intruder detection - other tools
Equipment may include but is not limited to:	- workstations - personal computers - modems or other connectivity devices - printers - hard drives - DSL modems - monitors - switches - hubs - personal digital assistant (PDA) - other peripheral devices

RANGE STATEMENT	
Firewalls may be part of router configuration or proxy server. Products include	• Cisco Centri • Smoothwall • IPcop • Check Point FireWall-1 • CyberwallPLUS • Linux - IPtables firewall • OpenBSD firewall

Unit Sector(s)

Unit sector	Support

Co-requisite units

Co-requisite units	

Competency field

Competency field	

ICAS5192B Configure an internet gateway

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to connect network hardware devices, mainly personal computers, to a internet gateway. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		
	ICAI4097C	Install and configure a network

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. Confirm client requirements and network equipment	1.1. Confirm and validate <i>client</i> requirements 1.2. Determine scope of internet services with reference to <i>client</i> requirements 1.3. Identify and install components, both <i>hardware</i> and <i>software</i> 1.4. Verify equipment specifications and availability of components
2. Review security issues	2.1. Assess security features of internet gateways with reference to <i>architecture</i> and <i>security plan</i> 2.2. Review security measures with the internet <i>service provider</i> (ISP) with reference to <i>firewalls</i> and other measures as required 2.3. Brief <i>users</i> on the <i>security plan</i> 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 3.2. Install and configure gateway products and equipment as required by technical guidelines 3.3. Plan and execute tests with reference to <i>client</i> requirements and <i>network</i> impact 3.4. Analyse error reports and make changes as required
4. Configure and test	4.1. Assign node to specific gateway as required by

ELEMENT	PERFORMANCE CRITERIA
node	network architecture and client requirements 4.2. Determine connection type and configure with reference to network architecture and client requirements 4.3. Ensure node software and/or hardware is configured as required according to vendor specifications and client requirements

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Installation and configuration of computer hardware and software
- Use of proprietary software
- Business analysis skills
- Communicating with clients

Required knowledge

- Features and functions of network gateways; network architecture, including switches, routers, hubs, bridges as required; network operating systems and desktop operating systems
- Gateway software (e.g. Cisco IpeXchange, Postoffices, Lotus Notes)
- Domain name server (DNS) resolution
- Current browser software (e.g. MS Explorer, Netscape Navigator, Mozilla, Konqueror, Opera)

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.

EVIDENCE GUIDE	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: - Assessment must confirm the ability to connect network hardware devices to an internet gateway and configure and test them. To demonstrate competency in this unit the learner will require access to: - Network with internet access - Personal computer
Context of and specific resources for assessment	An internet gateway is the hardware or software set-up that translates between two dissimilar protocols and which provides a system for converting messages between TCP/IP and other protocols. Using internet gateways, various networks around the world can effectively become one large network. By reviewing a variety of internet gateways and talking with ISPs, a better understanding of gateway products and their applications will be achieved. Any internet gateway needs to be configured according to the needs of the client and consideration should be given to redundancy with reference to fault tolerance and back-up links. The breadth, depth and complexity covering planning and initiation of alternative approaches to skills or knowledge applications across a broad range of technical and/or management requirements, evaluation and coordination would be characteristic. The demonstration of competency may also require self-directed application of knowledge and skills, with substantial depth in some areas where judgement is required in planning and selecting appropriate equipment, services and techniques for self and others. Assessment must ensure:

EVIDENCE GUIDE	
	Applications involve participation in development of strategic initiatives as well as personal responsibility and autonomy in performing complex technical operations or organising others. It may include participation in teams including teams concerned with planning and evaluation functions. Group or team coordination may also be involved.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. - Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. - Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. An individual demonstrating this competency would be able to: Demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas

EVIDENCE GUIDE

	- Analyse and plan approaches to technical problems or management requirements - Transfer and apply theoretical concepts and/or technical or creative skills to a range of situations - Evaluate information, using it to forecast for planning or research purposes - Take responsibility for own outputs in relation to broad quantity and quality parameters - Take some responsibility for the achievement of group outcomes - Maintain knowledge of industry products and services

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.

<i>Software</i> may include but is not limited to:	commercial, in-house, packaged or customised software
<i>Hardware</i> may include but is not limited to:	- workstations - personal computers - modems or other connectivity devices - networks - DSL modems - remote sites - servers
<i>Architecture</i> may include but is not limited to:	- Operating system: Novell NetWare 5 or above or other operating system that has multi-user ability, Linux, Mac OS, Windows 2000 or above - Database software: Oracle, Sybase, Microsoft SQL server, Ingres, DB2, Informix, mSQL, MySQL, SQL server

RANGE STATEMENT	
	• Configuration: small memory model, large memory model, requests per second
Security plan may include:	• theft • viruses • standards (including archival, back-up, network) • privacy • audits • alerts • usually relates directly to the security objectives of the organisation
Firewalls may include:	• hardware appliances • proxy servers or individual PC solutions, with varying functionality, including network address translation (NAT)/IP masquerading and routing to specific machines
Client may include but is not limited to:	• internal departments • external organisations • individual people • employees
Network may include but is not limited to:	• large and small LANs • VPNs • WANs • the internet • the use of the PSTN for dial-up modems only • private lines • data • voice
Connection type may include:	• dial-up • dedicated or proxy connections

Unit Sector(s)

Unit sector	Support

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAS5199B Manage business websites and servers

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to maintain and manage business websites and the associated servers. The following unit is linked and forms an appropriate cluster: • ICAA6157B Develop technical requirements for a business solution No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		
	ICAS4191B	Maintain website performance

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. Maintain business website and contents	1.1. Establish personnel policies and procedures for managing access and changes to all aspects of the business website 1.2. Design and start a training program for teaching staff how to use procedures and policies as well as making changes to the business website 1.3. Evaluate and test site analysis software on a non-live server to verify all features and functions are safe for use on a live server 1.4. Generate site summary reports in line with the organisational quality management program or guidelines 1.5. Review reports found to have generated security flaws 1.6. Check links for functionality and ongoing relevance 1.7. Modify web pages according to changing business requirements and analysis of site summary report 1.8. Maintain and debug database information according to site and information requirements
2. Maintain business security of the	2.1. Establish a security response procedure to control information placed on the business website by

ELEMENT	PERFORMANCE CRITERIA
website	developers, designers and end-users 2.2. Develop a security plan 2.3. Test site security according to organisational requirements of the security plan 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 the range of functionalities requiring monitoring 3.2. Determine business website load metrics and performance indicators in line with organisational requirements 3.3. Measure business website server performance with server analysis tools 3.4. Identify and document business options for performance improvement 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 accesses 4.2. Develop an upgrade program to deal with increasing load and performance issues 4.3. Set performance benchmarks to take into consideration possible future scenarios for each relevant load metric 4.4. Determine options for upgrade path for equipment needs based on research and business website performance growth forecasting

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Use of a current site server, web server log file analysis and traffic tracking software
- Use of a current forecasting methodology for identifying traffic peaks
- Maintaining firewalls

REQUIRED SKILLS AND KNOWLEDGE

- Maintaining VPN gateways
- Request for proposals (RFPs)
- Intrusion detection software
- Integrity checking software

Required knowledge

- Website architecture
- Website security issues
- Queuing systems
- SGML and associated standards
- Bottlenecks and methods of correction
- Workload metrics
- User request classes
- Electronic Commerce Modelling Language

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

Evidence of the following is essential:

- Assessment must confirm the ability to maintain a consistent and constantly performing website that meets the stated business strategies and directions.

To demonstrate competency in this unit the learner will require access to:

- Site servers and web servers
- Business website
- Site server software
- Analysis software
- Requirements documentation
- Business planning documentation

EVIDENCE GUIDE**Context of and specific resources for assessment**

Performance issues and response times remain a primary concern of business and business websites. Optimising the performance of the website and associated servers will ensure smooth functionality of the pages and effective operation of commercial transactions through the site.

The breadth, depth and complexity covering planning and initiation of alternative approaches to skills or knowledge applications across a broad range of technical and/or management requirements, evaluation and coordination would be characteristic.

The demonstration of competency may also require self-directed application of knowledge and skills, with substantial depth in some areas where judgement is required in planning and selecting appropriate equipment, services and techniques for self and others.

Assessment must ensure:

- Applications involve participation in development of strategic initiatives as well as personal responsibility and autonomy in performing complex technical operations or organising others. It may include participation in teams including teams concerned with planning and evaluation functions. Group or team coordination may also be involved.

Method of assessment

The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1.

- Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must

EVIDENCE GUIDE	
	closely reflect the workplace to enable full demonstration of competency. Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: - ICAA6157B Develop technical requirements for a business solution An individual demonstrating this competency would be able to: - Demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas - Analyse and plan approaches to technical problems or management requirements - Transfer and apply theoretical concepts and/or technical or creative skills to a range of situations - Evaluate information, using it to forecast for planning or research purposes - Take responsibility for own outputs in relation to broad quantity and quality parameters - Take some responsibility for the achievement of group outcomes - Maintain knowledge of industry products and services

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.

Servers may include:

- Apache HTTP server
- IBM VisualAge and WebSphere
- Microsoft-Internet-Information-Server, Microsoft-IIS
- NetDynamics
- Lotus Domino
- Zope
- Netscape Enterprise server, Netscape-FastTrack, Netscapebusiness
- Sun Microsystems iPlanet web server
- iPlanet-Enterprise
- Sun Microsystems Java web server
- Email servers
- File and print servers
- FTP servers
- Proxy servers

Database may include:

- Oracle
- Sybase
- Microsoft SQL server
- Ingres
- DB2
- Informix
- mSQL
- MySQL
- SQL server

Server analysis tools may include:

- Apache JSSI
- Apache Jmeter

Security plan may include:

- theft
- viruses
- standards (including archival, back-up, network)
- privacy
- audits

RANGE STATEMENT	
	• alerts and usually relates directly to the security objectives of the organisation
Client may include but is not limited to:	• internal departments • external organisations • individual people • employees
Equipment may include but is not limited to:	• workstations • personal computers • modems or other connectivity devices • printers • DSL modems • hard drives • monitors • switches • hubs • personal digital assistant (PDA) • other peripheral devices

Unit Sector(s)

Unit sector	Support

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAS5202B Ensure privacy for users

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to ensure that personal information of users is handled in a confidential manner. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

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. Review privacy policy in relation to legislation	1.1. Investigate and become conversant with current <i>privacy legislation</i> 1.2. Review organisational privacy policy and procedures 1.3. Identify and document relevance of <i>privacy legislation</i> to organisational outcomes
2. Determine policy shortfalls	2.1. Compare organisation's policies and procedures with <i>privacy legislation</i> 2.2. Identify discrepancies between <i>privacy legislation</i> and organisational practice 2.3. Document discrepancies and submit to <i>appropriate person</i> for review
3. Update and review policies	3.1. Update policies and procedures to ensure they align with <i>privacy legislation</i> 3.2. Distribute new policies and procedures to all personnel 3.3. Coordinate training of all personnel in privacy policy and procedures 3.4. Implement new work practices 3.5. Review work practices to ensure correct application of privacy policies and procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Website analysis
- Secure file transfer
- Version back-up and storage
- Secure database management
- Office space management
- Network management

Required knowledge

- Website architecture
- Information architecture
- Server operating systems
- Federal and State privacy legislation
- Server access security procedures
- Storage Media security systems
- Project management
- Stakeholder communication
- Legal requirements
- Australian Computer Society Code of Ethics

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

Critical aspects for assessment and evidence required to demonstrate

Evidence of the following is essential:

EVIDENCE GUIDE	
competency in this unit	- Assessment must confirm the ability to implement and maintain the legal requirements of privacy legislation through the development of mechanisms and procedures and apply user privacy protection measures consistent with the law and the National Privacy Principles. To demonstrate competency in this unit the learner will require access to: - Website - Privacy legislation and guidelines - Organisational policies and procedures
Context of and specific resources for assessment	The inherent limitations of paper-based systems provide a degree of privacy protection. However with the migration of records and personal information to IT systems, there is now a far greater range of access and use of personal information. Additionally, the internet continues to make it easy to solicit and collect information whilst individual IT systems make it easy to manipulate and transfer that same information. This availability of information in digital form has resulted in a proliferation of uses of personal information, some of which have major implications for the privacy of individuals. As the wider community becomes more concerned with security issues, privacy and a person's right to privacy are increasingly important. In put from IT professionals is of fundamental importance to the design and management of privacy policies and procedures within organisations. The website of the privacy commissioner contains the most up-to-date information about privacy legislation and issues that affect all organisations. The breadth, depth and complexity covering planning and initiation of alternative approaches to skills or knowledge applications across a broad range of technical and/or management requirements, evaluation and coordination would be characteristic. The demonstration of competency may also require

EVIDENCE GUIDE	
	self-directed application of knowledge and skills, with substantial depth in some areas where judgement is required in planning and selecting appropriate equipment, services and techniques for self and others. Assessment must ensure: • Applications involve participation in development of strategic initiatives as well as personal responsibility and autonomy in performing complex technical operations or organising others. It may include participation in teams including teams concerned with planning and evaluation functions. Group or team coordination may also be involved.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for	Holistic assessment with other units relevant to the

EVIDENCE GUIDE**assessment**

industry sector, workplace and job role is recommended.

An individual demonstrating this competency would be able to:

- Demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas
- Analyse and plan approaches to technical problems or management requirements
- Transfer and apply theoretical concepts and/or technical or creative skills to a range of situations
- Evaluate information, using it to forecast for planning or research purposes
- Take responsibility for own outputs in relation to broad quantity and quality parameters
- Take some responsibility for the achievement of group outcomes
- Maintain knowledge of industry products and services

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.

Privacy legislation may include:

- National Privacy Principles
- National Information Privacy Principles
- Health Privacy Guidelines
- Code Development Guidelines
- Available at www.privacy.gov.au
- The Federal Privacy Act
- State Privacy Acts

Appropriate person may include:

- supervisor

RANGE STATEMENT

	• teacher • authorised business representative • client

Unit Sector(s)

Unit sector	Support

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAS5203B Evaluate and select a web hosting service

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to evaluate and select an appropriate hosting service for current and future business needs. The following unit is linked and forms an appropriate cluster: • ICAA5056B Prepare disaster recovery and contingency plans No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

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. Select ISP based on selection criteria approved by the client	1.1. Review comparable characteristics of a range of hosting services including web hosting facilities, data transfer, level of service, functionality, <i>hosting plans</i> and pricing plans 1.2. Review client usage and ensure that email and mailing list services are flexible enough to meet current and future business needs 1.3. Review support service standards to ensure they meet the needs of the business 1.4. Ensure internet service provider (ISP) hosting service has sufficient data capacity to cover partial outages 1.5. Determine availability of <i>security technologies</i> 1.6. Determine availability of <i>scripting languages</i> 1.7. Evaluate optional <i>server applications</i> for advanced web business functions 1.8. Confirm client selection criteria and select internet service provider (ISP) hosting service that best matches the criteria

ELEMENT	PERFORMANCE CRITERIA
2. Ensure guarantee of permanent online presence	2.1. Establish that the web hosting service has systems in place to monitor server performance and availability 2.2. Negotiate escalation procedures and performance standards with internet service provider 2.3. Establish that security and back-up procedures are articulated and meet business needs
3. Ensure that web host meets technical requirements	3.1. Take action to ensure that operating system supports the preferred business development software, applications, extensions and databases 3.2. Establish that the web host servers support dynamic websites using the preferred business technologies 3.3. Establish that the web host provides current and future disk space requirements 3.4. Establish that the site analysis reports are available and flexible enough to meet business needs 3.5. Establish that the security systems and payment technologies meet business and customers expectations and requirements
4. Performance is benchmarked and tested against specified criteria	4.1. Test the performance of the ISP during on- and off-peak times and record outcomes 4.2. Establish that the email and mailing services have back-up procedures in place and are protected from damage, erasure or unwanted damage 4.3. Take action to ensure support services perform in line with business needs

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Basic negotiation skills
- Analytical skills for determining appropriate pricing and services plan for the business
- Forward planning skills in relation to identifying future business needs

REQUIRED SKILLS AND KNOWLEDGE
Required knowledge
• Internet security issues • Server technologies • Operating systems used by ISPs • Customer and business needs and relationships • Performance expectations from customers and end users • Applying performance benchmarks

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	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: • Assessment must confirm the ability to evaluate and select a web hosting service that meets the current and future needs of the business. To demonstrate competency in this unit the learner will require access to: • Hosting plans, prices and service agreements • Technology underpinning the ISP and services offered • Business plan outlining future directions for the business
Context of and specific resources for assessment	The effectiveness of an organisation's online presence is significantly determined by the quality, cost and features of the web hosting service provider or ISP. Web hosts often tailor their services to serve the needs of a particular type of client and the selection of an appropriate bundle of features and provider is an important decision for the organisation.

EVIDENCE GUIDE	
	An individual demonstrating this competency would be able to take responsibility for comparing and evaluating ISP services. The breadth, depth and complexity covering planning and initiation of alternative approaches to skills or knowledge applications across a broad range of technical and/or management requirements, evaluation and coordination would be characteristic. The demonstration of competency may also require self-directed application of knowledge and skills, with substantial depth in some areas where judgement is required in planning and selecting appropriate equipment, services and techniques for self and others. Assessment must ensure: • Applications involve participation in development of strategic initiatives as well as personal responsibility and autonomy in performing complex technical operations or organising others. It may include participation in teams including teams concerned with planning and evaluation functions. Group or team coordination may also be involved.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency.

EVIDENCE GUIDE	
	Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: - ICAA5056B Prepare disaster recovery and contingency plans An individual demonstrating this competency would be able to: - Demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas - Analyse and plan approaches to technical problems or management requirements - Transfer and apply theoretical concepts and/or technical or creative skills to a range of situations - Evaluate information, using it to forecast for planning or research purposes - Take responsibility for own outputs in relation to broad quantity and quality parameters - Take some responsibility for the achievement of group outcomes - Maintain knowledge of industry products and services

Range Statement

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.

<i>Server applications</i> may include:	• file sharing • printer sharing • messaging • web services • network and remote access • database and data warehousing • directory services • management • line of business applications • terminal services
<i>Operating system</i> may include but is not limited to:	• Linux 7.0 or above • Windows 2000 or above • Apple OS X or above
<i>Servers</i> may include:	• Apache HTTP server • IBM VisualAge and WebSphere • Microsoft-Internet-Information-Server • NetDynamics • Lotus Domino • Netscape Enterprise server, Netscape-FastTrack, Netscape-Commerce • Sun Microsystems iPlanet web server • iPlanet-Enterprise • Sun Microsystems Java web server • Email servers • FTP servers
<i>Scripting languages</i> may include:	• Pearl • VBscript • VB.Net Javascript • PHP, Python
<i>Security technologies</i> may include:	• secure socket layer (SSL) • PKI • payment gateways
<i>Hosting plans</i> may include:	• disk storage

RANGE STATEMENT	
	• CGI access • scripts • POP accounts • dedicated servers • e-business hosting • co-location of servers
<i>Databases</i> may include:	• Oracle • PostgreSQL • Microsoft SQL Server • My SQL • SQL

Unit Sector(s)

Unit sector	Support

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAS6254A Manage IT security

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to manage data security, Enterprise Continuity, Incidents, Networks and telecommunications security, System and Application Security. <i>No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.</i>

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		
	ICAI4249A	Implement and evaluate data security
	ICAI4251A	Implement and evaluate network and telecommunication security
	ICAI5250A	Develop, implement and evaluate system and application security
	ICAI5252A	Develop, implement and evaluate an

Prerequisite units		
		incident response plan

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. Manage data security	1.1.Ensure that security classification and data management policies and guidance are issued and updated 1.2.Specify policy and coordinate review and approval 1.3.Report compliance of data security policies to management 1.4.Implement appropriate changes and improvement actions as required
2. Manage enterprise continuity	2.1.Coordinate with corporate stakeholders to establish the enterprise continuity of operations program 2.2.Acquire the necessary resources, including financial resources, to conduct an effective enterprise continuity of operations program 2.3.Define the enterprise continuity of operations organizational structure and staffing model

ELEMENT	PERFORMANCE CRITERIA
	2.4. Define emergency delegations of authority and orders of succession for key positions 2.5. Direct contingency planning, operations, and programs to manage risk 2.6. Define the scope of the enterprise continuity of operations program to address business continuity, business recovery, contingency planning, and disaster recovery and related activities 2.7. Integrate enterprise concept of operations activities with related contingency planning activities 2.8. Establish an enterprise continuity of operations performance measurement program 2.9. Identify and prioritize critical business functions 2.10. Implement appropriate changes and improvement actions as required
3. Manage incidents	3.1. Coordinate with stakeholders to establish the incident management program 3.2. Establish relationships between the incident response team and other groups 3.3. Acquire and manage the resources, including financial resources, for the incident management functions 3.4. Ensure the coordination between the incident response team and the security administration and technical support teams 3.5. Apply lessons learned from information security incidents to improve incident management processes and procedures 3.6. Implement appropriate changes and improvement actions as required
4. Manage networks and telecommunications security	4.1. Establish a network security and telecommunications program in line with enterprise policy and security goals 4.2. Manage the necessary resources, including financial resources, to establish and maintain an effective network security and telecommunications program 4.3. Direct network security and telecommunications personnel 4.4. Establish communications between the network security and telecommunications team and related security teams

ELEMENT	PERFORMANCE CRITERIA
	4.5. Integrate network security and telecommunications program activities with technical support, security administration, and incident response activities 4.6. Establish a network security and telecommunications performance measurement program 4.7. Ensure enterprise compliance with <i>applicable network-based documents</i> 4.8. Ensure that network-based audits and management reviews are conducted to implement process improvement 4.9. Implement appropriate improvement actions, as required
5. Manage system and application security	5.1. Establish the IT system and application security engineering program 5.2. Acquire the necessary resources, including financial resources, to support the integration of security in the SDLC 5.3. Guide IT security personnel through the SDLC phases 5.4. Define the scope of the IT security program as it applies to the application of SDLC 5.5. Plan the IT security program components into the SDLC

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- leading and mentoring people to achieve project outcomes
- maintaining commitment of stakeholders and project teams
- negotiating with stakeholders and team members using a range of communication styles to suit different audiences and purposes
- responding to diversity, including gender and disability
- using management tools applicable to complex activities
- applying risk management techniques including risk sharing and transfer

REQUIRED SKILLS AND KNOWLEDGE

- managing finances
- applying ethical decision making and problem solving
- writing recommendations and preparing reports requiring precision of expression
- applying workplace safety procedures in line with requirements
- accessing/preparing information electronically or in hard copy

Required knowledge

- legislation, organisational/jurisdictional policies and procedures that may impact on management:
 - codes of ethics/conduct
 - occupational health and safety and environment requirements
 - governance requirements
 - quality standards
 - risk management
 - procurement guidelines
 - budgetary framework
 - financial management requirements
 - human resources
 - public relations
 - equal employment opportunity, equity and diversity principles
- management specifications and objectives
- management tools and techniques suited to a range of complex projects activities
- management systems
- organisational and political context
- critical analysis in a management context
- cost schedule control systems to handle potential budget blow-outs
- business and commercial issues related to the management

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

EVIDENCE GUIDE	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: • Manage data security • Manage enterprise continuity • Manage incidents • Manage networks and telecommunications security • Manage system and application security
Context of and specific resources for assessment	Assessment must ensure: • Specifying data policy and coordinate review • Direct contingency planning, operations, and programs to manage risk • Manage the necessary resources, including financial resources, to establish and maintain an effective network security and telecommunications program • Establish the IT system and application security engineering program To demonstrate competency in this unit the following resources will be needed: • IT business specifications • Information on the security environment including relevant laws/legislation, existing organisational security policies, organisational expertise and knowledge • Possible security environment also includes the threats to security that are, or are held to be, present in the environment • Risk analysis tools/methodologies • IT security assurance specifications • Management related scenarios
Method of assessment	The following assessment method is appropriate for this unit: • The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1.

EVIDENCE GUIDE

	Competency in this unit should to be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. The breadth, depth and complexity involving analysis, design, planning, execution and evaluation across a range of technical and/or management functions including development of new criteria or applications or knowledge or procedures would be characteristic. The demonstration of competency may also require application of a significant range of fundamental principles and complex techniques across a wide and often unpredictable variety of contexts in relation to either varied or highly specific functions. Contribution to the development of a broad plan, budget or strategy may be involved and accountability and responsibility for self and others in achieving the outcomes may also be characteristic. Applications involve significant judgement in planning, design, technical or leadership/guidance functions related to products, services, operations or procedures would be common.

EVIDENCE GUIDE

	An individual demonstrating this competency would be able to: • Demonstrate understanding of specialised knowledge with depth in some areas • Analyse, diagnose, design and execute judgement across a broad range of technical or management functions • Generate ideas through the analysis of information and concepts at an abstract level • Demonstrate a command of wide-ranging, highly specialised technical, creative or conceptual skills • Demonstrate accountability for personal outputs within broad parameters • Demonstrate accountability for personal and group outcomes within broad parameters • Maintain knowledge of industry products and services

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.

Other groups may include:	• internal, e.g. • legal department • HR • procurement • finance • external, e.g. • law enforcement agencies • vendors • public relations professionals
Related security teams may	• technical support

RANGE STATEMENT	
include:	• security administration • incident response
Applicable network-based documents may include:	• standards • procedures • directives • policies • regulations • laws

Unit Sector(s)

Unit sector	Support

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAT1206B Check site security

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to use the features of a web browser to determine the security status of a remote server before it is accessed. There may be benefit in concurrent learning with the following unit: • ICAU1128B Operate a personal computer The following units are linked and form an appropriate cluster: • ICAS1193B Connect a workstation to the internet • ICAU1128B Operate a personal computer • ICAU1133B Send and retrieve information using web browsers and email • ICAU1204B Locate and use relevant on line information • ICAU1213B Conduct online transactions No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

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. Activate browser security features	1.1. Identify and access built in <i>security features</i> from the <i>toolbar</i> or pull-down menu of a <i>browser</i> 1.2. Activate security features on own <i>browser</i> that identify a <i>secure site</i> by automatically opening a warning box 1.3. Activate other <i>security features</i> as necessary, including alerts when you are leaving a <i>secure site</i> by automatically opening a warning box

ELEMENT	PERFORMANCE CRITERIA
2. Identify security of website	2.1. Ascertain whether the website has a statement about the how it manages site security 2.2. Confirm that code passwords are not seen when viewing source 2.3. Check if the website has a privacy statement relating to the use of personal information and sensitive information 2.4. Ascertain whether the website states the security process related to sensitive information
3. Determine integrity of website	3.1. Check if the website has statements relating to the disclosure of information particularly sensitive information 3.2. Find the details of products, services and support provided 3.3. Check that the policy and procedure details on cancelling, returning and refunding on services, products and support are stated 3.4. Ensure copyright statements and acknowledgements are evident
4. Identify website credentials	4.1. Determine if the website is operated by a bona-fide or registered business 4.2. Check that disclaimers made by the business are reasonable and lawful 4.3. Ensure that services, products and advertising information regarding services and products are lawful

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Basic web security
- Basic computer operation
- Basic browser configuration

Required knowledge

REQUIRED SKILLS AND KNOWLEDGE

- Browser use
- Identifying secure links via browser
- Consumer protection issues
- Copyright and intellectual property

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

Evidence of the following is essential:

- Assessment must confirm the ability to use basic security features on a browser and access website information to identify sites being visited as secure or insecure.

To demonstrate competency in this unit the person will require access to:

- Personal computer
- Internet access
- Remote websites
- Browser

Context of and specific resources for assessment

The breadth, depth and complexity of knowledge and skills in this competency would prepare a person to perform a defined range of activities many of which may be routine and predictable.

Assessment must ensure:

- Demonstration of this competency provides for basic security questions and checks to be implemented when accessing websites.
- Applications may include a variety of employment

EVIDENCE GUIDE	
	related skills including preparatory access and participation skills, broad-based induction skills and/or specific workplace skills. They may also include participation in a team or work group.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. - Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. - Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: - ICAS1193B Connect a workstation to the internet - ICAU1128B Operate a personal computer - ICAU1133B Send and retrieve information using web browsers and email - ICAU1204B Locate and use relevant on-line information - ICAU1213B Conduct online transactions

EVIDENCE GUIDE

	An individual demonstrating this competency would be able to: • Demonstrate knowledge by recall in a narrow range of areas • Demonstrate basic practical skills, such as the use of relevant tools • Perform a sequence of routine tasks given clear direction • Receive and pass on messages and information • Maintain knowledge of industry products and services

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.	
<i>Security features</i> may include but are not limited to:	• security levels • trusted sites • privacy • secure sockets layer (SSL) • encryption
<i>Toolbar</i> may contain:	• buttons • menus • a combination of both
<i>Bona-fide or registered business</i>	• Includes businesses providing goods or services in 'good faith' businesses with operations and organisational structures and governance arrangements that are authentic and genuine; Australian businesses that have Australian Company Numbers (ACN), Australian Business Numbers (ABN), or some other form of registered body and physical

RANGE STATEMENT	
	address details that can be verified.
Disclosure may include:	• payment policies • warranties • additional charges
Secure site may include:	• secure technologies such as SSL and secure version of HTTP (HTTPS)
Browser may include but is not limited to:	• Netscape Navigator • Internet Explorer • Mozilla • Opera • Galleon • Phoenix • Konqueror • Lynx
Sensitive information may include but is not limited to:	• credit card details • user names and passwords • email addresses • any other information that should not be made publicly available
Security process may include but is not limited to:	• SSL • HTTPS

Unit Sector(s)

Unit sector	Test

Co-requisite units

Co-requisite units	

Competency field

Competency field	

ICAT3025B Run standard diagnostic tests

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to conduct diagnostic tests on a range of platforms. There may be benefit in concurrent learning with the following unit: • ICAS3234B Care for computer hardware The following units are linked and form an appropriate cluster: • ICAI3020B Install and optimise operating system software • ICAS3024B Provide basic system administration • ICAU3019B Migrate to new technology No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

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. Operate system diagnostics	1.1.Run the system diagnostic program according to specification 1.2.Modify the system configuration as indicated by the diagnostic program 1.3.Carry out <i>preventative maintenance</i> in line with <i>organisational guidelines</i>
2. Scan system for viruses	2.1.Scan the system to check and maintain virus protection 2.2.Report identified viruses to an <i>appropriate person</i> 2.3.Remove virus infections found by the scan using software tools and/or procedures or by restoring back-ups

ELEMENT	PERFORMANCE CRITERIA
	2.4. Document relevant symptom and removal information

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Problem solving skills for a defined range of predictable problems
- Literacy skills in regard to interpretation of computer manuals
- Plain English literacy and communication skills in relation to analysis, evaluation and presentation of information
- Use of diagnostic tools

Required knowledge

- Configuration procedures
- Back-up procedures
- Organisational security procedures
- Diagnostic software/hardware
- Hardware maintenance
- Security 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.

Overview of assessment

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

Evidence of the following is essential:

- Assessment must confirm the ability to conduct diagnostic tests on a range of platforms according to

EVIDENCE GUIDE	
	preventative maintenance and diagnostic policy, and to correctly identify the root causes of the problems. To demonstrate competency in this unit the person will require access to: • Security guidelines • Back-up procedures • Diagnostic software
Context of and specific resources for assessment	Demonstrating competence in basic diagnostic testing will include knowledge by recall in a narrow range of areas; demonstrating basic practical skills, such as the use of relevant tools; perform a sequence of routine tasks given clear direction; and receive and pass on messages/information. Demonstration of these competence would involve: • Demonstration of basic testing and adherence to operational procedures • Applying knowledge solutions to a limited range of unpredictable problems • Performing a range of diagnostic tasks where suspected breakdowns or irregularities of performance have appeared • Assessing and recording information from varied sources The breadth, depth and complexity of knowledge and skills in this competency would cover selecting, adapting and transferring skills and knowledge to new environments and providing technical advice and some leadership in resolution of specified problems. This would be applied across a range of roles in a variety of contexts with some complexity in the extent and choice of options available. Assessment must ensure: • Performance of a defined range of skilled operations, usually within a range of broader related activities involving known routines, methods and procedures, where some discretion and judgement is required in

EVIDENCE GUIDE	
	the section of equipment, services or contingency measures and within known time constraints would be characteristic. • Applications may involve some responsibility for others. Participation in teams including group or team coordination may be involved.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • ICAI3020B Install and optimise operating system software • ICAS3024B Provide basic system administration • ICAU3019B Migrate to new technology

EVIDENCE GUIDE

	An individual demonstrating this competency would be able to: • Demonstrate some relevant theoretical knowledge • Apply a range of well-developed skills • Apply known solutions to a variety of predictable problems • Perform processes that require a range of well-developed skills where some discretion and judgement is required • Interpret available information, using discretion and judgement • Take responsibility for own outputs in work and learning • Take limited responsibility for the output of others • Maintain knowledge of industry products and services

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.

Preventative maintenance
includes but is not limited to:

- scheduled fault-finding
- optimising of hard drives
- scanning for viruses

Organisational guidelines may
include but are not limited to:

- personal use of emails and internet access
- content of emails
- downloading information and accessing particular websites
- opening mail with attachments
- virus risk
- dispute resolution

RANGE STATEMENT	
	• document procedures and templates • communication methods • financial control mechanisms
Appropriate person may include:	• supervisor • teacher • authorised business representative • client
Software may include but are not limited to:	• diagnostic tools and their operation • virus protection software and operation • operating systems and modules for configuration • types of virus and impact

Unit Sector(s)

Unit sector	Test

Co-requisite units

Co-requisite units	

Competency field

Competency field	

ICAT4183B Confirm accessibility of website for people with special needs

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to ensure that a website is accessible to users with special needs including people with disabilities. The following units are linked and form an appropriate cluster: • ICAA4142C Design a website to meet technical requirements • ICAB4135B Create a simple mark up language document to specification • ICAB4171B Develop cascading style sheets • ICAD4209B Write content for web pages • ICAI4189B Ensure website content meets technical protocols and standards • ICAT4184B Ensure site usability for full range of users • ICAT4185B Create a website testing procedure • ICAT4186B Conduct operational acceptance tests of websites No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

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 accessibility standards	1.1. Research and identify specific <i>user groups</i> with particular accessibility <i>requirements</i> 1.2. Identify general legislated and industry accessibility <i>standards</i> and <i>requirements</i> to understand the wider context of accessibility 1.3. Identify web <i>development standards</i> and prioritise application 1.4. Consolidate specific and general <i>standards</i> and

ELEMENT	PERFORMANCE CRITERIA
	requirements into an accessibility checklist for application to website related work
2. Test for accessibility of website	2.1. Select and prepare appropriate automatic testing tools and software 2.2. Run automatic testing tools and based on results, make and document changes 2.3. Ensure that the text equivalent for every non-text element is present in the website where feasible 2.4. Verify that all information conveyed with colour is also available without colour 2.5. Identify all changes in the natural language of a document text 2.6. Check and ensure that document can be read without style sheets 2.7. Check and ensure that all priorities identified in the analysis of web development standards are met and completed 2.8. Test site with different user groups to ensure that the site transforms successfully and maintains accessibility
3. Test pages	3.1. Check and ensure that pages are not dependent on colour and can operate in a monochrome environment 3.2. Check and ensure that pages are logical and accessible in a text-only environment 3.3. Verify that pages operate correctly on text-to-speech browser 3.4. Have the accessibility of the website signed off by an appropriate person as meeting web development standards

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Developing a website

REQUIRED SKILLS AND KNOWLEDGE

- Analysing a website
- Designing technical tests
- Implementing tests
- Evaluating tests
- Giving feedback on the evaluation
- Analysing the evaluation
- Identifying and accommodating user groups with special needs

Required knowledge

- Website architecture
- Website security
- Work load metrics
- Technical performance measurement
- Business process design
- Customer and business liaison
- Government, advocacy group and special needs group liaison
- Website accessibility, security and equity legislation
- Web Accessibility Initiative (WAI)
- Copyright and intellectual property
- Relevant privacy legislation and principles
- Electronic commerce modelling language
- Australian Computer Society Code of Ethics
- Access and equity legislation and principles

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

Evidence of the following is essential:

- Accessible web pages take into account the special needs of visitors with auditory, visual, mobility, and cognitive impairments and those people who use assistive technology. The objective is to provide

EVIDENCE GUIDE

	those users an equivalent browsing experience to that of visitors without special needs. - Assessment must confirm the ability to identify accessibility requirements with reference to the client profile, to design or implement a valid accessibility test, to facilitate the test process and document results. The proposed solution must meet legal, special customer and business needs and expectations as well as the current and future needs of the business. Design elements that are considered undesirable in the website should be highlighted for redesign for better accessibility. To demonstrate competency in this unit the person will require access to: - Live website - Requirements documentation - Customer relationship model - Automatic accessibility measuring tools
Context of and specific resources for assessment	The expansion in availability and use of the internet provides challenges for developers and website custodians in respect of access for people with special needs. Accessibility refers to ensuring that content is accessible (i.e. It can be navigated and read by everyone, regardless of location, experience, or the type of computer technology used). Accessibility is most commonly discussed in relation to people with disabilities, because this group are most likely to be disadvantaged if the principles of accessible web design are not implemented. Failure to follow these principles can make it difficult or impossible for people with disabilities to access content. Creating accessible content should be an integral part of the web design philosophy, and accessibility features should be incorporated into all aspects of the design process. Designing for accessibility is thus as much a strategic issue as a purely technical one. The focus of this competency is testing for accessibility. Such testing should be incorporated into any and all user testing regimes, and not be seen as an isolated event that can occur after other user testing has taken place.

EVIDENCE GUIDE

	Depending on complexity of content, basic knowledge and skills would prepare a person to perform in a range of activities where there is a clearly defined range of contexts for the website. The breadth, depth and complexity of knowledge and skills in this competency would cover a broad range of varied activities or application in a wider variety of contexts most of which are complex and non-routine. Leadership and guidance would be involved when organising activities of self and others as well as contributing to technical solutions of a non-routine or contingency nature. Assessment must ensure: • Performance of a broad range of skilled applications including the requirement to evaluate and analyse current practices, develop new criteria and procedures for performing current practices and provision of some leadership and guidance to others in the application and planning of the skills would be characteristic. • Applications may involve responsibility for, and limited organisation of, others.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full

EVIDENCE GUIDE	
	demonstration of competency. Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: - ICAA4142C Design a website to meet technical requirements - ICAB4135B Create a simple mark-up language document to specification - ICAB4171B Develop cascading style sheets - ICAD4209B Write content for web pages - ICAI4189B Ensure website content meets technical protocols and standards - ICAT4184B Ensure site usability for full range of users - ICAT4185B Create a website testing procedure - ICAT4186B Conduct operational acceptance tests of websites An individual demonstrating this competency would be able to: - Demonstrate understanding of a broad knowledge base incorporating some theoretical concepts - Apply solutions to a defined range of unpredictable problems - Identify and apply skill and knowledge areas to a wide variety of contexts, with depth in some areas - Identify, analyse and evaluate information from a variety of sources - Take responsibility for own outputs in relation to

EVIDENCE GUIDE

	specified quality standards • Take limited responsibility for the quantity and quality of the output of others An individual demonstrating this competency would be able to: • Test a website for accessibility • Demonstrate some theoretical knowledge of website content creation • Apply a range of well-developed skills in communication and negotiation • Perform a range of skills in website design where some discretion and judgement is required • Interpret available information using discretion and judgement • Maintain knowledge of industry products and services

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.

<i>Web development standards</i> may include:	• Web content accessibility guidelines 1.0 (WCAG) • Authoring tool accessibility guidelines 1.0 (ATAG) • User agent accessibility guidelines 1.0 (UAAG) • Web accessibility initiative (WAI) • Best practice vendor-specific accessibility standards
<i>User groups</i> may include but is	• person with auditory • visual

RANGE STATEMENT	
not limited to:	• mobility • cognitive impairments
Software may include but is not limited to:	• commercial software applications • organisation-specific software • packaged software • in-house or customised software
Browser may include but is not limited to:	• Netscape Navigator • Internet Explorer • Mozilla • Opera • Galleon • Phoenix • Konqueror • Lynx
Standards may include:	• ISO/IEC/AS standards • organisational standards • project standards (for further information refer to the Standards Australia website at: www.standards.com.au)
Requirements may be in reference to:	• business • system • application • network • people in the organisation
Testing tools may include but is not limited to:	• Bobby • Opera • PwWebSpeak • Lynx • General Magic's Web-On-Call
Non-text element may include:	• Images, graphical representations of text (including symbols) • Image map regions • Animations (e.g. animated GIFs) • Applets and programmatic objects • ASCII art • Frames • Scripts • Images used as list bullets • Spacers • Graphical buttons

RANGE STATEMENT

	• Sounds (played with or without user interaction) • Standalone audio files • Audio tracks of video, and video

Unit Sector(s)

Unit sector	Test

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAT4184B Ensure site usability for full range of users

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to ensure that clients can use a website once a connection has been established. The following units are linked and form an appropriate cluster: • ICAA4142C Design a website to meet technical requirements • ICAB4135B Create a simple mark up language document to specification • ICAB4171B Develop cascading style sheets • ICAD4209B Write content for web pages • ICAI4189B Ensure website content meets technical protocols and standards • ICAT4183B Confirm accessibility of website for people with special needs • ICAT4185B Create a website testing procedure • ICAT4186B Conduct operational acceptance tests of websites No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

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. Design a site user test	1.1. Establish usability test methods 1.2. Identify critical business functions 1.3. Identify full range of users 1.4. Confirm user expectations through market analysis, business intelligence and customer feedback 1.5. Establish performance potential of the business from business requirements or other approved sources 1.6. Establish performance measurement and success

ELEMENT	PERFORMANCE CRITERIA
	criteria to measure actual performance against user expectations 1.7. Test site when ready and record outcomes
2. Conduct user test	2.1. Document process performance indicators and benchmarks and disseminate to sample group of users 2.2. Assemble a full representative range of users and preferred technologies to test site features and functions based on the business specification 2.3. Ensure maximum user satisfaction through ease of navigation controls and design 2.4. Ensure user and legal, accessibility, privacy and equity requirements and expectations are met
3. Evaluate user test	3.1. Collate site performance results and measure against performance indicators and benchmarks based on user expectations 3.2. Identify performance shortfalls and ensure acceptable performance solutions are developed according to business requirements 3.3. Establish an evaluation feedback mechanism and provide to users
4. Document results	4.1. Identify solutions to problems during the testing phase 4.2. Discuss problems with developers and ensure solutions are continuously refined 4.3. Ensure proposed solutions meet business requirements and user expectations 4.4. Document final solutions in line with organisational guidelines, and distribute to appropriate person

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Website development

REQUIRED SKILLS AND KNOWLEDGE

- Website analysis
- Technical test design
- Test implementation
- Test evaluation
- Evaluation feedback
- Evaluation analysis

Required knowledge

- Website architecture
- Website security
- Work load metrics
- Technical performance measurement
- Business process design
- Customer and business liaison
- Website privacy
- Principles of accessibility and equity in the context of website development
- Electronic commerce modelling language
- User testing principles and techniques

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

Evidence of the following is essential:

- Assessment must confirm the ability to design a valid usability test, facilitate the test process and document the results. The proposed solutions must meet user needs and the current and future needs of the business.

To demonstrate competency in this unit the person will require access to:

EVIDENCE GUIDE	
	• Web servers • E-business website • Site server • Site server software • Analysis software • Requirements documentation • Customer relationship model
Context of and specific resources for assessment	This competency is about testing a website to see how easy it is for humans to interact with. Ensuring site usability is important as more companies, individuals and community groups need websites to reach clients and other stakeholders. Sometimes usability issues can make websites unworkable or ineffective. Usability testing is sometimes seen as that stage of overall systems testing in which the developed system is compared to users' expectations and needs. The breadth, depth and complexity of knowledge and skills in this competency would cover a broad range of varied activities or application in a wider variety of contexts most of which are complex and non-routine. Leadership and guidance would be involved when organising activities of self and others as well as contributing to technical solutions of a non-routine or contingency nature. Assessment must ensure: • Performance of a broad range of skilled applications including the requirement to evaluate and analyse current practices, develop new criteria and procedures for performing current practices and provision of some leadership and guidance to others in the application and planning of the skills would be characteristic. • Applications may involve responsibility for, and limited organisation of, others. The scope and complexity of knowledge and skills is

EVIDENCE GUIDE	
	dependent on the tasks undertaken as part of a specified activity.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • ICAA4142C Design a website to meet technical requirements • ICAB4135B Create a simple mark-up language document to specification • ICAB4171B Develop cascading style sheets • ICAD4209B Write content for web pages • ICAI4189B Ensure website content meets technical protocols and standards • ICAT4183B Confirm accessibility of website for people with special needs • ICAT4185B Create a website testing procedure • ICAT4186B Conduct operational acceptance tests of

EVIDENCE GUIDE

	websites An individual demonstrating this competency would be able to: • Demonstrate understanding of a broad knowledge base incorporating some theoretical concepts • Apply solutions to a defined range of unpredictable problems • Identify and apply skill and knowledge areas to a wide variety of contexts, with depth in some areas • Identify, analyse and evaluate information from a variety of sources • Take responsibility for own outputs in relation to specified quality standards • Take limited responsibility for the quantity and quality of the output of others Additionally, an individual demonstrating this competency would be able to: • Provide benchmarks of websites for examination • Interpret available information and request clarification where needed • Take responsibility for output • Maintain knowledge of industry products and services

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.

User may include:

- a person within a department
- a department within the organisation

RANGE STATEMENT	
	• a third party
Business requirements may be in reference to:	• business • system • application • network • people in the organisation
Success criteria may include:	• timeframe • cost implications • technical and logistical considerations
Business specification may include but is not limited to:	• technical requirements • user problem statement • current system functionality
Solutions may include but is not limited to:	• new hardware • hardware upgrades • new software • software upgrades • user training • implementing a new system
Requirements may be in reference to:	• business • system • application • network • people in the organisation
Feedback mechanisms may include:	• surveys • questionnaires • interviews • meetings
Problems may be in reference to:	• problems with the business • system • application • network • people in the organisation
Organisational guidelines may include but are not limited to:	• personal use of emails and internet access • content of emails • downloading information and accessing particular websites • opening mail with attachments • virus risk • dispute resolution

RANGE STATEMENT	
	- document procedures and templates - communication methods - financial control mechanisms
<i>Appropriate person</i> may include:	- supervisor - teacher - authorised business representative - client

Unit Sector(s)

Unit sector	Test

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAT4185B Create a website testing procedure

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to design and implement procedures that measure the performance of a website and compare them to the initial design specifications. The following units are linked and form an appropriate cluster: • ICAA4142C Design a website to meet technical requirements • ICAB4135B Create a simple mark up language document to specification • ICAB4171B Develop cascading style sheets • ICAD4209B Write content for web pages • ICAI4189B Ensure website content meets technical protocols and standards • ICAT4183B Confirm accessibility of website for people with special needs • ICAT4184B Ensure site usability for full range of users • ICAT4186B Conduct operational acceptance tests of websites No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

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. Document and define performance criteria	1.1. Review performance specifications and determine benchmark criteria 1.2. Validate and document performance functions 1.3. Select measurement methodology and test on website 1.4. Validate each performance function separately 1.5. Record and document metric tools using appropriate methodology

ELEMENT	PERFORMANCE CRITERIA
	1.6. Prepare performance benchmarks and seek agreement on criteria with the <i>client</i>
2. Validate performance measures	2.1. Develop inspection and test plans to validate performance measures throughout the performance cycle 2.2. Test performance functions and record results according to <i>technical documentation standards</i> 2.3. Compare results of performance function testing to benchmark 2.4. Redesign functions that do not meet appropriate performance benchmarks 2.5. Re-implement functions that have been redesigned in performance testing 2.6. Document benchmarks and obtain sign-off
3. Obtain signoff	3.1. Validate and document performance standards and benchmarks 3.2. Submit methodology and function testing document and results to <i>client</i> for approval 3.3. Review <i>client</i> comments and make changes as appropriate 3.4. Obtain sign-off for website testing procedure

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Procedures writing
- Results recording
- Statistical measuring
- Technical test design
- Test implementation
- Test evaluation

Required knowledge

- Website architecture

REQUIRED SKILLS AND KNOWLEDGE

- Technical environment characteristics and how to read and interpret design specifications
- Benchmark selection and development
- Queuing systems, workload metrics and user request classes
- Standard generalised mark-up language (SGML) and associated standards
- Basic copyright and intellectual property
- Australian Computer Society Code of Ethics

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

Evidence of the following is essential:

- Assessment must confirm the ability to identify the critical functions to be tested, develop appropriate metrics for each function and assign benchmarked performance standards. Each performance function must be tested and compared against the appropriate benchmarks in order to validate site performance against technical requirements. Results should be clearly documented to establish the performance benchmarks for subsequent site development.

To demonstrate competency in this unit the person will require access to:

- E-business website
- Analysis software
- Site design and technical requirements documentation
- Site development software and tools

Context of and specific resources for assessment

Testing applications involves significant judgement in planning, design, evaluation, technical or leadership/guidance and communications functions

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	related to services, operations and processes. Testing procedures for contemporary websites can be complex and expensive and a thorough analysis and documentation process should be undertaken across all aspects of such testing. The breadth, depth and complexity of knowledge and skills in this competency would cover a broad range of varied activities or application in a wider variety of contexts most of which are complex and non-routine. Leadership and guidance would be involved when organising activities of self and others as well as contributing to technical solutions of a non-routine or contingency nature. Assessment must ensure: • Performance of a broad range of skilled applications including the requirement to evaluate and analyse current practices, develop new criteria and procedures for performing current practices and provision of some leadership and guidance to others in the application and planning of the skills would be characteristic. • Applications may involve responsibility for, and limited organisation of, others.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Assessment will usually include observation of real

EVIDENCE GUIDE	
	or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • ICAA4142C Design a website to meet technical requirements • ICAB4135B Create a simple mark-up language document to specification • ICAB4171B Develop cascading style sheets • ICAD4209B Write content for web pages • ICAI4189B Ensure website content meets technical protocols and standards • ICAT4183B Confirm accessibility of website for people with special needs • ICAT4184B Ensure site usability for full range of users • ICAT4186B Conduct operational acceptance tests of websites An individual demonstrating this competency would be able to: • Demonstrate understanding of a broad knowledge base incorporating some theoretical concepts • Apply solutions to a defined range of unpredictable problems • Identify and apply skill and knowledge areas to a wide variety of contexts, with depth in some areas • Identify, analyse and evaluate information from a variety of sources • Take responsibility for own outputs in relation to specified quality standards • Take limited responsibility for the quantity and quality of the output of others Additionally, an individual demonstrating this competency would be able to: • Demonstrate understanding and technical knowledge

EVIDENCE GUIDE

	of designing a website, with depth in some areas • Use judgements and analysis across a broad range of technical or functions related to website technical needs • Demonstrate a command of wide-ranging, highly specialised technical, creative and conceptual skills • Generate ideas through the analysis of information and concepts at an abstract level • Demonstrate accountability for personal outputs • Maintain knowledge of industry products and services

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.

<i>Technical documentation standards</i>	• May include but are not limited to policy relating to sign-off, storage, distribution, revision. • May include ISO/IEC/AS standards, organisational standards, audit trails, naming standards, version control, project management templates and report writing principles (for further information refer to the Standards Australia website at: www.standards.com.au)
<i>Client</i> may include but is not limited to:	• internal departments • external organisations • individual people • internal employees

Unit Sector(s)

Unit sector	Test

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAT4186B Conduct operational acceptance tests of websites

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to provide high level assurance that websites can be effectively and efficiently provisioned and deployed live in a systematic manner. The following unit is linked and forms an appropriate cluster: • ICAT4194B Ensure basic website security No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		
	ICAT4184B	Ensure site usability for full range of users

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. Prepare test	1.1. Establish and document testing framework and schedule 1.2. Determine processes and functions to be tested and assign quantitative and/or qualitative performance benchmarks to each process and function 1.3. Benchmark and document page templates, style guides and expected traffic loads 1.4. Determine and document the <i>test methodology</i> 1.5. Assemble and brief the testing panel on the conduct of the test 1.6. Develop <i>user</i>/installation manuals according to target audience understanding and needs
2. Test individual pages	2.1. Test pages against style guides and templates 2.2. Test pages for structural and content consistency 2.3. Apply <i>automatic testing software</i> 2.4. Document page gross statistics of all confirmed results of all tests
3. Test page	3.1. Test installation and examples listed in

ELEMENT	PERFORMANCE CRITERIA
relationships	manual/instructions 3.2. Test page 'navigability' using a variety of browsers 3.3. Test ease of use and functionality against requirements 3.4. Test all software interface points against business and technical requirements 3.5. Test site security and privacy against business requirements 3.6. Test response time against business requirements 3.7. Conduct load simulation testing using single and multiple independent browsers or automated load testing tools 3.8. Test the website's ability to handle concurrent access 3.9. Test conformance to applicable privacy, accessibility and acceptable usage policy standards 3.10. Apply automatic testing software 3.11. Collect, collate and document results from sample user and data from automated test
4. Evaluate test results	4.1. Consolidate and compare results to benchmarks 4.2. Identify results that fail to meet benchmarks and conduct site remedial iteration 4.3. Record and document test results as the site performance baseline, against which further development or updating can be measured 4.4. Provide evaluation feedback to appropriate person business and, if applicable, the user 4.5. Ensure the appropriate person signs off the site prior to go live date

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Website development
- Website analysis

REQUIRED SKILLS AND KNOWLEDGE

- Technical test design
- Test implementation
- Test evaluation
- Evaluation feedback
- Evaluation analysis

Required knowledge

- Website architecture
- Website security
- Work load metrics
- Technical performance measurement
- Business process design
- Customer and business liaison
- Website accessibility and equity principles

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

Evidence of the following is essential:

- Assessment must confirm the ability to prepare an operational acceptance test that measures the independent and integrated structural, content and technical components of the site.
- Measurement should focus on quantitative results as much as possible and be able to be accurately evaluated against predetermined benchmarks.

To demonstrate competency in this unit the person will require access to:

- Web servers
- E-business website

EVIDENCE GUIDE	
	• Site server • Site server software • Analysis software • Requirements documentation • Customer relationship model • Manuals and instructions for the website • Automatic testing software
Context of and specific resources for assessment	The breadth, depth and complexity of knowledge and skills in this competency would cover a broad range of varied activities or application in a wider variety of contexts most of which are complex and non-routine. Leadership and guidance would be involved when organising activities of self and others as well as contributing to technical solutions of a non-routine or contingency nature. Assessment must ensure: • Performance of a broad range of skilled applications including the requirement to evaluate and analyse current practices, develop new criteria and procedures for performing current practices and provision of some leadership and guidance to others in the application and planning of the skills would be characteristic. • Applications may involve responsibility for, and limited organisation of, others.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must

EVIDENCE GUIDE	
	closely reflect the workplace to enable full demonstration of competency. Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: - ICAT4194B Ensure basic website security An individual demonstrating this competency would be able to: - Demonstrate understanding of a broad knowledge base incorporating some theoretical concepts - Apply solutions to a defined range of unpredictable problems - Identify and apply skill and knowledge areas to a wide variety of contexts, with depth in some areas - Identify, analyse and evaluate information from a variety of sources - Take responsibility for own outputs in relation to specified quality standards - Take limited responsibility for the quantity and quality of the output of others - Maintain knowledge of industry products and services

Range Statement

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.

Test methodology may include:

- unattended testing
- background testing
- exhaustive testing
- functional testing
- user acceptance testing
- distributed testing performance testing
- random testing
- error recovery methodologies

User may include:

- a person within a department
- a department within the organisation
- a third party

Automatic testing software may include:

- spell check
- links
- HTML validator
- CSS check, link testers

Browsers may include but is not limited to:

- Netscape Navigator
- Internet Explorer
- Mozilla
- Opera
- Galleon
- Phoenix
- Konqueror
- Lynx

Software may include but is not limited to:

- commercial software applications
- organisation-specific software
- packaged software
- in-house or customised software

Appropriate person may include:

- supervisor
- teacher
- authorised business representative
- client

Unit Sector(s)

Unit sector	Test

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAT4194B Ensure basic website security

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to provide basic website security. The following unit is linked and forms an appropriate cluster: • ICAT4195B Ensure dynamic website security No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		
	ICAI3101B	Install and manage network protocols

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. Determine business security requirements	1.1. Identify the level of security required based on the business and commercial intent of the website 1.2. Identify whether password protection is needed for all or part of the site 1.3. Decide minimum or maximum password protection solutions based on <i>business requirements</i>
2. Ensure web server security	2.1. Ensure that the web <i>server</i> password is obscure and non-traceable 2.2. Install and maintain an effective <i>intrusion detection</i> system in line with <i>business requirements</i> 2.3. Ensure that user accounts have only the required permissions on the <i>server</i> 2.4. Ensure that interpreters (programs that run CGIs) are not stored in the CGI-bin directory 2.5. Ensure that web forms check data before passing it to the <i>server</i>
3. Ensure protocol security	3.1. Protect fixed internet <i>connection</i> and IP address 3.2. Protect shared <i>network</i> resources from intrusion according to <i>business requirements</i> 3.3. Ensure that PC protocols and preferences follow <i>security protocols</i> 3.4. Disable the TCP/IP bindings for file and printer

ELEMENT	PERFORMANCE CRITERIA
	sharing 3.5.Ensure that NetBIOS over TCP/IP is disabled

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Write Javascript/Vbscript
- Write HTML

Required knowledge

- Firewall functionality
- Bastion hosts
- HTTP daemons
- Web server operating systems
- Security patches
- Secure socket layer (SSL) protocol

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

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

Evidence of the following is essential:

- Assessment must confirm the ability to provide basic website security.

To demonstrate competency in this unit the person will

EVIDENCE GUIDE	
	require access to: • Web servers • Basic website
Context of and specific resources for assessment	The breadth, depth and complexity of knowledge and skills in this competency would cover a broad range of varied activities or application in a wider variety of contexts most of which are complex and non-routine. Leadership and guidance would be involved when organising activities of self and others as well as contributing to technical solutions of a non-routine or contingency nature. Assessment must ensure: • Performance of a broad range of skilled applications including the requirement to evaluate and analyse current practices, develop new criteria and procedures for performing current practices and provision of some leadership and guidance to others in the application and planning of the skills would be characteristic. • Applications may involve responsibility for, and limited organisation of, others.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency.

EVIDENCE GUIDE	
	Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: - ICAT4195B Ensure dynamic website security An individual demonstrating this competency would be able to: - Demonstrate understanding of a broad knowledge base incorporating some theoretical concepts - Apply solutions to a defined range of unpredictable problems - Identify and apply skill and knowledge areas to a wide variety of contexts, with depth in some areas - Identify, analyse and evaluate information from a variety of sources - Take responsibility for own outputs in relation to specified quality standards - Take limited responsibility for the quantity and quality of the output of others - Maintain knowledge of industry products and services

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

RANGE STATEMENT	
situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Business requirements may be in reference to:	• business • system • application • network • people in the organisation
Intrusion detection systems may include but is not limited to:	• Tripwire • Cisco • HP • Symantec
Server may include:	• Application/web servers • BEA Weblogic servers • IBM VisualAge and WebSphere • Novell NDS servers • Email servers • File and print servers • FTP servers • Firewall servers • Proxy/cache servers
Connection may include:	• cable • ADSL • fixed line
User may include:	• a person within a department • a department within the organisation • a third party
Network may include but is not limited to:	• large and small LANs • national WANs • VPNs • the internet • the use of the PSTN for dial-up modems only • private lines • data • voice
Security protocols may include:	• Secure multipurpose internet mail extensions • Secure socket layer and transport layer security • IP security protocol • (domain name system security extensions)

RANGE STATEMENT	
	• (data over cable service interface specification) • IEEE 802.11 Protocol standard for secure wireless local area network products • Point-to-point network tunnelling protocol (PPTP)/Layer 2 tunnelling protocol (L2TP) • Internet protocol security (IPSec) • (secure electronic transactions) • (Secure shell)

Unit Sector(s)

Unit sector	Test

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAT4195B Ensure dynamic website security

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to ensure and maintain the security of a dynamic, commercial website. The following unit is linked and forms an appropriate cluster: • ICAB5165B Create dynamic pages No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		
	ICAI3020B	Install and optimise operating system software
	ICAT4194B	Ensure basic website security

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. Undertake risk assessment	1.1. Identify functionality and features of the website and confirm with <i>client</i> 1.2. Identify <i>security threats</i> with reference to functionality of the site and organisational <i>security policy</i>, relevant <i>legislation</i> and <i>standards</i> 1.3. Complete a risk analysis to prioritise <i>security threats</i> and identify system vulnerabilities 1.4. Identify resource and budget constraints and validate with <i>client</i> as required 1.5. Source appropriate products, <i>security services</i> and <i>equipment</i> according to enterprise purchasing policies
2. Secure operating systems	2.1. Identify <i>operating system</i> and cross-platform vulnerabilities 2.2. Make appropriate scripting/configuration adjustments with reference to functionality of the site and the <i>security policy</i> 2.3. Identify and rectify weaknesses specific to the <i>operating system</i>
3. Secure site server	3.1. Configure the web server securely with reference to

ELEMENT	PERFORMANCE CRITERIA
	required functionality and the security policy 3.2. Review and analyse relevant server-side scripting with reference to required functionality and the security policy 3.3. Install firewalls as required 3.4. Establish access control permissions to server and database
4. Secure data transactions	4.1. Identify data transactions with reference to functionality and features of website 4.2. Identify and apply channel protocols where relevant to requirements 4.3. Install and configure payment systems
5. Monitor and document security framework	5.1. Develop a program of selective independent audits and penetration tests 5.2. Determine performance benchmarks 5.3. Implement audit and test programs with results recorded, analysed and reported 5.4. Make security framework changes based on test results 5.5. Develop the site security plan with reference to security policy and requirements 5.6. Develop and distribute related policies and procedures to client

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Ability to develop enterprise policies and procedures
- Auditing and penetration testing techniques
- Configuring a web server
- Ability to identify key sources of information
- Ability to understand specification sheets
- Ability to accurately summarise and document information
- Ability to see conflicts and integration capabilities between diverse equipment

REQUIRED SKILLS AND KNOWLEDGE

- Ability to collate, analyse and assess importance and relevance of product information.

Required knowledge

- Security threats, including vandalism, sabotage, breach of privacy or confidentiality, theft and fraud, violations of data integrity, denial of service
- Organisational issues surrounding security
- Functions and features of stored value payment systems (e.g. DigiCash, CyberCoin, Mondex, CAFE, Visa Cash)
- Functions and features of common stored account payment systems (e.g. First Virtual's Internet Payment System, CyberCash secure internet payment system, Secure Electronic Transactions standard (SET), smart cards)
- Functions and features of generic secure protocols (e.g. secure socket layer (SSL), secure hypertext transfer protocol (SHTTP), secure multi-purpose internet mail extensions (S/MIME))
- Functions and features of automated intrusion detection software, functions and features of network address translation (NAT) in relation to securing internal IP addresses, buffer overruns and stack smashing with reference to operating system deficiencies, functions and features of authentication and access control (e.g. single-factor and two-factor authentication, biometric authentication)
- Functions and features of cryptography, including digital signatures and public and private key algorithms, functions and features of CGI scripts, advantages and disadvantages of using the range of security features, protocol stack for internet communications, knowledge of physical web server security, particularly remote hosts
- Australian Computer Society Code of Ethics
- Copyright and intellectual property
- The Commonwealth Privacy Act 2000

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**Critical aspects for assessment and evidence required to demonstrate**

Evidence of the following is essential:

EVIDENCE GUIDE	
competency in this unit	- Assessment must confirm the ability to identify potential security threats and develop and implement strategies to secure a dynamic website. To demonstrate competency in this unit the person will require access to: - Dynamic website - Security plan
Context of and specific resources for assessment	The breadth, depth and complexity of knowledge and skills in this competency would cover a broad range of varied activities or application in a wider variety of contexts most of which are complex and non-routine. Leadership and guidance would be involved when organising activities of self and others as well as contributing to technical solutions of a non-routine or contingency nature. Assessment must ensure: - Performance of a broad range of skilled applications including the requirement to evaluate and analyse current practices, develop new criteria and procedures for performing current practices and provision of some leadership and guidance to others in the application and planning of the skills would be characteristic. - Applications may involve responsibility for, and limited organisation of, others.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be

EVIDENCE GUIDE

	assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: - ICAB5165B Create dynamic pages An individual demonstrating this competency would be able to: - Demonstrate understanding of a broad knowledge base incorporating some theoretical concepts - Apply solutions to a defined range of unpredictable problems - Identify and apply skill and knowledge areas to a wide variety of contexts, with depth in some areas - Identify, analyse and evaluate information from a variety of sources - Take responsibility for own outputs in relation to specified quality standards - Take limited responsibility for the quantity and quality of the output of others - Maintain knowledge of industry products and services

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.

<i>Client</i> may include but is not limited to:	• internal departments • external organisations • individual people • internal employees
<i>Legislation</i> may include:	• privacy legislation • copyright • liability statements
<i>Standards</i> may include:	• ISO/IEC/AS standards • organisational standards • project standards (for further information refer to the Standards Australia website at: www.standards.com.au)
<i>Security threats</i> may include:	• eavesdropping • manipulation and impersonation • penetration • denial of service and by-pass • hackers • viruses using logging
<i>Equipment</i> may include but is not limited to:	• workstations • personal computers • modems and other connectivity devices • printers • hard drives • monitors • switches • DSL modems • Hubs • personal digital assistant (PDA) • other peripheral devices
<i>Security policy</i> may include:	• theft • viruses • standards (including archival, back-up,

RANGE STATEMENT	
	- network) - privacy - audits - alerts and usually relates directly to the security objectives of the organisation
Operating system may include but is not limited to:	Linux 6.0 or above, Windows 98 or above, Apple OS 8 or above. Note: The use of operating system in this unit is in the context of a pre-existing system and may therefore not be current industry version. Preference is for Linux 7.0 or above, Windows 2000 or above, Apple OS X or above
Firewalls may include:	- hardware appliances - proxy servers - individual PC solution; varying functionality, including network address translation (NAT)/IP masquerading, routing to specific machines
Server may include:	- Application/web servers - BEA Weblogic servers - IBM VisualAge and WebSphere - Novell NDS servers - Email servers - File and print servers - FTP servers - Firewall servers - Proxy/cache servers
Database may include but are not limited to:	- relational databases - object-relational databases - proprietary databases - commercial off-the-shelf (COTS) database packages
Requirements may be in reference to:	- business - system - application - network - people in the organisation
Security services may include:	- SSL - S-HTTP

RANGE STATEMENT

	• stored account payment systems • stored value payment systems • file access permissions • single stage and dual stage firewalls • encryption • smart cards • digital certificates • authentication and access control • digital signatures • VPN technology • screening routers • packet filters • application proxies • trusted systems with C and B assurance levels • support for generalised security services interfaces • personnel security • servers • trusted hardware and operating systems at selective desktops • network points and mainframes • multi-platform directory services supporting relevant standards

Unit Sector(s)

Unit sector	Test

Co-requisite units

Co-requisite units	

Competency field

Competency field	

ICAT4221B Locate equipment, system and software faults

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to apply systematic principles to fault finding in any field of IT. The following units are linked and form an appropriate cluster: • ICAS4109B Evaluate system status • ICAT4242B Perform unit test for a class No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

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. Choose the most appropriate fault finding method	1.1. Analyse and document the system that requires troubleshooting 1.2. Identify and apply specifically designed troubleshooting tools for the system 1.3. Investigate and record generic cyclic <i>fault finding tools</i> 1.4. Obtain required specialist tools appropriate to the work
2. Analyse the problem to be solved	2.1. Collect all data relevant to the system as well as signs and symptoms of the problem 2.2. Organise the collected data to enable an understanding of the status of the system 2.3. Analyse the data to determine that there is a <i>problem</i> , and the nature of the problem
3. Define the causes of the problem and create a plan of action	3.1. Create a list of probable causes of the problem 3.2. Organise causes in order of likelihood 3.3. Formulate a <i>solution</i> or rectification 3.4. Rectify probable causes, testing for the success of the <i>solution</i> and record results

ELEMENT	PERFORMANCE CRITERIA
4. Review problem and system status	4.1. Test the system to ensure the problem has been solved and record results 4.2. Document the problem, its signs and symptoms, and the ultimate solution and load to database of problems/solutions for future reference

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Problem solving skills for a defined range of unpredictable problems involving participation in the development of strategic initiatives
- Communication skills in relation to analysis, evaluation and presentation of information
- Teamwork skills involving the contribution to solutions and goals of a non-routine or contingency nature
- Group facilitation and presentation skills in relation to transferring and collecting information and gaining consensus
- Negotiation skills in relation to other team members and applied to a defined range of predictable problems
- Report writing skills for business requiring depth in some areas, analysis and evaluation of information in a defined range of areas
- Change management skills in relation to maintaining the continuity of IT operations and business functions
- Customer service skills in relation to reviewing change procedures
- Skills in handling difficult clients in relation to reviewing change procedures
- Conflict resolution skills in relation to reviewing change procedures
- Risk analysis skills in relation to reviewing change procedures
- Low level training needs analysis skills
- Low level programming skills

Required knowledge

- Broad knowledge of help desk and maintenance practices
- Current industry-accepted hardware and software products, with broad knowledge of general features and capabilities and detailed knowledge in some areas
- Broad knowledge of the role of stakeholders and the degree of stakeholder

REQUIRED SKILLS AND KNOWLEDGE

involvement

- Broad general knowledge of the client business domain
- Detailed knowledge of the system's current functionality
- Broad knowledge of quality assurance practices
- One or more change management tools
- Broad knowledge of system testing
- Broad knowledge of some change control procedures
- Detailed knowledge of the system under modification

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

Evidence of the following is essential:

- Assessment must confirm the ability to choose the best fault finding method for a situation/scenario, and apply it in a structured, methodical manner.

To demonstrate competency in this unit the person will require access to:

- System to be diagnosed
- Diagnostic and fault finding tools
- Technical and system documentation

Context of and specific resources for assessment

Troubleshooting and fault finding are universal competencies used by most IT practitioners and operate at all stages of the systems life cycle. These activities apply procedures for localizing and diagnosing equipment or system malfunctions or anomalies, typically by systematic examination progressing from higher to lower levels of assembly.

The breadth, depth and complexity of knowledge and

EVIDENCE GUIDE

	skills in this competency would cover a broad range of varied activities or application in a wider variety of contexts most of which are complex and non-routine. Leadership and guidance would be involved when organising activities of self and others as well as contributing to technical solutions of a non-routine or contingency nature. Assessment must ensure: • Performance of a broad range of skilled applications including the requirement to evaluate and analyse current practices, develop new criteria and procedures for performing current practices and provision of some leadership and guidance to others in the application and planning of the skills would be characteristic. • Applications may involve responsibility for, and limited organisation of, others. Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be

EVIDENCE GUIDE	
	assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. Competency in this unit can be assessed in a live environment provided the assessor has a prior knowledge of the outcome, or in a simulated or fire walled environment.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: - ICAS4109B Evaluate system status - ICAT4242B Perform unit test for a class An individual demonstrating this competency would be able to: - Demonstrate understanding of a broad knowledge base incorporating some theoretical concepts - Apply solutions to a defined range of unpredictable problems - Identify and apply skill and knowledge areas to a wide variety of contexts, with depth in some areas - Identify, analyse and evaluate information from a variety of sources - Take responsibility for own outputs in relation to specified quality standards - Take limited responsibility for the quantity and quality of the output of others - Maintain knowledge of industry products and services

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

RANGE STATEMENT	
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.	
System may include but is not limited to:	hardware and software components that run a computer or network
Fault finding tool	- For networking: Ping, trace route, Telnet, protocol analysers, operating system tools, mapping tools, the OSI layered model - For programming: Trace, debug, break points, compilers - For systems analysts: There are no specific tools for systems analysts, they are the conduit between the implementers (programmers or networkers) and the users. They may have to review design criteria after user feedback to improve system performance or rectify faults in design or implementation
Problem may be in reference to:	- problems with the business - system - application - network - people in the organisation
Solution may include but is not limited to:	- new hardware - hardware upgrades - new software - software upgrades - user training - business processes - implementing a new system

Unit Sector(s)

Unit sector	Test

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAT4242B Perform unit test for a class

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to ensure that the system is proved adequate, before handover to the client/user, by unit testing functionality and reliability of individual components. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

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. Prepare for test	1.1. Determine test criteria 1.2. Prepare the test environment 1.3. Perform static tests using appropriate test tools to verify correct behaviour of modules 1.4. Use a test harness program to exercise module behaviour 1.5. Test objects containing lower level class instances separately 1.6. Prepare data to facilitate path testing 1.7. Prepare data to facilitate member function testing
2. Conduct test	2.1. Ensure clean test environment 2.2. Initialise test environment 2.3. Run test harness and document results in line with test and acceptance processes 2.4. Forward test results to appropriate person 2.5. Finalise test environment
3. Analyse and classify results	3.1. Review and classify test results to highlight areas of concern 3.2. Compare test results against requirements and design specifications in line with quality benchmarks 3.3. Review feedback

ELEMENT	PERFORMANCE CRITERIA
	3.4.Ensure compliance with documentation and reporting standards

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Problem solving skills for a defined range of unpredictable problems involving participation in the development of strategic initiatives (e.g. when: memory leakage, global name space pollution, static variables are specifically addressed for each object)
- Plain English literacy and communication skills in relation to analysis, evaluation and presentation of information (e.g. when details/comments are logged and signatures are gained)
- Object-oriented programming (e.g. when objects containing lower level class instances are tested separately, i.e. declaration of class within the class to be tested, and when presence of scripts to test dynamic binding on all relevant functions is ensured, if inheritance has been used to generate object)
- Questioning and active listening skills (e.g. when details/comments are logged and signatures are gained)

Required knowledge

- Detailed knowledge of an object-oriented programming language
- Broad knowledge of automated test tools, with detailed knowledge of features and processes in some areas
- Detailed knowledge of underlying test data
- Detailed knowledge of input/output requirements

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

EVIDENCE GUIDE	
Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: - Assessment must confirm sufficient knowledge of object-oriented methodology to carry out test. Assessment must confirm the ability to meet client requirements by successfully validating the test object and documenting the results. To demonstrate competency in this unit the person will require access to: - Suitable test plan - Specific requirements - Design documents used in the analysis of the test - A suitable class to test Top-down testing may mean that user representatives should be present at a unit testing session if predicates and pathways are being tested.
Context of and specific resources for assessment	The breadth, depth and complexity of knowledge and skills in this competency would cover a broad range of varied activities or application in a wider variety of contexts most of which are complex and non-routine. Assessment must ensure: Performance of a broad range of skilled applications including the requirement to evaluate and analyse current practices, develop new criteria and procedures for performing current practices and provision of some leadership and guidance to others in the application and planning of the skills would be characteristic.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have

EVIDENCE GUIDE	
	special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. - Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. - Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. An individual demonstrating this competency would be able to: - Demonstrate understanding of a broad knowledge base incorporating some theoretical concepts - Apply solutions to a defined range of unpredictable problems - Identify and apply skill and knowledge areas to a wide variety of contexts, with depth in some areas - Identify, analyse and evaluate information from a variety of sources - Take responsibility for own outputs in relation to specified quality standards - Take limited responsibility for the quantity and quality of the output of others - Maintain knowledge of industry products and services

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.	
<i>Test environment</i> may include:	• data • program libraries • network/communications and other equipment • operating system • other support software
<i>Appropriate person</i> may include:	• supervisor • project leader and/or programmer responsible for code
<i>Quality benchmarks</i> may include:	• organisational standards or those that may be based on products such as PSM or SPICE
<i>Test criteria</i>	Procedural language criteria may encompass: • Procedures • Parameters • Return values • Behaviour that affects the attributes of the program Object-oriented language criteria may encompass procedural language criteria as well as: • Inheritance between classes • Proper instantiation of classes • Interaction between methods of the classes

Unit Sector(s)

Unit sector	Test

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAT5077B Develop detailed test plan

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to plan for testing by collating documentation of conditions and expected results sufficient to allow for thorough system testing. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

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. Prepare test environment and gather tools	1.1. Determine structure of system and user accounts to understand the test environment 1.2. Determine areas to test and objectives of the testing ensuring adherence to organisational standards 1.3. Ensure accessibility of documentation 1.4. Notify user representatives or approval authorities of objectives and scheduled test 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 2.2. Correlate schedules with related functionality 2.3. Check testing schedule prior to validation 2.4. Prepare test drivers/stubs for test harness 2.5. Register test plan, and initiate log entries 2.6. Take action to ensure adherence to organisational standards
3. Complete test plan and acceptance processes	3.1. Use software metrics where appropriate 3.2. Validate test and acceptance processes 3.3. Ensure documentation and reporting comply with test plan and quality benchmarks

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Skills involving participation in critical areas (e.g. access control, pathing)
- Communication skills in relation to analysis, evaluation and presentation of information (e.g. when all documentation and checklists are completed)
- Application usage skills in relation to analysis, evaluation and presentation of information
- Planning skills in relation to communications and risk management (e.g. when test plan is walked through according to project requirements)
- Research skills for identifying, analysing and evaluating broad features of system testing and best practice in system testing, for example when critical areas to test are determined such as the use of application skills

Required knowledge

- Broad knowledge of at least three different operating systems, with detailed knowledge of operating systems relevant to project requirements.
- Detailed knowledge of system/application being tested
- Broad knowledge of testing techniques, with detailed knowledge of features and processes in some areas
- Broad knowledge of automated test tools, with detailed knowledge of features and processes in some areas

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

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

Evidence of the following is essential:

- Assessment must confirm sufficient knowledge of interpreting software specifications and the ability to

EVIDENCE GUIDE	
	consistently and accurately develop a comprehensive test plan. Assessment of this competency requires access to project documentation such as: • System engineering management plan • Test and evaluation program plan • Project plan • System/application suitable for testing To demonstrate this unit of competency the test plan will need to document: • Test conditions/cases to be applied • Data to be processed • Automated testing coverage • Expected results • Activities, dependencies and effort required to conduct the system test.
Context of and specific resources for assessment	A test plan describes the scope, approach, resources, and schedule of intended testing activities. It identifies test items, the features to be tested, the testing tasks, who will do each task, and any risks requiring contingency planning. The breadth, depth and complexity covering planning and initiation of alternative approaches to skills or knowledge applications across a broad range of technical and/or management requirements, evaluation and coordination would be characteristic. Assessment must ensure: • The demonstration of competency may also require self-directed application of knowledge and skills, with substantial depth in some areas where judgement is required in planning and selecting appropriate equipment, services and techniques for self and others. • Applications involve participation in development of

EVIDENCE GUIDE	
	strategic initiatives as well as personal responsibility and autonomy in performing complex technical operations or organising others. It may include participation in teams including teams concerned with planning and evaluation functions. Group or team coordination may also be involved.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. - Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. - Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. An individual demonstrating this competency would be able to: - Demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas - Analyse and plan approaches to technical problems

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	or management requirements • Transfer and apply theoretical concepts and/or technical or creative skills to a range of situations • Evaluate information, using it to forecast for planning or research purposes • Take responsibility for own outputs in relation to broad quantity and quality parameters • Take some responsibility for the achievement of group outcomes • Maintain knowledge of industry products and services

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.

Testing schedule may take into account but is not limited to:

- dependency
- importance
- testability
- complexity
- security
- X-factor, where X is an unknown and may or may not impact on the test schedule

Quality benchmarks may include:

- AS 4043-1992 Software configuration management
- AS 4042-1992 Software configuration management plans
- AS 3925.1-1994 Software quality assurance - plans
- AS/NZS 4258:1994 Software user documentation process
- AS/NZS ISO/IEC 12207:1997 Information technology - software life cycle processes
- AS/NZS 14102:1998 Information technology -

RANGE STATEMENT	
	guideline for evaluation and selection of CASE tools

Unit Sector(s)

Unit sector	Test

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAT5079B Perform integration test

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to ensure that the components of the system operate together to the expected standard. These units are linked and form an appropriate cluster: • ICAA5050B Develop detailed component specifications from project specifications No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

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. Prepare for test	1.1. Prepare the <i>test environment</i> 1.2. Prepare the test scripts (online test) or test run (batch test) for running 1.3. Review expected results against <i>test and acceptance criteria</i> 1.4. Confirm pre-existing modules and compile modification logs 1.5. Perform static tests of each point of integration and verify correctness of arguments, positional parameters and return values in each integration suite 1.6. Review results of earlier component testing and ensure critical issues are identified and taken into account
2. Conduct test	2.1. Select appropriate <i>test tools</i> 2.2. Run test scripts and document the results against <i>software life cycle</i> model 2.3. Ensure that memory leakage, global name space pollution and static variables are specifically addressed for each integration unit in line with <i>test and acceptance criteria</i>

ELEMENT	PERFORMANCE CRITERIA
	2.4. Follow and adopt integration standards where appropriate in line with quality benchmarks 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 3.2. Compare the test results against the requirements and design specification and prepare report 3.3. Notify operations of completion of the testing 3.4. Ensure attendees' details/comments are logged and signatures gained 3.5. Schedule a feedback meeting to discuss report and possible next actions with stakeholders if necessary 3.6. Ensure test reporting compliance with documentation and reporting standards

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Problem solving skills for a defined range of unpredictable problems involving participation in the development of strategic initiatives (e.g. when static tests of each point of integration are performed and correctness of arguments, positional parameters and return values in each integration suite are verified)
- Plain English literacy and communication skills in relation to analysis, evaluation and presentation of information (e.g. when attendees' details/comments are logged and signatures are gained)
- Data analysis skills in relation to analysis, evaluation and presentation of information (e.g. when static tests of each point of integration are performed and correctness of arguments, positional parameters and return values in each integration suite are verified, and when each test script is run and results are documented, and when memory leakage, global name space pollution, static variables are specifically addressed for each integration unit)
- Research skills for identifying, analysing and evaluating broad features of system testing and best practice in system testing; high-order problem solving skills (e.g. when results of earlier unit testing are reviewed and critical issues to take into account are identified)

REQUIRED SKILLS AND KNOWLEDGE

- Programming skills in programming language/s relevant to project (e.g. when static tests of each point of integration are performed and correctness of arguments, positional parameters and return values in each integration suite are verified, and when each test script is run and results are documented)

Required knowledge

- Broad knowledge of at least two programming languages, with detailed knowledge of programming languages required by system
- Detailed knowledge of system/application being tested
- Broad knowledge of testing techniques, with detailed knowledge of features and processes in some areas
- Broad knowledge of automated test tools, with detailed knowledge of features and processes in some areas
- Detailed knowledge of underlying test data
- Detailed knowledge of input/output requirements

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

Evidence of the following is essential:

- Assessment must confirm sufficient knowledge of the integration requirements for the units of the particular system.
- Assessment must confirm the ability to determine whether the units of the system operate according to requirements specifications.

To demonstrate competency in this unit the person will require access to:

- Acceptance criteria
- Test plan
- Integration standards

EVIDENCE GUIDE	
	• Requirements and design documents used in the analysis of the test • System/application suitable for testing The person will need to ensure that: • Components have been compiled, linked, and loaded together • Components have successfully passed the integration tests at the interface level between each component
Context of and specific resources for assessment	It should be noted that the quality of code is not being assessed, but the competency of testing the components. Integration testing involves formal testing of the combined parts of an application to determine if they function together correctly and is usually performed after unit and functional testing. This type of testing is especially relevant to client/server and distributed systems. The breadth, depth and complexity covering planning and initiation of alternative approaches to skills or knowledge applications across a broad range of technical and/or management requirements, evaluation and coordination would be characteristic. Assessment must ensure: • The demonstration of competency may also require self-directed application of knowledge and skills, with substantial depth in some areas where judgement is required in planning and selecting appropriate equipment, services and techniques for self and others. • Applications involve participation in development of strategic initiatives as well as personal responsibility and autonomy in performing complex technical operations or organising others. It may include participation in teams including teams concerned with planning and evaluation functions. Group or team coordination may also be involved.

EVIDENCE GUIDE**Method of assessment**

The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1.

- Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency.
- Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.

Guidance information for assessment

Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example:

- ICAA5050B Develop detailed component specification from project specification

An individual demonstrating this competency would be able to:

- Demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas
- Analyse and plan approaches to technical problems or management requirements

EVIDENCE GUIDE

	• Transfer and apply theoretical concepts and/or technical or creative skills to a range of situations • Evaluate information, using it to forecast for planning or research purposes • Take responsibility for own outputs in relation to broad quantity and quality parameters • Take some responsibility for the achievement of group outcomes • Maintain knowledge of industry products and services

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.

<i>Test environment</i> may include:	• data • program libraries • network/communications and other equipment • operating system • other support software
<i>Software life cycle</i> may include:	• AS/NZS ISO/IEC 12207:1997 Information technology - Software life cycle processes • AS/NZS 15271:1999 Guide for AS/NZS ISO/IEC 12207 Information technology - software life cycle processes)
<i>Test and acceptance processes</i> may include:	• AS 4006-1992 Software test documentation • AS/NZS 14143.1:1999 Information technology - software measurement - functional size measurement - definition of concepts • AS/NZS 15026:1999 Information technology - system and software integrity levels • AS 4006-1992 Software test documentation, IEEE Standard for software unit testing • International and Australian Standards are

RANGE STATEMENT	
	updated and changed on a regular basis. It is therefore important to check the Standards Australia website on a regular basis for new standards: http://www.standards.com.au
<i>Quality benchmarks</i>	There are several organisations that have developed standards for software review mainly: US Department of Defence (DoD) standards, IEEE, the Software Engineering Institute (SEI), and ISO standards. Relevant quality standards include: • AS 4043-1992 Software configuration management • AS 4042-1992 Software configuration management plans • AS 3925.1-1994 Software quality assurance - plans • AS/NZS 4258:1994 Software user documentation process • AS/NZS ISO/IEC 12207:1997 Information technology - software life cycle processes • AS/NZS 14102:1998 Information technology - guideline for evaluation and selection of CASE tools International and Australian Standards are updated and changed on a regular basis. It is therefore important to check the Standards Australia website on a regular basis for new standards: http://www.standards.com.au
<i>Test and acceptance criteria</i>	• Dependent on the type of test (e.g. functional, efficiency, cohesion)
<i>Documentation and reporting</i>	• Documentation for version control may follow ISO/IEC/AS standards. Audit trails, naming standards, version control, project management templates and report writing styles will vary according to organisational approach. Information gathering processes may have associated templates
<i>Test tools may include:</i>	• Code/unit/class testing: AssertMate, BoundsChecker, C-Cover, CodeReview, CodeWizard, DeepCover, FailSafe, Hindsight, Insure++, JCAST, Logiscope, JavaPureCheck

RANGE STATEMENT

	- Stress load testing: automated test facilities, e-Load, E-TEST Suite, e-MONITO, Astra SiteManager, Astra SiteTest, AutoTester Web, LoadRunner, JavaLoad - Applications testing: DataShark, Cyrano Suite, Datatect, preVue-C/S

Unit Sector(s)

Unit sector	Test

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAT5081B Perform systems test

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to ensure that the properties of the entire system are tested and proved adequate before handover to the client/user for final acceptance testing. These units are linked and form an appropriate cluster: • ICAA5056B Prepare disaster recovery and contingency plans • ICAT5084B Perform stress and load testing on integrated platform No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		
	ICAT3025B	Run standard diagnostic tests

Prerequisite units		

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. Prepare for test	1.1. Prepare the <i>test environment</i> 1.2. Determine software life cycle 1.3. Define test plan and appropriate <i>test tools</i> 1.4. Recognise and separate the system into run-able modules mirroring live scenarios 1.5. Gather and prepare logs and result sheets 1.6. Notify operations of scheduled test to ensure preparedness and understanding of implications for operations 1.7. Prepare test scripts (online test) or test run (batch test) for running 1.8. Review expected results against acceptance criteria (walkthrough) and system requirements documentation
2. Conduct test	2.1. Run test scripts and document results in line with test

ELEMENT	PERFORMANCE CRITERIA
	and acceptance processes 2.2. Perform required quality benchmarks or comparisons in readiness for acceptance testing 2.3. Adopt organisation/industry standards, where appropriate 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 3.2. Compare results against requirements 3.3. Notify operations of test completion 3.4. Log attendees' details/comments and gain required signatures 3.5. Schedule feedback meeting to discuss report and possible next actions with stakeholders if necessary 3.6. Ensure test reporting compliance with documentation and reporting standards

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Problem solving skills for a defined range of unpredictable problems involving participation in the development of strategic initiatives, for example when ability to recognise and separate the system into run-able modules mirroring live scenarios is demonstrated such as the case with end of day, interactive query scenarios of various loads)
- Plain English literacy and communication skills in relation to analysis, evaluation and presentation of information (e.g. when attendees' details/comments are logged and signatures are gained)
- Analysis/Programming skills in relation to testing the operation and consistency of the total system (e.g. when test scripts (online test) or test run (batch test) are prepared for running)
- Questioning and active listening skills (e.g. when attendees' details/comments are logged and signatures are gained)

REQUIRED SKILLS AND KNOWLEDGE**Required knowledge**

- Broad general knowledge of system requirements, with detailed knowledge of particular system requirements and features
- Broad knowledge of automated test tools, with detailed knowledge of features and processes in some areas
- Organisational rules for preparing test
- Detailed knowledge of underlying test data
- Detailed knowledge of input/output requirements

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

Evidence of the following is essential:

- Assessment must confirm sufficient knowledge of components and run-able modules that make up a total system.

To demonstrate competency in this unit the person will require access to:

- System test plan
- Requirements and design documents
- Test plan
- Human resources assigned and in place
- Test hardware and environments in place and free for system test use
- System/application suitable for testing

Context of and specific resources for assessment

All testing should be carried out on the same platform as the completed system. Scheduled testing should be on the production platform. The production environment is required as part of test preparation.

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	The systems test is a fully functional exercising of the system to be implemented. As such, all resources necessary to execute the entire system will be required. The purpose of system testing is to identify defects that will only surface when a complete system is assembled. That is, defects that cannot be attributed to individual components or the interaction between two components. System testing includes testing of performance, security, configuration sensitivity, start-up and recovery from failure modes and takes place prior to delivery. The breadth, depth and complexity covering planning and initiation of alternative approaches to skills or knowledge applications across a broad range of technical and/or management requirements, evaluation and coordination would be characteristic. Assessment must ensure: • The demonstration of competency may also require self-directed application of knowledge and skills, with substantial depth in some areas where judgement is required in planning and selecting appropriate equipment, services and techniques for self and others. • Applications involve participation in development of strategic initiatives as well as personal responsibility and autonomy in performing complex technical operations or organising others. It may include participation in teams including teams concerned with planning and evaluation functions. Group or team coordination may also be involved.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related

EVIDENCE GUIDE

	matters is provided in ICA05 Section 1. - Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. - Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Assessment must confirm the ability to test the operation and consistency of the total system according to the system requirements. The person will have clearly identified the results of the systems tests. The system test should clearly confirm that: - Functionality, delivered by the development team, is as specified by the business in the business design specification document and the requirements documentation - Software is of high quality; the software will replace/support the intended business functions and achieves the standards required by the organisation for the development of new systems - Software delivered interfaces correctly with existing systems If the system test does not confirm the above, then the person will need to document how the system has not met the test criteria.

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	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • ICAA5056B Prepare disaster recovery and contingency plans • ICAT5084B Perform stress and load testing on integrated platform An individual demonstrating this competency would be able to: • Demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas • Analyse and plan approaches to technical problems or management requirements • Transfer and apply theoretical concepts and/or technical or creative skills to a range of situations • Evaluate information, using it to forecast for planning or research purposes • Take responsibility for own outputs in relation to broad quantity and quality parameters • Take some responsibility for the achievement of group outcomes • Maintain knowledge of industry products and services

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.

<i>Test environment</i>	• data • program libraries

RANGE STATEMENT	
	- network/communications and other equipment - operating system - other support software
Test tools may include:	- Code/unit/class testing: AssertMate, BoundsChecker, C-Cover, CodeReview, CodeWizard, DeepCover, FailSafe, Hindsight, Insure++, JCAST, Logiscope, JavaPureCheck - Stress load testing: automated test facilities, e-Load, E-TEST Suite, e-MONITO, Astra SiteManager, Astra SiteTest, AutoTester Web, LoadRunner, JavaLoad - Applications testing: DataShark, Cyrano Suite, Datatect, preVue-C/S

Unit Sector(s)

Unit sector	Test

Co-requisite units

Co-requisite units	

Competency field

Competency field	

ICAT5082B Manage the testing process

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to effectively manage and administer the end to end testing process including test definition, execution and reporting. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		
	ICAT5077B	Develop detailed test plan

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. Develop test schedule	1.1.Determine testing requirements and objectives 1.2.Review test plan, where available 1.3.Develop testing timeline and allocate resources 1.4.Document test objectives and schedule according to test procedures and distribute to <i>appropriate person</i> 1.5.Obtain feedback and incorporate relevant changes
2. Complete test procedures	2.1.Copy necessary code into the testing environment 2.2.Allocate and manage personnel carrying out the testing process 2.3.Administer alterations/changes to the code 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 3.2.Document outcomes of system test for use in subsequent development phases

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Problem solving skills for a defined range of unpredictable problems involving participation in the development of strategic initiatives (e.g. when programs are booked out of the test environment either to development for error correction or to be copied into an 'acceptance' library when approved for production)
- Plain English literacy and communication skills in relation to analysis, evaluation and presentation of information (e.g. when the procedures and documentation used in the system test are reviewed, for use again when implementing subsequent phases)
- Application usage skills in relation to analysis, evaluation and presentation of information (e.g. when programs are booked out of the test environment to be copied into an 'acceptance' library/server when approved for production)
- Questioning and active listening skills (e.g. when the suitability of the system: fulfilment of objectives and suitability to all parties is reviewed)
- Project planning skills in relation to scope, time, cost, quality, communications and risk management (e.g. when results documentation is completed to the standard required for the project)
- Research skills for identifying, analysing and evaluating broad features of system testing and best practice in system testing (e.g. when end of the system test is determined according to when the required level of confidence is achieved)
- Negotiation skills in relation to other team members and applied to a defined range of predictable problems (e.g. when completion date and warranty issues of defects found are negotiated)

Required knowledge

- Detailed knowledge of system/application being tested
- Broad knowledge of testing techniques, with detailed knowledge of features and processes in some areas
- Broad knowledge of automated test tools, with detailed knowledge of features and processes in some areas
- Broad general knowledge of system requirements, with detailed knowledge of the particular system requirements and features
- Detailed knowledge of organisational procedures (e.g. when reviewing the completeness and accuracy of the system)

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

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

Evidence of the following is essential:

- Assessment must confirm sufficient knowledge of entire system requirements, both development and implementation in order to effectively manage and administer a full testing process.
- Assessment must confirm ability to successfully review and accept or reject a pre-implemented system based on test outcomes.

To demonstrate competency in this unit the person will require access to:

- Human resources assigned and in place
- Requirements and design documentation
- Test plan
- All test hardware and environments in place and free for system test use
- System/application suitable for testing

Context of and specific resources for assessment

The person will have clearly identified the results of the systems tests. The system test should clearly confirm that:

- Functionality, delivered by the development team, is as specified by the business in the business design specification document and the requirements documentation
- Software is of high quality; the software will replace/support the intended business functions and achieves the standards required by the organisation for the development of new systems
- Software delivered interfaces correctly with existing systems

If the system test does not confirm the above, then the person will have documented how the system has not

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	met the test criteria. The system test is a fully functional exercising of the system to be implemented, as such, all resources necessary to execute the entire system will be required. Effective test management should ensure that all testing is carried out on the same platform as the completed system. Scheduled testing should be on the production platform and the production environment will be required as part of test preparation. The breadth, depth and complexity covering planning and initiation of alternative approaches to skills or knowledge applications across a broad range of technical and/or management requirements, evaluation and coordination would be characteristic. Assessment must ensure: • The demonstration of competency may also require self-directed application of knowledge and skills, with substantial depth in some areas where judgement is required in planning and selecting appropriate equipment, services and techniques for self and others. • Applications involve participation in development of strategic initiatives as well as personal responsibility and autonomy in performing complex technical operations or organising others. It may include participation in teams including teams concerned with planning and evaluation functions. Group or team coordination may also be involved.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related

EVIDENCE GUIDE	
	matters is provided in ICA05 Section 1. • Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. An individual demonstrating this competency would be able to: • Demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas • Analyse and plan approaches to technical problems or management requirements • Transfer and apply theoretical concepts and/or technical or creative skills to a range of situations • Evaluate information, using it to forecast for planning or research purposes • Take responsibility for own outputs in relation to broad quantity and quality parameters • Take some responsibility for the achievement of group outcomes • Maintain knowledge of industry products and services

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.

<i>Appropriate person</i> may include:	• supervisor • teacher • authorised business representative • client

Unit Sector(s)

Unit sector	Test

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAT5083B Develop and conduct client acceptance test

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to plan and conduct acceptance testing as part of the process whereby clients will determine whether to accept the system. These units are linked and form an appropriate cluster: • ICAA5048B Develop configuration management protocols • ICAA5056B Prepare disaster recovery and contingency plans • ICAT5077B Develop detailed test plan No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		
	ICAW4027B	Relate to clients on a business level

Prerequisite units		

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 acceptance criteria and develop test plan	1.1. Review system requirements documentation and project plans to identify mandatory system objectives and optional criteria/conditions for acceptance of system 1.2. Develop test plan based on system requirements 1.3. Review and validate the test plan based on mandatory criteria/conditions, and system objectives and requirements 1.4. Clearly communicate the test plan to the client and prepare the client for the acceptance test 1.5. Notify appropriate person of the scheduled acceptance test
2. Perform functional testing on software modules	2.1. Prepare the test environment for client use 2.2. Perform the testing according to the test plan and documentation

ELEMENT	PERFORMANCE CRITERIA
	2.3. Execute each test cycle 2.4. Document errors, difficulties or communicated problems
3. Validate test results against expected results	3.1. Record and investigate discrepancies and corrections according to project procedures and timeframe 3.2. Brief the client on outcomes to ensure the client understands test results 3.3. Monitor system performance as required 3.4. Reschedule required code changes or modifications
4. Obtain signoff and acceptance	4.1. Confirm with the client the results of the test 4.2. Identify and document client concerns over system operation, identify possible solutions, and if necessary notify appropriate development staff 4.3. Obtain client acceptance and sign-off by the client of that acceptance 4.4. Seek and formalise the agreement of involved parties regarding the rescheduling of further required maintenance

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Analysis skills in relation to analysis, evaluation and presentation of information (e.g. when mandatory system objectives and optional criteria/conditions for acceptance of system are reviewed through system requirements documentation and project plans)
- Questioning and active listening skills (e.g. when test phases are confirmed with client to ensure client understanding of test sequences)
- Project planning skills in relation to scope, time, cost, quality, communications and risk management (e.g. when successful test is confirmed with client)
- Negotiation skills in relation to other team members and applied to a defined range of predictable problems

Required knowledge

- Detailed knowledge of system/application being tested

REQUIRED SKILLS AND KNOWLEDGE

- Broad knowledge of testing techniques, with detailed knowledge of features and processes in some areas
- Broad knowledge of automated test tools, with detailed knowledge of features and processes in some areas
- Detailed knowledge of client user requirements (e.g. when identifying acceptance criteria and testing plan developed)
- Detailed knowledge of business rules and standards (e.g. when identifying acceptance criteria and testing plan developed)

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

Evidence of the following is essential:

- Assessment must confirm ability to review test plan documentation and ensure all client acceptance requirements will be explicitly and accurately tested to predetermined standards of consistent performance.

To demonstrate competency in this unit the person will require access to:

- Business requirements
- Project documentation, including templates, standards, specifications, client user and technical manuals
- Test plan
- Acceptance criteria
- Technical components of system, including software, hardware, network
- Staffing resources, including development, operations, client user representatives (in a simulation, the trainer/assessor may take on some of

EVIDENCE GUIDE	
	these roles) • System/application suitable for testing
Context of and specific resources for assessment	Formal acceptance testing is conducted to determine whether or not a system satisfies its acceptance criteria and to enable the customer to determine whether or not to accept the system. Such testing is designed to determine whether the system meet the requirements specified in the contract or by the user. Client user acceptance is a phase within the overall development life cycle of a system. Client acceptance testing usually occurs during the implementation phase, but planning and preparation should begin in the design phase, and run concurrently (design/code/implementation). Acceptance tests relate to the functionality of the system as stated in the requirements specification, and functional test cases must be selected to satisfy the agreed acceptance criteria. These tests cover areas such as performance, security, reliability, load/stress testing, volume testing, human computer interaction tests, configuration testing, compatibility testing, documentation, and human procedures. Client acceptance tests should be a strictly controlled process. The breadth, depth and complexity covering planning and initiation of alternative approaches to skills or knowledge applications across a broad range of technical and/or management requirements, evaluation and coordination would be characteristic. Assessment must ensure: • The demonstration of competency may also require self-directed application of knowledge and skills, with substantial depth in some areas where judgement is required in planning and selecting appropriate equipment, services and techniques for self and others.

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	• Applications involve participation in development of strategic initiatives as well as personal responsibility and autonomy in performing complex technical operations or organising others. It may include participation in teams including teams concerned with planning and evaluation functions. Group or team coordination may also be involved. The person will need to ensure that: • System operates in the manner expected • Supporting material such as procedures and forms is accurate and suitable for the purpose intended • There are no gaps in functionality • Individual elements and the overall system provide the desired result or functionality • Unit and suite user documentation is available and accurate • User-accepted code is copied correctly to the live area. • Version numbers are correct and the code is operational
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills.

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	The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • ICAA5048B Develop configuration management protocols • ICAA5056B Prepare disaster recovery and contingency plans • ICAT5077B Develop detailed test plan An individual demonstrating this competency would be able to: • Demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas • Analyse and plan approaches to technical problems or management requirements • Transfer and apply theoretical concepts and/or technical or creative skills to a range of situations • Evaluate information, using it to forecast for planning or research purposes • Take responsibility for own outputs in relation to broad quantity and quality parameters • Take some responsibility for the achievement of group outcomes • Maintain knowledge of industry products and services

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

RANGE STATEMENT

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.

Client may include but is not limited to:

- internal departments
- external organisations
- clubs
- individual people
- internal employees

Appropriate person may include:

- supervisor
- teacher
- authorised business representative
- client

Unit Sector(s)

Unit sector	Test

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAT5084B Perform stress and load testing on integrated platform

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to plan and perform stress and load testing on the integrated platform. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

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. Create test plan	1.1. Determine scope, objectives and specific tests in order to place load on the <i>system</i> , include expected results and performance impact 1.2. Determine and document standards for acceptance/compliance with <i>client</i> 1.3. Determine and document clear responsibilities and contact points with third-party suppliers for support 1.4. Ascertain testing resources and tools from a range of available sources 1.5. Identify and record base system loads or level of activity against which the test will be measured 1.6. Identify processes/steps in test, including automated testing 1.7. Assemble test plan documentation and distribute to <i>appropriate person</i>
2. Undertake test	2.1. Implement test plan according to test plan sequencing 2.2. Confirm that each technology <i>component</i> operates correctly within integrated platform 2.3. Confirm that integrated platform operates to project and industry standards 2.4. Undertake documentation of testing outcomes to

ELEMENT	PERFORMANCE CRITERIA
	meet project standards 2.5. Detect faults
3. Diagnose and resolve faults	3.1. Identify and document faults according to project plan 3.2. Diagnose faults and take corrective action 3.3. Manage problem resolution processes according to project procedures 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

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Problem solving skills for a broad range of unpredictable problems involving analysis, diagnosis, evaluation and the development of new criteria, knowledge or procedures (e.g. when problem resolution processes are managed according to project procedures)
- Estimating skills for use across a range of unpredictable project contexts in relation to either varied or highly specific functions (e.g. when scope, objectives and specific tests are determined in order to place load on the system and expected results and performance impact are determined)
- An ability to collect information and gain consensus on concepts, (e.g. when standards for acceptance/compliance are determined with client, and when clear responsibilities and contact points with third-party suppliers for support are determined)
- Negotiation and influencing skills in relation to team members and applied to a undefined range of unpredictable problems (e.g. when clear responsibilities and contact points with third-party suppliers for support are determined)

Required knowledge

- Detailed knowledge of program design and performance

REQUIRED SKILLS AND KNOWLEDGE

- Detailed knowledge of system/application requirements and performance
- Broad knowledge of testing techniques, with detailed knowledge of features and processes in some areas
- Broad knowledge of automated test tools, with detailed knowledge of features and processes in some areas

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

Evidence of the following is essential:

- Assessment must confirm the ability to comprehensively test the system's ability to cope with expected high levels of data volume while meeting the predetermined performance standards.
- Assessment must confirm the ability to identify problems and identify fault resolution strategies that may occur during stress testing.

To demonstrate competency in this unit the person will require access to:

- Business requirements
- Project documentation, including templates, standards, specifications, client user and technical manuals
- Business rules and expected loads
- Base tools
- Technical components of system, including software, hardware, network
- Staffing resources, including development, operations, client user representatives (in a simulation, the trainer/assessor may take on some of these roles)

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	• System/application suitable for testing
Context of and specific resources for assessment	The person will need to ensure that: • System operates in the manner expected under expected conditions • Supporting material such as procedures and forms is accurate and suitable for the purpose intended • Stated conditions reflect the upper limits expected by client • There are no unacceptable reductions in service • Individual elements and the overall system provide the desired result or functionality • Documentation is available and accurate Stress load testing usually occurs during the implementation phase, but planning and preparation should begin in the design phase, and run concurrently (design/code/implementation). The breadth, depth and complexity covering planning and initiation of alternative approaches to skills or knowledge applications across a broad range of technical and/or management requirements, evaluation and coordination would be characteristic. Assessment must ensure: • The demonstration of competency may also require self-directed application of knowledge and skills, with substantial depth in some areas where judgement is required in planning and selecting appropriate equipment, services and techniques for self and others. • Applications involve participation in development of strategic initiatives as well as personal responsibility and autonomy in performing complex technical operations or organising others. It may include participation in teams including teams concerned with planning and evaluation functions. Group or team coordination may also be involved.

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Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. - Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. - Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. An individual demonstrating this competency would be able to: - Demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas - Analyse and plan approaches to technical problems or management requirements - Transfer and apply theoretical concepts and/or technical or creative skills to a range of situations - Evaluate information, using it to forecast for planning or research purposes

EVIDENCE GUIDE

	• Take responsibility for own outputs in relation to broad quantity and quality parameters • Take some responsibility for the achievement of group outcomes • Maintain knowledge of industry products and services

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.

<i>System</i> may include but is not limited to:	• databases • applications • servers • operating systems • gateways • application service provider • ISP
<i>Appropriate person</i> may include:	• supervisor • teacher • authorised business representative • client
<i>Component</i> may include:	• servers • networks • databases • software integration and more
<i>Client</i> may include but is not limited to:	• internal departments • external organisations • individual people • internal employees
<i>Project plan</i> may include:	• parties and their responsibilities • project scope

RANGE STATEMENT

	• project objectives • schedule • project budget

Unit Sector(s)

Unit sector	Test

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAU1128B Operate a personal computer

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to operate a personal computer, including starting the PC, logging in, using and understanding desktop icons and their links to underlying programs, navigating a directory structure, saving work, printing, closing down the PC. The following unit is linked and forms an appropriate cluster: • ICAU1129B Operate a word processing application No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units	

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. Start the computer	1.1. Check peripheral device connections for correct position 1.2. Switch on power at both the power point and computer
2. Access basic system information	2.1. Insert user name and password as prompted and note access, privacy, security and related conditions of use displayed on introductory screens 2.2. Navigate through the operating system to access system information to identify system configuration and application versions in operation 2.3. Use on-line help functions as required
3. Navigate and manipulate desktop environment	3.1. Create and customise desktop icons 3.2. Select, open and close desktop icons to access application programs 3.3. Manipulate application windows and return desktop to original condition
4. Organise basic directory/folder	4.1. Create and name directories and subdirectories 4.2. Identify attributes of directories

ELEMENT	PERFORMANCE CRITERIA
structure and files	4.3. Move subdirectories between directories 4.4. Rename directories as required 4.5. Access directories and subdirectories via different paths
5. Organise files for user and/or organisation requirements	5.1. Use system browser to search drives for specific files 5.2. Access the most commonly used types of files in the directories 5.3. Select, open and rename groups of files as required 5.4. Move files between directories 5.5. Copy files to disk 5.6. Restore deleted files as necessary 5.7. Erase and format disks as necessary
6. Print information	6.1. Add a printer if required and ensure correct printer settings 6.2. Change the default printer if appropriate 6.3. Print information from an installed printer 6.4. View and delete progress of print jobs as required
7. Shut down computer	7.1. Save any work to be retained and close all open application programs correctly 7.2. Shut down computer correctly

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Saving and retrieving files to various locations
- Mouse management (button usage) for different applications
- Reading and writing at a level where basic workplace documents are understood
- Ability to communicate with peers and supervisors
- Seeking assistance and expert advice
- Interpretation of user manuals and help functions
- The ability to input user access details for accessing a personal computer (PC) (possibly a networked environment)

REQUIRED SKILLS AND KNOWLEDGE

Required knowledge

- Basic keyboarding skills
- Computer functions
- Basic parts of a computer and various hardware components
- Storage devices and basic categories
- Basic software operation

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

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

Evidence of the following is essential:

- Assessment must confirm the ability to use software, navigate around the desktop, use system features to perform tasks, and save results of work.

To demonstrate competency in this unit the person will require access to:

- Personal computer
- Printer
- Mouse and keyboard
- Monitor
- Basic software

Context of and specific resources for assessment

Using a personal computer is an essential business function and basic core skill in most workplaces. Demonstration of this competency will require:

- Knowledge of PC operations in a narrow range of areas
- Basic PC practical skills
- Performing a sequence of routine tasks after having received clear direction

EVIDENCE GUIDE

	- Receiving and passing on messages and information. The breadth, depth and complexity of knowledge and skills in this competency would prepare a person to perform a defined range of activities many of which may be routine and predictable. Assessment must ensure: - Demonstration of knowledge by recall in a narrow range of areas; demonstrating basic practical skills, such as the use of relevant tools and applications; performing a sequence of routine tasks given clear direction; and receiving and passing on messages or information. - Applications may include a variety of employment related skills including preparatory access and participation skills, broad-based induction skills and/or specific workplace skills. They may also include participation in a team or work group.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1 - Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. - Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills.

EVIDENCE GUIDE	
	The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: - ICAU1129B Operate a word processing application An individual demonstrating this competency would be able to: - Demonstrate knowledge by recall in a narrow range of areas - Demonstrate basic practical skills, such as the use of relevant tools - Perform a sequence of routine tasks given clear direction - Receive and pass on messages and information - Maintain knowledge of industry products and services

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.	
<i>Peripheral device</i> may include but is not limited to:	- mouse - keyboard - visual display unit - monitor - printer

RANGE STATEMENT	
Computer may include:	• laptops • workstations • servers • other devices
Application programs may include:	• database programs • word processors • email programs • internet browsers • system browsers • spreadsheets
Operating System may include but is not limited to:	• Linux 7.0 or above • Windows 2000 or above • Apple OS X or above
System information may include but is not limited to:	• hardware and software components that run a computer
On-line help functions	• An instruction manual or a portion of the manual, integrated into the program
Attributes	• Indicates several properties of the directory. For example, they indicate whether the directory is read-only, whether it needs to be backed up, and whether it is visible or hidden
System browser may include but is not limited to:	• Windows Explorer • Konqueror
Disks may include but are not limited to:	• floppy disks • CDs • CD-RW (compact disks-read write) • DVD RW • zip disks • flash drives • solid state hard drives
Printer settings may include:	• layout • paper size • paper tray • cartridge type • number of copies • orientation
Information may include but is not limited to:	• documents • test pages

RANGE STATEMENT

	• web pages • other output

Unit Sector(s)

Unit sector	Use

Co-requisite units

Co-requisite units	

Competency field

Competency field	

ICAU1129B Operate a word processing application

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to correctly operate word processing applications and perform basic operations including the creation and formatting of documents, creating tables, printing labels and mail merge. The following units are linked and form an appropriate cluster: • ICAU1128B Operate a personal computer • ICAU1130B Operate a spreadsheet application • ICAU1131B Operate a database application • ICAU1132B Operate a presentation package No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units	

Prerequisite units		

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. Create documents	1.1. Open word processing application and create/open document and add data according to <i>information requirements</i> 1.2. Use document templates as required 1.3. Use simple <i>formatting tools</i> when creating the document 1.4. Save document to correct directory
2. Customise basic settings to meet page layout conventions	2.1. Adjust page layout to meet information requirements 2.2. Open and view different <i>toolbars</i> 2.3. Change <i>font format</i> to suit the purpose of the document 2.4. Change <i>alignment</i> and line spacing according to

ELEMENT	PERFORMANCE CRITERIA
	document information requirements 2.5.Modify margins to suit the purpose of the document 2.6.Open and switch between several documents
3. Format document	3.1.Use formatting features and styles as required 3.2.Highlight and copy text from another area in the document or from another active document 3.3.Insert headers and footers to incorporate all necessary data 3.4.Save document in another file format 3.5.Save and close document to disk
4. Create tables	4.1.Insert a standard table into a document 4.2.Change cells to meet information requirements 4.3.Insert and delete columns and rows as necessary 4.4.Use formatting tools according to style requirements
5. Add images	5.1.Insert appropriate images in a document and customise as necessary 5.2.Position and resize images to meet the document formatting needs
6. Use mail merge	6.1.Create simple mailing list in layout suitable for merging 6.2.Create or select another document for merging 6.3.Mail merge list with other document
7. Print documents	7.1.Preview document in print preview mode 7.2.Select basic print settings 7.3.Print document or part of the document from printer

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Low-level decision making in relation to a limited range of routine areas
- Problem solving skills in known areas during normal routine

REQUIRED SKILLS AND KNOWLEDGE

- Reading and writing at a level where basic workplace documents are understood
- Clear and precise communication
- Interpretation of user manuals and help functions

Required knowledge

- Organisational benchmarks for minimum typing skills, including speed and accuracy
- Creating and opening documents
- Formatting documents
- Inserting tables and images
- Saving, printing and closing documents
- Mail merge function

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

Evidence of the following is essential:

- Assessment must ensure the ability to create open and retrieve documents, customise basic settings, format documents, create tables, add objects and images, and save and print documents.

To demonstrate competency in this unit the person will require access to:

- Personal computer
- Printer
- Mouse and keyboard
- Monitor
- Basic software
- Documents detailing organisational style guide/policy
- Documents or information containing data suitable

EVIDENCE GUIDE	
	for use with word processing packages
Context of and specific resources for assessment	Operating a word processing application is a core function for almost all businesses and is an essential skill. The breadth, depth and complexity of knowledge and skills in this competency would prepare a person to perform a defined range of activities many of which may be routine and predictable. Assessment must ensure • Applications may include a variety of employment related skills including preparatory access and participation skills, broad-based induction skills and/or specific workplace skills. They may also include participation in a team or work group.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment

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	purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • ICAU1128B Operate a personal computer • ICAU1130B Operate a spreadsheet application • ICAU1131B Operate a database application • ICAU1132B Operate a presentation package An individual demonstrating this competency would be able to: • Demonstrate knowledge by recall in a narrow range of areas • Demonstrate basic practical skills, such as the use of relevant tools • Perform a sequence of routine tasks given clear direction • Receive and pass on messages and information Demonstration of these competencies would involve: • Demonstrating basic word processing skills in a moderate range of areas • Applying a defined range of skills to basic processing operations • Applying known processing solutions to a limited range of predictable problems • Performing a range of basic processing tasks where operating options are varied • Assessing and recording information from varied sources • Maintain knowledge of industry products and services

Range Statement**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.

Information requirements may include:	• memos • letters • minutes • agendas • other business documents required by the organisation
Formatting tools	• Menu commands within the application, such as: help, search and replace, spell check, undo, cut, copy, paste, borders, shading.
Toolbars can contain:	• buttons • menus • a combination of both
Font format	• Font format is the combination of typeface and other attributes, such as size, pitch and spacing of the font
Alignment may be:	• left • centred • right • justified
Formatting features may include:	• italics • bold • underline • hyphenation
File format may include but is not limited to:	• html pages • pdf files • text files • doc files • sxw (star office) files • CSV files
Disk may include but are not limited to:	• CDs • CD-RW (Compact Discs-Read Write) • DVD RW • zip disks

RANGE STATEMENT	
	• solid state hard drives
Images may include but is not limited to:	• graphics • clipart • pictures
Print settings may include:	• layout • paper size • number of copies • orientation • sides

Unit Sector(s)

Unit sector	Use

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAU1130B Operate a spreadsheet application

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to correctly operate spreadsheet applications and perform basic operations. The following units are linked and form an appropriate cluster: • ICAU1128B Operate a personal computer • ICAU1129B Operate a word processing application • ICAU1131B Operate a database application • ICAU1132B Operate a presentation package No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

Prerequisite units		

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. Create spreadsheets	1.1. Open spreadsheet application and create/open spreadsheet file and enter numbers, text and symbols into cells according to information requirements 1.2. Enter simple formulas using cell referencing where required 1.3. Correct formulas when error messages occur 1.4. Use a range of common tools during spreadsheet development 1.5. Edit columns and rows within the spreadsheet 1.6. Use the auto-fill function to increment data where required 1.7. Save spreadsheet to correct directory or folder
2. Customise basic settings	2.1. Adjust page layout to meet user requirements or special needs 2.2. Open and view different toolbars

ELEMENT	PERFORMANCE CRITERIA
	2.3. Change font settings so they are appropriate for the purpose of the document 2.4. Change alignment options and line spacing according to spreadsheet formatting features 2.5. Format cell to display different styles as required 2.6. Modify margin sizes to suit the purpose of the spreadsheets 2.7. View multiple spreadsheets concurrently
3. Format spreadsheet	3.1. Use formatting features as required 3.2. Copy selected formatting features from another cell in the spreadsheet or from another active spreadsheet 3.3. Use formatting tools as required within the spreadsheet 3.4. Align information in a selected cell as required 3.5. Insert headers and footers using formatting features 3.6. Save spreadsheet in another format 3.7. Save and close spreadsheet to disk
4. Incorporate object and chart in spreadsheet	4.1. Import an object into an active spreadsheet 4.2. Manipulate imported object by using formatting features 4.3. Create a chart using selected data in the spreadsheet 4.4. Display selected data in a different chart 4.5. Modify chart using formatting features
5. Print spreadsheet	5.1. Preview spreadsheet in print preview mode 5.2. Select basic printer options 5.3. Print spreadsheet or selected part of spreadsheet 5.4. Submit the spreadsheet to the appropriate person for approval or feedback

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Low-level decision making in relation to creating and manipulating spreadsheet

REQUIRED SKILLS AND KNOWLEDGE

data

- Reading and writing at a level where basic workplace documents are understood
- Clear and precise communication
- Interpretation of user manuals

Required knowledge

- Logging in procedures relating to accessing a PC
- Basic mathematics
- Basic technical terminology in relation to reading help files and prompts

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

Evidence of the following is essential:

- Assessment must confirm ability to complete basic operations associated with creating, formatting, saving and printing a spreadsheet, including creating basic formulas and working with objects and charts.

To demonstrate competency in this unit the person will require access to:

- Personal computer
- Printer
- Mouse and keyboard
- Monitor
- Basic software
- Documents or information containing data suitable for creating spreadsheets

Context of and specific resources for assessment

An individual demonstrating this competency may use pre-existing data (e.g. documents, spreadsheet data, data from database tables) or create new data when creating

EVIDENCE GUIDE

	and manipulating spreadsheets. The use of spreadsheets for business and mathematical applications is widespread. In some cases, spreadsheets can operate as sophisticated computerised ledgers and enable the collation, manipulation and presentation of complex data. The breadth, depth and complexity of knowledge and skills in this competency would prepare a person to perform a defined range of activities many of which may be routine and predictable. Assessment must ensure • Applications may include a variety of employment related skills including preparatory access and participation skills, broad-based induction skills and/or specific workplace skills. They may also include participation in a team or work group.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors,

EVIDENCE GUIDE	
	subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • ICAU1128B Operate a personal computer • ICAU1129B Operate a word processing application • ICAU1131B Operate a database application • ICAU1132B Operate a presentation package An individual demonstrating this competency would be able to: • Demonstrate knowledge by recall in a narrow range of areas • Demonstrate basic practical skills, such as the use of relevant tools • Perform a sequence of routine tasks given clear direction • Receive and pass on messages and information • Maintain knowledge of industry products and services

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.	
<i>Tools</i> may include:	• help • search and replace • spell check

RANGE STATEMENT	
	• undo • simple formatting tools
Edit may include but is not limited to:	• add • select • copy • paste • delete • move
Data may include:	• text or symbols added to the document
Layout may include but is not limited to:	• display modes • orientation • size
Toolbars may contain:	• buttons • menus • a combination of both
Font settings may include:	• type • size • colour
Alignment may be:	• left • centred • right • justified
Formatting features may include:	• italics • bold • underline • hyphenation
Formatting tools	• Menu commands within the application, such as: help, search and replace, spell check, undo, cut, copy, paste.
Format	• Saving the spreadsheet as another type of document, such as: HTML, XML, comma separated values or text.
Disk may include but are not limited to:	• disks • CDs • CD-RW (Compact Discs-Read Write) • DVD RW • zip disks • solid state hard drives

RANGE STATEMENT	
Object	Any item that can be inserted into the spreadsheet, such as: other documents, pictures and sound.
Appropriate person may include:	- supervisor - teacher - authorised business representative - client

Unit Sector(s)

Unit sector	Use

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAU1131B Operate a database application

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to operate database applications and perform basic operations. The following units are linked and form an appropriate cluster: • ICAU1128B Operate a personal computer • ICAU1129B Operate a word processing application • ICAU1130B Operate a spreadsheet application • ICAU1132B Operate a presentation package No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units	

Prerequisite units		

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. Create database	1.1.Open a database application and design a two-table simple relational database incorporating basic <i>design principles</i> 1.2.Develop a table with fields and <i>attributes</i> according to database usage, as well as user requirements 1.3.Create a primary key and establish an index for each table 1.4.Modify table layout and field <i>attributes</i> as required 1.5.Create a <i>relationship</i> between the two tables 1.6.Add and modify data in a table according to information requirements 1.7.Add and delete records as required 1.8.Save and close down database to <i>disk</i>
2. Customise basic settings	2.1.Adjust page layout to meet user requirements

ELEMENT	PERFORMANCE CRITERIA
	2.2. Open and view different toolbars 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 3.2. Modify reports to include/exclude additional requirements 3.3. Distribute reports to appropriate person in a suitable format
4. Create forms	4.1. Use a wizard to create a simple form 4.2. Open existing database and modify records through a simple form 4.3. Rearrange objects within the form to accommodate information requirements
5. Retrieve information	5.1. Access existing database and locate required records 5.2. Create simple query and retrieve required information 5.3. Develop query with multiple criteria and retrieve required information 5.4. Select data and display appropriately

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Reading and writing at a level where basic workplace documents are understood
- Clear and precise communication
- Interpretation of user manuals
- Ability to create a simple database

Required knowledge

- Basic database design
- Knowledge of relationships between tables (cardinality)
- Knowledge of forms, reports and queries for retrieving and displaying 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.

Overview of assessment

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

Evidence of the following is essential:

- Assessment must ensure a person has the ability to design and develop a simple database using a standard database package. The person must add data, use queries, and create forms and reports.

To demonstrate competency in this unit the person will require access to:

- Personal computer
- Basic software
- Documents or information containing data suitable for creating a database

Context of and specific resources for assessment

An individual demonstrating these competencies, may use pre-existing data (e.g. documents, spreadsheet data, data from database tables) or create new data when creating and manipulating databases and tables.

The breadth, depth and complexity of knowledge and skills in this competency would prepare a person to perform a defined range of activities many of which may be routine and predictable.

- Assessment must ensure

Applications may include a variety of employment related skills including preparatory access and participation skills, broad-based induction skills and/or specific workplace skills. They may also include participation in a team or work group.

Method of assessment

The purpose of this unit is to define the standard of performance to be achieved in the workplace. In

EVIDENCE GUIDE

	undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • ICAU1128B Operate a personal computer • ICAU1129B Operate a word processing application • ICAU1130B Operate a spreadsheet application • ICAU1132B Operate a presentation package An individual demonstrating this competency would be able to: • Demonstrate knowledge by recall in a narrow range of areas • Demonstrate basic practical skills, such as the use of relevant tools • Perform a sequence of routine tasks given clear direction

EVIDENCE GUIDE

	• Receive and pass on messages and information • Maintain knowledge of industry products and services

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.

<i>Design principles</i> may include:	• naming conventions • data layout • formatting
<i>Attributes</i> may include:	• name • data type • size
<i>Relationship</i> may be but is not limited to:	• one-to-one • one-to-many • many-to-many relationships
<i>Disk</i> may include but are not limited to:	• diskettes (floppy disks) • CDs • CD-RW (Compact Discs-Read Write) • DVD RW • zip disks • solid state hard drives
<i>Page layout</i> may include:	• landscape • portrait
<i>Toolbars</i> may contain:	• buttons • menus • a combination of both
<i>Font</i>	• The combination of typeface and other attributes, such as size, pitch, and spacing character or symbol

RANGE STATEMENT	
Appropriate person may include:	• supervisor • teacher • authorised business representative • client
Objects may include:	• buttons • checkboxes • option buttons • text boxes • drop down lists

Unit Sector(s)

Unit sector	Use

Co-requisite units

Co-requisite units	

Competency field

Competency field	

ICAU1132B Operate a presentation package

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to operate presentation applications and perform basic operations. The following units are linked and form an appropriate cluster: • ICAU1128B Operate a personal computer • ICAU1129B Operate a word processing application • ICAU1130B Operate a spreadsheet application • ICAU1131B Operate a database application No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

Prerequisite units		

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. Create presentations	1.1. Open a presentation package application and create a simple design for a presentation according to organisational requirements 1.2. Open a blank presentation and add text and graphics 1.3. Apply existing styles within a presentation 1.4. Use presentation template and slides to create a presentation 1.5. Use various <i>tools</i> to improve the look of the presentation 1.6. Save presentation to correct directory
2. Customise basic settings	2.1. Adjust display to meet user requirements 2.2. Open and view different <i>toolbars</i> to view options 2.3. Ensure <i>font settings</i> are appropriate for the purpose of the presentation

ELEMENT	PERFORMANCE CRITERIA
	2.4.View multiple slides at once
3. Format presentation	3.1.Use and incorporate organisational charts, bulleted lists and modify as required 3.2.Add objects and manipulate to meet presentation purposes 3.3.Import objects and modify for presentation purposes 3.4.Modify slide layout, including text and colours to meet presentation requirements 3.5.Use formatting tools as required within the presentation 3.6.Duplicate slides within and/or across a presentation 3.7.Reorder the sequence of slides and/or delete slides for presentation purposes 3.8.Save presentation in another format 3.9.Save and close presentation to disk
4. Add slide show effects	4.1.Incorporate preset animation and multimedia effects into presentation as required to enhance the presentation 4.2.Add slide transition effects to presentation to ensure smooth progression though the presentation 4.3.Test presentation for overall impact 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 5.2.Select preferred slide orientation 5.3.Add notes and slide numbers 5.4.Preview slides and spell check before presentation 5.5.Print the selected slides and submit presentation to appropriate person for feedback

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

REQUIRED SKILLS AND KNOWLEDGE

- Reading and writing at a level where basic workplace documents are understood
- Clear and precise communication
- Interpretation of user manuals
- Low-level decision making in relation to creating an electronic presentation

Required knowledge

- Basic technical terminology in relation to reading help files and prompts
- Organisational benchmarks for keyboarding
- Different types of presentations: formal, informal; audience types
- Presentation pitfalls

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

Evidence of the following is essential:

- Assessment must ensure the learner can create, format and prepare presentations for distribution and display.

To demonstrate competency in this unit the person will require access to:

- PC and printer
- Documents detailing organisational style guide/policy

Context of and specific resources for assessment

Presentations are an important form of communication and marketing used by organisations to convey information; presentations may be formal or informal. An individual demonstrating this competency will be able to present a set range of data in a simple and direct format using a presentation package.

EVIDENCE GUIDE	
	The breadth, depth and complexity of knowledge and skills in this competency would prepare a person to perform a defined range of activities many of which may be routine and predictable. Assessment must ensure • Applications may include a variety of employment related skills including preparatory access and participation skills, broad-based induction skills and/or specific workplace skills. They may also include participation in a team or work group.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example:

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	• ICAU1128B Operate a personal computer • ICAU1129B Operate a word processing application • ICAU1130B Operate a spreadsheet application • ICAU1131B Operate a database application An individual demonstrating this competency would be able to: • Demonstrate knowledge by recall in a narrow range of areas • Demonstrate basic practical skills, such as the use of relevant tools • Perform a sequence of routine tasks given clear direction • Receive and pass on messages and information • Maintain knowledge of industry products and services

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.

<i>Tools</i> may include:	• help • search and replace • spell check • undo • simple formatting tools
<i>Font settings</i> may include:	• type • size • colour
<i>Objects</i> may include:	• other documents • pictures • tables

RANGE STATEMENT	
	• sound
Formatting tools	• Menu commands within the application, such as help, search and replace, spell check, undo, cut, copy, paste
Format	• Saving the presentation as another type of document, such as: HTML, XML, comma separated values or text
Disk may include but are not limited to:	• Floppy disks • CDs • CD-RW (Compact Discs-Read Write) • DVD RW • zip disks • solid state hard drives
Print format may include:	• layout • quality • number of copies • colour or black and white
Appropriate person may include:	• supervisor • teacher • authorised business representative • client
User requirements	• How the user wants an application, desktop, computer or document to appear
Toolbars can contain:	• buttons • menus • a combination of both

Unit Sector(s)

Unit sector	Use

Co-requisite units

Co-requisite units	

Co-requisite units		

Competency field

Competency field	

ICAU1133B Send and retrieve information using web browsers and email

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to complete basic internet search tasks as well as send and receive emails with attachments. The following units are linked and form an appropriate cluster: • ICAS1193B Connect a workstation to the internet • ICAU1128B Operate a personal computer • ICAU1129B Operate a word processing application • ICAU1213B Conduct on line transactions • ICAS2243B Detect and protect from spam and destructive software No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

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. Access the internet	1.1. Open an internet browser and set a home page of personal choice by setting internet options 1.2. Adjust the display of the internet browser to suit personal requirements 1.3. Modify toolbar to meet user and internet browser needs 1.4. Access a particular website, note privacy and other conditions of use and retrieve data 1.5. Enter a uniform resource locator (URL), in the address line of the internet browser
2. Search the internet	2.1. Locate and select appropriate search engine and define search expressions based on the data required

ELEMENT	PERFORMANCE CRITERIA
	2.2. Save search expression results and present them in a report according to the information requirements 2.3. Create a bookmark within the internet browser or a link for the required web page and save it in a bookmark folder 2.4. Modify the internet browser options for printing and print a web page 2.5. Close the internet browser
3. Research and apply 'netiquette' principles	3.1. Select search engine and using key word search research the concept of netiquette (or web etiquette) 3.2. Review rules of good online manners from at least two netiquette sites 3.3. Develop a personal list of netiquette principles to be applied to email and newsgroup discussions 3.4. Check that these are consistent with organisational policies
4. Send and organise messages	4.1. Open an email application package and create a new email message 4.2. Add addressee to the email message 4.3. Compose the text of an email message according to organisational guidelines 4.4. Create and add an automatic signature for the user, so that it appears automatically in every new email message that the user creates 4.5. Attach files to the email message, using the attachment feature 4.6. Determine and set a priority for an email message and spell check and edit text as required 4.7. Send the email message 4.8. Reply to received messages and forward as appropriate, using the carbon copy and forward features 4.9. Open and save an attachment to the relevant folder 4.10. Search for an email message and set a priority setting or delete as necessary 4.11. Sort inbox according to sender's name and date received 4.12. Save email messages in a folder 4.13. Compact folder to save space 4.14. Print an email message
5. Create an address	5.1. Manually add an email address to the email package

ELEMENT	PERFORMANCE CRITERIA
book	address book 5.2. Update the address book by transferring the email address from a received message 5.3. Create a distribution list and send out email message

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Ability to implement workstation adjustment according to OH&S guidelines
- Basic analysis in relation to a limited range of routine tasks
- Low-level decision making in relation to a limited range of routine tasks
- Problem solving skills in known areas during normal routine activities
- Reading and writing at a level where basic workplace documents are understood
- Clear and precise communication
- Ability to interpret user manuals
- Using a PC and peripherals
- Cultural understanding

Required knowledge

- Makeup and structure of an internet addresses
- Basic technical terminology in relation to reading help files and prompts
- Log-on procedures for accessing a PC
- Modem speed, traffic loads in relation to times of accessing the internet
- Evaluating and assessing the authority, reliability and authenticity of information
- Organisational guidelines on internet and email usage ('web etiquette' or netiquette)
- Different types of search engines (eg. Google, Alta Vista, Infoseek)
- Different types of messages that occur (e.g. error messages, updates, need for installing plug-ins)

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

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

Evidence of the following is essential:

- Assessment must confirm the ability to browse the internet, search for information, send and receive emails and organise the email client application on the computer.

To demonstrate competency in this unit the person will require access to:

- Organisational style guide/policy
- Organisational policies on internet and email usage
- Personal computer with internet capability

Context of and specific resources for assessment

This competency provides one of the fundamental foundation skills for interacting online. In this context, individuals must recognise their own responsibility in having access to the vast services, sites, systems and people provided by the internet.

The breadth, depth and complexity of knowledge and skills in this competency would prepare a person to perform a defined range of activities many of which may be routine and predictable.

Assessment must ensure

- Applications may include a variety of employment related skills including preparatory access and participation skills, broad-based induction skills and/or specific workplace skills. They may also include participation in a team or work group.

Method of assessment

The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility

	practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.

Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • ICAS1193B Connect a workstation to the internet • ICAU1128B Operate a personal computer • ICAU1129B Operate a word processing application • ICAU1213B Conduct on-line transactions • ICAS2243B Detect and protect from spam and destructive software An individual demonstrating this competency would be able to: • Demonstrate knowledge by recall in a narrow range of areas • Demonstrate basic practical skills, such as the use of relevant tools • Perform a sequence of routine tasks given clear direction • Receive and pass on messages and information

	• Maintain knowledge of industry products and services

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.	
<i>Internet browser</i> may include but is not limited to:	• Netscape Navigator • Internet Explorer • Mozilla • Opera • Galleon • Phoenix • Konqueror • Lynx
<i>Internet options</i> may include but are not limited to:	• configuring of the following options: home page, location of temporary files, privacy level, security level, type of connection and history
<i>Toolbar</i> can contain:	• buttons • menus • a combination of both
<i>Netiquette</i>	• Is sometimes referred to as web etiquette and is an informal code of manners governing online conduct which may include but is not limited to the use of upper and lower case letters in messages, not spamming other users, not posting commercial messages to newsgroups, learning to lurk before posting, respect for other's time, privacy and bandwidth
<i>Search engine</i> may include:	• Snap • Questfinder • Ask Jeeves • Google

RANGE STATEMENT	
	• Metacrawler • Alta Vista • Excite • Infoseek • Findlink • Northern Light • AOL Netfind • Hotbot • LookSmart • Yahoo • Netscape • Lycos • Open Text • WebCrawler • Go To Dot Com • Beaucoup • Meta Search • Search.com • Go2Network • Savvy Search • Profusion • Dogpile • Metagopher
Organisational guidelines may include but are not limited to:	• personal use of emails and internet access • content of emails • downloading information and accessing particular websites • opening mail with attachments • virus risk (MS windows OS and Mac OS only)
Files may include but is not limited to:	• html pages • pdf files • text files • pictures • music • email messages

Unit Sector(s)

Unit sector	Use

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAU1204B Locate and use relevant on-line information

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to use search engines to locate required information on the internet and assess the content of sites for accuracy, currency and/or authority. The following units are linked and form an appropriate cluster: • ICAU1213B Conduct on line transactions • ICAS2243B Detect and protect from spam and destructive software No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

Prerequisite units		

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. Conduct a basic search using a search engine	1.1. Open an internet application and locate and access a <i>search engine</i> on the internet 1.2. Enter appropriate key words into the <i>search engine</i> to locate the desired information 1.3. Refine a search depending on outcomes of the original search 1.4. Conduct a thorough search within a website using the provided internal search facility if available
2. Conduct an advanced search using search tools	2.1. Use advanced search features, provided in most <i>search engines</i> 2.2. Use <i>Boolean search</i> techniques when required to enhance the search 2.3. Use multiple or meta search tools with a range of key words 2.4. Use <i>search engines</i> particular to a field of

ELEMENT	PERFORMANCE CRITERIA
	knowledge to refine the outcome 2.5. Access related virtual community sites and newsgroups and note their objectives and operational arrangements 2.6. Conduct a search with domain names to refine the search
3. Use information that has been located	3.1. Cross-reference the information found by using several websites to determine the accuracy of the information obtained 3.2. Check the date that the website was last updated or the properties of the website to determine the currency of the information 3.3. Determine the website authority by looking at copyright statements, privacy statements and organisational information
4. Save and print information	4.1. Save information found in different file forms 4.2. Print information found in different file forms

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Understanding key words
- Operating a PC
- Opening web pages
- Using PC peripheral hardware

Required knowledge

- Using an internet web browser
- Using internet search functions
- Using research techniques
- Evaluating and assessing the authority of information
- Different types of search engines
- Copyright and privacy statements

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

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

Evidence of the following is essential:

- Assessment must ensure the ability to use search tools to locate information and make an informed assessment of the accuracy, currency, authority and reliability of the site and information located.

To demonstrate competency in this unit the person will require access to:

- Personal computer with internet capability
- Printer

Context of and specific resources for assessment

Locating and using online information is an increasingly important business and personal function. Many organisations encourage activities and transactions to be conducted online. An increasing number of government provided information services and transactions require online user capability for effectiveness.

The sourcing and verification of online information is an increasingly important research task for both individuals and organisations as a growing proportion of suppliers and customers use online facilities to market or secure good and services.

The breadth, depth and complexity of knowledge and skills in this competency would prepare a person to perform a defined range of activities many of which may be routine and predictable.

Assessment must ensure

- Applications may include a variety of employment

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	related skills including preparatory access and participation skills, broad-based induction skills and/or specific workplace skills. They may also include participation in a team or work group.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. - Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. - Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: - ICAU1128B Operate a personal computer - ICAU1133B Send and retrieve information using web browsers and email - ICAU1213B Conduct on-line transactions - ICAS2243B Detect and protect from spam and destructive software

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	An individual demonstrating this competency would be able to: • Demonstrate knowledge by recall in a narrow range of areas • Demonstrate basic practical skills, such as the use of relevant tools • Perform a sequence of routine tasks given clear direction • Receive and pass on messages and information • Maintain knowledge of industry products and services

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.

Search engine may include:

- Snap
- Questfinder
- Ask Jeeves
- Google
- metacrawler
- Alta Vista
- Excite
- infoseek
- Findlink
- Northern Light
- AOL Netfind
- Hotbot
- LookSmart
- Yahoo
- Netscape
- Lycos
- Open Text

RANGE STATEMENT	
	• WebCrawler • Go To Dot Com • Beaucoup • Meta Search • Search.com • Go2Network • Savvy Search • Profusion • Dogpile • Metagopher
Boolean search may use terms such as:	• AND • OR • NOT

Unit Sector(s)

Unit sector	Use

Co-requisite units

Co-requisite units	

Competency field

Competency field	

ICAU1211B Operate accounting applications

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to operate common accounting software packages in order to maintain enterprise financial records. The following unit is linked and forms an appropriate cluster: • ICAU2231B Use computer operating system No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		
	ICAU1128B	Operate a personal computer

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. Customise software	1.1.Load, register and configure software according to operating instructions , as required
2. Create enterprise data	2.1.Establish chart of accounts according to business requirements 2.2.Create and add data on customers and sales 2.3.Create and add data on suppliers and purchases 2.4.Create and add payroll details 2.5.Create and add inventory details 2.6.Add required/suitable tax codes
3. Record and track transactions	3.1.Generate invoices and track their progress 3.2.Record customer payments and update customer details 3.3.Record and track purchases 3.4.Record payment of wages, allowances , taxation and superannuation 3.5.Update business data as required
4. Save and backup data	4.1.Save accounting data to disk 4.2.Make a regular back-up of all accounting data and store in a safe location

ELEMENT	PERFORMANCE CRITERIA
5. Reports are generated as required	5.1.Reconcile accounts 5.2.Generate and print financial reports based on accounting data 5.3.Check financial reports for errors and discrepancies 5.4.Discuss errors with appropriate person and rectify as required

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Ability operate a PC and peripherals
- Use of mathematical ideas and techniques related to recording and analysing basic financial data

Required knowledge

- Features and functions of common accounting software, such as MYOB, Quicken, Phoenix
- Sound understanding of basic accounting concepts, such as assets, liabilities, equity, income, cost of sales, expenses, debtors, creditors
- Sound understanding of basic accounting devices, including accounts, sales journals, purchases, invoices, transaction journals, general ledger, chequebook register
- Features and functions of common accounting reports, including profit and loss, balance sheet, chart of accounts, business activity statements
- Sound understanding of current legislative requirements relating to enterprise requirements including superannuation, income tax rates, goods and services tax, pay as you go

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 of the following is essential: - Assessment must verify the ability to operate accounting applications in order to create and maintain enterprise financial records that meet business and legislative requirements. To demonstrate competency in this unit the person will require access to: - Current commercial accounting applications - PC with appropriate specifications to run the software
Context of and specific resources for assessment	A variety of commercial accounting tools and packages are readily available. A basic knowledge of double-entry accounting and the ability to read financial reports are considered an advantage for this competency. The breadth, depth and complexity of knowledge and skills in this competency would prepare a person to perform a defined range of activities many of which may be routine and predictable. Assessment must ensure Applications may include a variety of employment related skills including preparatory access and participation skills, broad-based induction skills and/or specific workplace skills. They may also include participation in a team or work group.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related

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	matters is provided in ICA05 Section 1. - Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. - Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: - ICAU2231B Use computer operating system An individual demonstrating this competency would be able to: - Demonstrate knowledge by recall in a narrow range of areas - Demonstrate basic practical skills, such as the use of relevant tools - Perform a sequence of routine tasks given clear direction - Receive and pass on messages and information - Maintain knowledge of industry products and services

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.	
Software may include but is not limited to:	• commercial software applications • organisation-specific software
Operating instructions may be in the form of:	• user manual • written instructions from meetings • verbal request • help desk
Business requirements may include:	• customer • supplier • payroll • inventory • tax requirements of the organisation
Allowances may include but is not limited to:	• travel allowance • meal allowance • clothing allowance
Accounting data may include:	• profit and loss statements • balance sheets • revenue • expenses
Disk may include but are not limited to:	• diskettes • CDs • CD-RW (Compact Discs-Read Write) • DVD RW • zip disks • solid state hard drives
Financial reports may include:	• profit and loss statements • balance sheets • business activity statements
Appropriate person may include:	• supervisor • teacher • authorised business representative • client

Unit Sector(s)

Unit sector	Use

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAU1213B Conduct on-line transactions

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to bank, buy or carry out basic consumer transactions online. There may be benefit in concurrent learning of the following unit: • ICAU1128B Operate a personal computer The following units are linked and form an appropriate cluster: • ICAU1128B Operate a personal computer • ICAU1133B Send and retrieve information using web browsers and email • ICAU1204B Locate and use relevant on line information • ICAS2243B Detect and protect from spam and destructive software No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

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. Determine how to undertake online transaction	1.1. Select a product or service according to business needs 1.2. Find an appropriate website to purchase the chosen product 1.3. Check the website for information indicating the trustworthiness of the organisation and the security of merchant processes
2. Undertake online transaction	2.1. Correctly enter required information into relevant fields on merchant's website 2.2. Ensure that all pop-up dialog boxes, prompts or <i>feedback mechanisms</i> are understood

ELEMENT	PERFORMANCE CRITERIA
	2.3. Enter or check preferred transaction options 2.4. Make revisions to transaction options
3. Complete online transaction	3.1. Submit completed information to the website 3.2. Record and archive receipts in accordance with business processes 3.3. Close down and leave transaction process 3.4. Report transaction details to <i>appropriate person</i>

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Low-level decision making in relation to selecting appropriate websites
- Reading and writing at a level where basic on-line documents are understood
- Basic numeracy
- Communications relating to on-line transactions
- Interpretation of user prompts

Required knowledge

- Use of the internet
- Evaluation and assessment of authority of information and security of merchant processes
- Organisational guidelines on internet and email usage
- Internet etiquette
- Copyright and intellectual property issues

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

EVIDENCE GUIDE	
Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: - Assessment must ensure learner has the ability to commence and successfully complete on-line transactions. To demonstrate competency in this unit the person will require access to: - Personal computer with internet connection - e-business website
Context of and specific resources for assessment	Conducting on-line transactions is an increasingly important part of normal business functions as many more goods and services are marketed online. It is expected that on-line transactions will increase as reliance on internet communications expands. The breadth, depth and complexity of knowledge and skills in this competency would prepare a person to perform a defined range of activities many of which may be routine and predictable. Assessment must ensure: Applications may include a variety of employment related skills including preparatory access and participation skills, broad-based induction skills and/or specific workplace skills. They may also include participation in a team or work group.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. Competency in this unit should be assessed using

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	summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: - ICAU1128B Operate a personal computer - ICAU1133B Send and retrieve information using web browsers and email - ICAU1204B Locate and use relevant on-line information - ICAS2243B Detect and protect from spam and destructive software An individual demonstrating this competency would be able to: - Demonstrate knowledge by recall in a narrow range of areas - Demonstrate basic practical skills, such as the use of relevant tools - Perform a sequence of routine tasks given clear direction - Receive and pass on messages and information Demonstration of these competencies would involve: - Demonstrating basic on-line operational knowledge in a moderate range of areas

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	• Applying a defined range of skills using on-line transaction processes to solve predictable problems • Assessing and recording information from varied sources • Taking limited responsibility for outputs in work and learning • Maintain knowledge of industry products and services

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.

<i>Transaction options</i> may include but are not limited to:	• freight • currency • delivery address • invoice address
<i>Feedback mechanisms</i> may include:	• surveys • questionnaires • interviews • meetings
<i>Appropriate person</i> may include:	• supervisor • teacher • authorised business representative • client

Unit Sector(s)

Unit sector	Use

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAU1215B Use personal productivity tool

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to use the features and components of a personal productivity tool including personal digital assistants or computerised personal organisers. There may be benefit in concurrent learning of the following unit: - ICAU1128B Operate a personal computer The following unit is linked and forms an appropriate cluster: - ICAU1128B Operate a personal computer No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

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. Use calendar features	1.1. Navigate within the calendar of the <i>personal productivity tool</i> and schedule <i>events and appointments</i> 1.2. Set a reminder and if necessary, customise the reminder 1.3. Customise the calendar <i>views</i> and, where necessary, menus and <i>toolbars</i> , and work within different views 1.4. Delete events and appointments 1.5. Customise the calendar's <i>print options</i> and print the calendar according to format requirements
2. Use contact management	2.1. Create, edit and delete contacts as required, recording all relevant information in the correct

ELEMENT	PERFORMANCE CRITERIA
	fields 2.2. Use contact information for email purposes in accordance with organisational policies in relation to privacy 2.3. Group contacts into categories that are consistent and meaningful
3. Use additional features	3.1. Link activities and contacts when required 3.2. Use expense sheets, search facilities, notes and email when appropriate 3.3. Integrate the above features with other applications or the calendar and contacts list

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Basic data entry skills
- Basic analysis in relation to a limited range of routine areas
- Low-level decision making in relation to a limited range of routine areas
- Problem solving skills in known areas during normal routine
- Reading and writing at a level where basic workplace documents are understood
- Clear and precise communication
- Interpretation of user manuals

Required knowledge

- Organisational guidelines on internet and email usage, web etiquette
- Knowledge of calendar and scheduling tools

Evidence Guide

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the

EVIDENCE GUIDE	
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 of the following is essential: - Assessment must confirm the ability to use the components and features of a particular personal productivity tool. To demonstrate competency in this unit the person will require access to: - Personal computer or personal digital assistant (PDA) - Organising software
Context of and specific resources for assessment	Personal productivity tools facilitate communication and personal time management. Email applications, calendars and appointment books are examples of personal productivity tools that facilitate time management. The breadth, depth and complexity of knowledge and skills in this competency would prepare a person to perform a defined range of activities many of which may be routine and predictable. Assessment must ensure: Applications may include a variety of employment related skills including preparatory access and participation skills, broad-based induction skills and/or specific workplace skills. They may also include participation in a team or work group.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. Competency in this unit should be assessed using

EVIDENCE GUIDE

	summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: - ICAU1128B Operate a personal computer An individual demonstrating this competency would be able to: - Demonstrate knowledge by recall in a narrow range of areas - Demonstrate basic practical skills, such as the use of relevant tools - Perform a sequence of routine tasks given clear direction - Receive and pass on messages and information - Maintain knowledge of industry products and services

Range Statement**RANGE STATEMENT**

The range statement relates to the unit of competency as a whole. It allows for different

RANGE STATEMENT

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.

Events and appointments may include but are not limited to:

- meetings
- visits
- jobs

Views may include for a calendar:

- day to a page
- week to a page
- month to a page
- year to a page

Toolbars may contain:

- buttons
- menus
- a combination of both

Print options may include:

- layout
- paper size
- number of copies
- orientation

Contact information may include but is not limited to:

- name
- email address
- nickname
- phone number
- address

Personal productivity tool may include:

- Palm Pilots
- WorkPad PC Companion
- Casio Cassiopeia
- Compaq Companion Web Site
- HP Jornada 720
- iPAQ H3650 Color Pocket PC
- hand-held PCs running Microsoft Windows CE operating system
- Psions and their relatives
- PDA are rapidly evolving and therefore this group of variables are only indicative

Unit Sector(s)

Unit sector	Use

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAU2005B Operate computer hardware

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to determine, select and correctly operate basic computer hardware, generally known as peripherals and which may include input/output devices and secondary memory. There may be benefit in concurrent learning with the following units: • ICAS2014B Connect hardware peripherals • ICAU2231B Use computer operating system The following units are linked and form an appropriate cluster: • ICAS2014B Connect hardware peripherals • ICAU2231B Use computer operating system No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		
	ICAU1128B	Operate a personal computer

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 computer hardware components	1.1. Identify <i>external hardware components</i> and <i>peripherals</i> 1.2. Identify <i>internal hardware components</i>
2. Understand the interrelationship between computer hardware and software	2.1. Describe the functions of computer <i>hardware</i> and associated <i>OH&S standards</i> and <i>environmental considerations</i> around <i>hardware</i> use and disposal 2.2. Describe the function of a computer operating system 2.3. Describe the boot process 2.4. State the relationship between an application program, the operating system and <i>hardware</i> 2.5. State the general differences between the different

ELEMENT	PERFORMANCE CRITERIA
	computer platforms and their respective operating systems 2.6. Draw a simple block (schematic) diagram showing the interconnection of the various components of a computer
3. Use computer input equipment	3.1. Follow OH&S standards and organisational policies and procedures when using computer input equipment

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Reading and writing at a level where basic workplace documents are understood
- Decision making skills in a narrow range of areas
- Problem solving skills for a defined range of predictable problems
- Ability to communicate with peers and supervisors to seek assistance and advice

Required knowledge

- OH&S principles and responsibilities
- Ergonomic principles to avoid back, wrist and eye strain
- Procedures and exercises for avoiding strain and injury
- Basic knowledge of current industry-accepted hardware and software products, with broad knowledge of general features and capabilities

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.

EVIDENCE GUIDE	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: - Assessment must confirm the ability to determine, select, explain and use hardware components, peripheral equipment and consumables correctly and efficiently according to the task requirement. To demonstrate competency in this unit the person will require access to: - PC or workstation - Peripheral devices
Context of and specific resources for assessment	Peripheral equipment forms an auxiliary but essential component of everyday computer usage. Such equipment enhances the effectiveness of computers and provides increased functionality and capability for input, output and memory functions. The efficient and effective operation of peripherals is a critical aspect of information technology in most workplaces. The breadth, depth and complexity of knowledge and skills in this competency would prepare a person to perform in a range of varied activities or knowledge applications where there is a clearly defined range of contexts in which the choice of actions required is usually clear. There would generally be limited complexity in the range of operations to be applied. Assessment must ensure: - Performance of a prescribed range of functions involving known routines and procedures and some accountability for the quality of outcomes would be characteristic. - Applications may include some complex or non-routine activities involving individual responsibility or autonomy and/or collaboration with others as part of a group or team.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In

EVIDENCE GUIDE

	undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. - Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. - Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: - ICAS2014B Connect hardware peripherals - ICAU2231B Use computer operating system An individual demonstrating this competency would be able to: - Demonstrate basic operational knowledge in a moderate range of areas - Apply a defined range of skills - Apply known solutions to a limited range of predictable problems - Perform a range of tasks where choice between a limited range of options is required - Assess and record information from varied sources

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	• Communicate with team members to clarify job requirements • Take limited responsibility for own outputs in work and learning • Maintain knowledge of industry products and services

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.

<i>External hardware components</i> may include but are not limited to:	• keyboard • mouse • disk drives • USB • serial • parallel ports
<i>Internal hardware components</i> may include but are not limited to:	• CPU • memory chip • motherboard • video display card • network interface card • sound card • cabling
<i>Computer platforms</i> may include but are not limited to:	• Apple Macintosh and PCs • and the various operating systems used on each
<i>Peripherals</i> may include but are not limited to:	• Printers, scanners, tape cartridges • Speakers, multimedia kits • Personal computer fax/modems • Input equipment may include mouse, touch pad, keyboard, pens • Mobile phones, palmtops and personal digital

RANGE STATEMENT	
	assistants (PDAs), laptops and desktop computers • Bluetooth devices, universal serial bus (USB), Firewire (IEEE 1394)
Hardware may include but is not limited to:	• workstations • personal computers • modems and other connectivity devices • networks • DSL modems • remote sites • servers
Consumables may include but is not limited to:	• cartridges • ribbons • floppy disks • CD-R • CD-RW • DVD-R/RW
OH&S standards may include:	• correct posture • lighting • type of desk • type of monitor • style of chair • typing position • correct lifting method • repetitive strain injury prevention • ventilation • light position • length of time in front of computer
Organisational may include but are not limited to:	• security procedures • OH&S procedures • maintenance procedures • standards for speed and accuracy
Environmental considerations may include but is not limited to:	• recycling • safe disposal of packaging (e.g. cardboard, polystyrene, paper, plastic) • correct disposal of redundant hardware (e.g. motherboards, hard drives, circuit boards) by an authorised body

Unit Sector(s)

Unit sector	Use

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAU2006B Operate computing packages

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to identify, select and correctly operate three desktop applications for a range of purposes. There may be benefit in concurrent learning with the following units: • ICAU2005B Operate computer hardware • ICAU2231B Use computer operating system The following units are linked and form an appropriate cluster: • ICAD2003B Receive and process oral and written communication • ICAI2015B Install software applications • ICAW2001B Work effectively in an IT environment No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

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. Use appropriate software	1.1. Select <i>software</i> appropriate to perform activity 1.2. Use <i>software</i> to produce required outcome using a range of features related to the activities 1.3. Save documents in appropriate directories/folders
2. Access, retrieve and manipulate data	2.1. Select and access <i>files</i> 2.2. Amend and save <i>files</i> according to requirements 2.3. Produce documents and <i>files</i> that meet organisational needs 2.4. Save <i>files</i> in appropriate directories/folders 2.5. Exit <i>software</i> correctly without loss of <i>data</i>
3. Access and use help	3.1. Identify the help resources available for basic

ELEMENT	PERFORMANCE CRITERIA
functions within each application	difficulties with the software 3.2. Access user help documentation and other resources for basic difficulties with the software
4. Use keyboard and equipment	4.1. Follow OH&S standards and regulations to avoid injury or illness 4.2. Use wrist rests and document holders where appropriate 4.3. Use monitor anti-glare and radiation reduction screens where appropriate 4.4. Ensure user equipment is maintained and free from defects that could cause injury

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Basic analysis of desktop layout, monitor and chair positioning, keyboard techniques and use of the mouse
- Basic problem solving in application management and help function usage
- Reading and writing at a level where basic workplace documents are understood
- Clear and precise communication with team members and supervisors
- Interpretation of user manuals

Required knowledge

- OH&S principles and responsibilities
- Basic understanding of system usage
- Basic technical terminology in relation to reading help files and responding to system help prompts
- Personal computer access and log-on 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.

Overview of assessment

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

Evidence of the following is essential:

- Assessment must confirm the ability to produce several workplace documents utilising a minimum of three different computing packages. Learner will demonstrate the use of a wide range of features from each package.

To demonstrate competency in this unit the person will require access to:

- Personal computer
- Basic software
- Documents or information containing data suitable for use with computing packages

Context of and specific resources for assessment

This unit brings together a range of basic computer skills and knowledge consistent with general expectations around computer usage in the workplace.

The breadth, depth and complexity of knowledge and skills in this competency would prepare a person to perform in a range of varied activities or knowledge applications where there is a clearly defined range of contexts in which the choice of actions required is usually clear. There would generally be limited complexity in the range of operations to be applied.

Assessment must ensure:

- Performance of a prescribed range of functions involving known routines and procedures and some accountability for the quality of outcomes would be characteristic.
- Applications may include some complex or non-routine activities involving individual

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	responsibility or autonomy and/or collaboration with others as part of a group or team.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. - Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. - Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: - ICAU2005B Operate computer hardware - ICAU2231B Use computer operating system - ICAD2003B Receive and process oral and written communication - ICAI2015B Install software applications - ICAW2001B Work effectively in an IT environment An individual demonstrating this competency would be able to:

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- Demonstrate basic operational knowledge in a moderate range of areas
- Apply a defined range of skills
- Apply known solutions to a limited range of predictable problems
- Perform a range of tasks where choice between a limited range of options is required
- Assess and record information from varied sources
- Communicate with team members to clarify job requirements
- Take limited responsibility for own outputs in work and learning
- Maintain knowledge of industry products and services

Demonstration of these competencies would involve:

- Using appropriate software
- Opening, amending and saving files and documents according to organisational requirements
- Using help manuals and on-line help when appropriate
- Applying OH&S procedures
- Demonstrating basic operational knowledge in a moderate range of areas
- Performing a range of tasks where choice between a limited range of options is required
- Assessing and recording information from varied sources

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.

RANGE STATEMENT	
Software may include but is not limited to:	• commercial software applications • organisation-specific software • It is expected that a word processing application, Database Application and Spreadsheet application will be chosen in preference to other types of applications
Files may include but is not limited to:	• html pages • pdf files • text files • pictures • music • email messages
Data may include:	• text • images • graphics • screenshots • icons added to the document
Equipment may include but is not limited to:	• workstations • personal computers • modems and other connectivity devices • printers • hard drives • DSL modems • monitors • switches • hubs • personal digital assistant (PDA) • other peripheral devices
OH&S may include:	• correct posture • lighting • type of desk • type of monitor • style of chair • typing position • repetitive strain injury prevention • ventilation • light position • length of time in front of computer

Unit Sector(s)

Unit sector	Use

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAU2007B Maintain equipment and consumables

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to maintain the operation of basic computer hardware and peripherals including the replacement of consumables. There may be benefit in concurrent learning of the following unit: - ICAU2005B Operate computer hardware The following units are linked and form an appropriate cluster: - ICAS2008B Maintain inventories for equipment, software and documentation - ICAU2005B Operate computer hardware - ICAU3004B Apply occupational health and safety procedures No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

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. Clean equipment	1.1. Access and verify cleaning supplies for usability on the selected <i>equipment</i> 1.2. Record maintenance actions undertaken and document according to organisational procedures 1.3. Clean <i>equipment</i> as per manufacturer specifications and in line with organisational manuals
2. Replace and maintain consumables and supplies	2.1. Access <i>consumables</i> from storage points and record usage information in line with organisational procedures 2.2. Replace <i>consumables</i> when needed and log the action undertaken 2.3. Dispose of consumables following <i>environmental</i>

ELEMENT	PERFORMANCE CRITERIA
	guidelines 2.4. Test equipment to ensure it is in working order at set time periods and in line with organisational procedures
3. Maintain equipment	3.1. Establish which equipment requires maintenance 3.2. Maintain equipment as required by organisational guidelines and manufacturer specifications 3.3. Document maintenance procedures performed as required by organisational guidelines 3.4. Exercise care to prevent interruption of business activities during maintenance procedures 3.5. Store unused equipment devices in line with manufacturer specifications and organisational guidelines

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Basic decision making
- Basic technical diagnostic skills
- Basic evaluation skills
- Reading and writing skills in regard to basic workplace documentation

Required knowledge

- Basic principles and responsibilities of OH&S
- Chemical storage, control and disposal
- Basic understanding of organisational systems, in relation to storage and retrieval of information and equipment
- Basic knowledge of current industry-accepted hardware and software and manufacturer maintenance guides

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

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

Evidence of the following is essential:

- Assessment must confirm the ability to maintain equipment in working order and to replace equipment and consumables.

To demonstrate competency in this unit the person will require access to:

- Personal computer
- Basic software
- Consumables and peripherals

Context of and specific resources for assessment

The effective operation and maintenance of computing and peripheral equipment is important in most workplaces. Increasing reliance on information technology requires the application of this unit's skills and knowledge across all industry sectors.

This unit will develop the ability to maintain basic hardware and replace consumables as required in a manner specified by the manufacturer or by organisational guidelines.

Depending on the complexity of content, basic knowledge and skills would prepare the person to perform in a range of activities where there is a clearly defined range of contexts for maintenance of equipment and consumables.

The breadth, depth and complexity of knowledge and skills in this competency would prepare a person to perform in a range of varied activities or knowledge applications where there is a clearly defined range of contexts in which the choice of actions required is usually clear. There would generally be limited

EVIDENCE GUIDE	
	complexity in the range of operations to be applied. Assessment must ensure: • Performance of a prescribed range of functions involving known routines and procedures and some accountability for the quality of outcomes would be characteristic. • Applications may include some complex or non-routine activities involving individual responsibility or autonomy and/or collaboration with others as part of a group or team.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended,

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	for example: • ICAU2008B Maintain inventories for equipment, software and documentation • ICAU2005B Operate computer hardware • ICAU3004B Apply occupational health and safety procedures An individual demonstrating this competency would be able to: • Demonstrate basic operational knowledge in a moderate range of areas • Apply a defined range of skills • Apply known solutions to a limited range of predictable problems • Perform a range of tasks where choice between a limited range of options is required • Assess and record information from varied sources • Take limited responsibility for own outputs in work and learning • Maintain knowledge of industry products and services

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.

<i>Equipment</i> may include but is not limited to:	• workstations • personal computers • modems and other connectivity devices • printers • hard drives • monitors

RANGE STATEMENT	
	• DSL modems • switches • hubs • personal digital assistant (PDA) • other peripheral devices
Consumables may include:	• disks • ribbons • printer toner • paper • cartridges • cleaners • tape
Environmental guidelines may include but is not limited to:	• recycling • safe disposal of packaging (e.g. cardboard, polystyrene, paper, plastic) • correct disposal of redundant hardware (e.g. motherboards, hard drives, circuit boards) by an authorised body

Unit Sector(s)

Unit sector	Use

Co-requisite units

Co-requisite units	

Competency field

Competency field	

ICAU2013B Integrate commercial computing packages

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to manipulate, convert and integrate data between different two or more commercial software applications. There may be benefit in concurrent learning of the following unit: • ICAU2006B Operate computing packages The following units are linked and form an appropriate cluster: • ICAD2012B Design organisational documents using computing packages • ICAU2006B Operate computing packages No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		
	ICAU1128B	Operate a personal computer

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. Determine work requirements	1.1. Identify the requirement of the task 1.2. Select appropriate software and file formats
2. Produce required data/documents to new format	2.1. Create a mailing list using a database, spreadsheet or address book, and merge mailing list with another document 2.2. Use a conversion tool of a software application package to convert data from one format to another to enable additional work on the converted data 2.3. Save data to a new file format 2.4. Import objects from another software application package and modify as required to produce a required outcome

ELEMENT	PERFORMANCE CRITERIA
	2.5. Export data to another software application package to produce a required outcome 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 3.2. Convert data to a new file format 3.3. Re-access data and check information 3.4. Obtain organisational documentation, such as procedures, manuals and guides and use when appropriate 3.5. Save data to disk 3.6. Access user help documentation or other resources for basic difficulties with software application package

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Reading and general comprehension of technical manuals
- Basic analytical skills for known problems in routine procedures
- Problem solving skills in regard to known problems in routine processes
- Use of commercial computing packages and integration of those packages
- Clear and precise communication with team members and supervisors

Required knowledge

- General understanding of features and functions of commercial computing packages
- Software packages used by the organisation
- Use of input/output devices
- Current business practices in relation to preparing reports
- Importing/exporting functions, linking documents

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

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

Evidence of the following is essential:

- Assessment must verify the ability to manipulate, convert and integrate data between commercial application software.

To demonstrate competency in this unit the person will require access to:

- Personal computer
- Basic software
- Document or information containing data suitable for use with multiple computing packages

Context of and specific resources for assessment

An individual demonstrating this competency, may use pre-existing data (e.g. documents, spreadsheet data, data from database tables) or create new data when integrating the application packages.

The breadth, depth and complexity of knowledge and skills in this competency would prepare a person to perform in a range of varied activities or knowledge applications where there is a clearly defined range of contexts in which the choice of actions required is usually clear. There would generally be limited complexity in the range of operations to be applied.

Assessment must ensure:

- Performance of a prescribed range of functions involving known routines and procedures and some accountability for the quality of outcomes would be characteristic.
- Applications may include some complex or

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	non-routine activities involving individual responsibility or autonomy and/or collaboration with others as part of a group or team.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. - Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. - Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: - ICAD2012B Design organisational documents using computing packages - ICAU2006B Operate computing packages An individual demonstrating this competency would be able to: - Demonstrate basic operational knowledge in a moderate range of areas

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	• Apply a defined range of skills • Apply known solutions to a limited range of predictable problems • Perform a range of tasks where choice between a limited range of options is required • Assess and record information from varied sources • Communicate with team members to clarify job requirements • Take limited responsibility for own outputs in work and learning • Maintain knowledge of industry products and services

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.

Software may include but is not limited to:	• commercial software applications • organisation-specific software
Software application package may include but is not limited to:	• database package • spreadsheet package • email package • word package • graphics package
Format may include:	• saving the document as another type of document such as: HTML, XML, comma separated values or text
Objects may include:	• other documents • pictures • graphics • sound
Disk may include but is not	• diskettes (floppy disks)

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limited to:

- CDs
- CD-RW (Compact Discs-Read Write)
- DVD RW
- zip disks
- solid state hard drives

Unit Sector(s)

Unit sector	Use

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAU2231B Use computer operating system

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to configure, use and optimise a computer operating system. There may be benefit in concurrent learning of the following unit: - ICAU2005B Operate computer hardware The following unit is linked and forms an appropriate cluster: - ICAU2005B Operate computer hardware No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units	

Prerequisite units		
	ICAU1128B	Operate a personal computer

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. Configure operating system	1.1. Configure <i>operating system</i> to suit the working environment, including but not limited to setting variables
2. Use operating system	2.1. Install, upgrade and uninstall <i>application software</i> to suit the working environment 2.2. Use both the graphical user interface and the command line interface to perform basic tasks
3. Optimise operating system	3.1. Use operating system and third-party utilities 3.2. Customise the graphical user interface 3.3. Use techniques unique to the command line interface
4. Support input and output devices	4.1. Set up input and output devices and check functionality

ELEMENT	PERFORMANCE CRITERIA
	4.2. Install drivers as appropriate and check functionality

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Configure, use and optimise operating system
- Install and support peripheral devices
- Create users for a multi-user system
- Apply user changes for a multi-user operating system
- Set passwords for different users
- Clear and precise communication with team members and supervisors

Required knowledge

- Function of single-user and multi-user operating systems
- Compatibility of an operating system, in respect to other versions
- Interoperability between operating systems
- Software applicable to the operating system

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

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

Evidence of the following is essential:

- Assessment must confirm the ability to use an operating system in a variety of scenarios and across all functions including (1) scheduling, loading, initiating, and supervising the execution of programs;

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	(2) allocating storage; (3) initiating and controlling input/output operations; and (4) handling errors. To demonstrate competency in this unit the person will require access to: • Workstation • Operating system • Software configuration guides • Documents detailing operating system control panel and configuration data
Context of and specific resources for assessment	An introduction to the command line at this level would be appropriate to prepare the person for concepts related to directory structure, folder hierarchy and path relationships. The operating system (OS) program is the first program loaded into the computer by a boot program and it remains in memory at all times thereafter. It is strategically placed in that it manages all the other programs in a computer including the allocation and usage of hardware resources such as memory, central processing unit (CPU) time, access and security, hard disk space, and peripheral devices (like speakers or a mouse). The OS is the foundation software on which other programs, such as Word or Excel, depend. These other programs are called applications or application programs. The application programs make use of the operating system by making requests for services through a defined application program interface (API). In addition, users can interact directly with the operating system through a user interface such as a command language or a graphical user interface (GUI). Operating systems come in a variety of forms. Most use a graphical user interface (GUI) and some use command line; others have a combination of both. It is appropriate for the person to grasp the fundamentals

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	of both the GUI and the command line interface to prepare them for advanced concepts should they chose to enter learning towards a more advanced unit of competency. The breadth, depth and complexity of knowledge and skills in this competency would prepare a person to perform in a range of varied activities or knowledge applications where there is a clearly defined range of contexts in which the choice of actions required is usually clear. There would generally be limited complexity in the range of operations to be applied. Assessment must ensure: • Performance of a prescribed range of functions involving known routines and procedures and some accountability for the quality of outcomes would be characteristic. • Applications may include some complex or non-routine activities involving individual responsibility or autonomy and/or collaboration with others as part of a group or team.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Assessment will usually include observation of real

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	or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • ICAU2005B Operate computer hardware An individual demonstrating this competency would be able to: • Demonstrate basic operational knowledge in a moderate range of areas • Apply a defined range of skills • Apply known solutions to a limited range of predictable problems • Perform a range of tasks where choice between a limited range of options is required • Assess and record information from varied sources • Communicate with team members to clarify job requirements • Take limited responsibility for own outputs in work and learning. Additionally, an individual demonstrating this competency would be able to: • Understand a range of concepts and procedures related to operating systems • Demonstrate theoretical knowledge of operating system set-up and configuration • Apply changes to an operating system • Maintain knowledge of industry products and services

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.	
<i>Operating system</i> may include but is not limited to:	• Linux 7.0 or above • Windows 2000 or above • Apple OS X or above
<i>Application software</i> may include:	• databases • word processing • email • internet browsers • system browsers • spreadsheets
<i>Third-party utilities</i> may include but are not limited to:	• disk scanning • partitioning and defragmenting • backing up data • recovery • diagnostic tools
<i>Input and output devices</i> may include but are not limited to:	• keyboard • mouse • printer • scanner • monitor • modem

Unit Sector(s)

Unit sector	Use

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAU3004B Apply occupational health and safety procedures

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to support the organisation's occupational health and safety (OH&S) principles and practices. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

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. Determine OH&S issues relating to immediate work environment	1.1. Identify person responsible for <i>OH&S standards</i> in the subject workplace 1.2. Identify <i>OH&S standards</i> that apply to the workplace 1.3. Review and assess workplace according to <i>OH&S standards</i> and record findings 1.4. Report issues or problems with the workplace to the <i>appropriate person</i>
2. Document and disseminate OH&S requirements	2.1. Determine and document the <i>OH&S standards</i> impact upon the subject workplace 2.2. Submit <i>documentation</i> to <i>appropriate person</i> for verification 2.3. Update or reissue OH&S documents relating to IT as required
3. Provide basic ergonomic advice	3.1. Assess basic <i>ergonomic</i> requirements of people in the workplace 3.2. Document the <i>ergonomic</i> advice for <i>client</i> based on vendor requirements, workplace policies and <i>OH&S standards</i> 3.3. Submit advice to the <i>appropriate person</i> for verification

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Reading and writing at a level where basic workplace documents are understood and presented
- Questioning and active listening employed to confirm information
- Plain English literacy and communication skills in relation to dealing with clients and team members
- Problem solving skills for a defined range of predictable problems

Required knowledge

- General OH&S principles, responsibilities and legislation
- General ergonomic principles to avoid back, wrist and eye strain
- Procedures and exercises for avoiding strain and injury
- Current business practices in relation to preparing reports
- Broad knowledge of OH&S requirements in relation to work safety, environmental factors and ergonomic considerations

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

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

Evidence of the following is essential:

- Assessment must ensure that a person has the ability to comply with OH&S requirements relating to the use of computing equipment through the practical demonstration of the identification of unsafe practices. All findings should be reported to a supervisor. A basic understanding of the principles and practices around computer-related ergonomics

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	should be demonstrated. To demonstrate competency in this unit the person will require access to: • Simulated workplace environment • Workplace OH&S policies
Context of and specific resources for assessment	In many workplaces the objectives of OH&S are to increase productivity, safety, and comfort through the use of design, awareness and training. Ergonomic solutions relating to products and people/product interaction can reduce the potential for harm to a user when performing certain computer related tasks. An individual completing this competency would be able to demonstrate knowledge of OH&S requirements and the application of basic ergonomic principles to computing. The breadth, depth and complexity of knowledge and skills in this competency would cover selecting, adapting and transferring skills and knowledge to new environments and providing technical advice and some leadership in resolution of specified problems. This would be applied across a range of roles in a variety of contexts with some complexity in the extent and choice of options available. Assessment must ensure: • Performance of a defined range of skilled operations, usually within a range of broader related activities involving known routines, methods and procedures, where some discretion and judgement is required in the selection of equipment, services or contingency measures and within known time constraints would be characteristic. • Applications may involve some responsibility for others. Participation in teams including group or team coordination may be involved.

EVIDENCE GUIDE**Method of assessment**

The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1.

- Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency.
- Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.

Guidance information for assessment

Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.

An individual demonstrating this competency would be able to:

- Demonstrate some relevant theoretical knowledge
- Apply a range of well-developed skills
- Apply known solutions to a variety of predictable problems
- Perform processes that require a range of well-developed skills where some discretion and judgement is required
- Interpret available information, using discretion and judgement

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	• Take responsibility for own outputs in work and learning • Take limited responsibility for the output of others • Maintain knowledge of industry products and services

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.

<i>Appropriate person</i> may include:	• supervisor • teacher • authorised business representative • client
<i>OH&S standards</i> may include:	• correct posture • lighting • type of desk • type of monitor • style of chair • typing position • repetitive strain injury prevention • ventilation • light position • correct lifting method • length of time in front of computer • May also include licensing-related and physical safety considerations such as general electrical safety and cabling, power supply and leads as they apply to computer and peripheral installations
<i>Documentation</i> may follow:	• ISO/IEC/AS standards • audit trails • naming standards

RANGE STATEMENT	
	• version control • project management templates • report writing principles
Client may include but is not limited to:	• internal departments • external organisations • individual people • internal employees
Ergonomic may include:	• OH&S procedures • workstation: monitor, keyboard, mouse, desk, chair • foot rests, arm rests, document holders, exercises, posture, times for breaks, noise, lighting (glare, poor lighting)

Unit Sector(s)

Unit sector	Use

Co-requisite units

Co-requisite units	

Competency field

Competency field	

ICAU3019B Migrate to new technology

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to apply skills and knowledge in using new or upgraded technology. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

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. Apply existing knowledge and techniques to technology and transfer	1.1. Identify situations where existing knowledge can be used as the basis for developing new skills 1.2. Acquire and use new or upgraded technology skills to enhance learning 1.3. Identify, classify and use new or upgraded equipment where appropriate, for the benefit of the organisation
2. Apply functions of technology to assist in solving organisational problems	2.1. Conduct testing of new or upgraded equipment 2.2. Apply features of new or upgraded equipment and software within the organisation 2.3. Use features and functions of new or upgraded equipment 2.4. 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, usability and against OH&S standards 3.2. Determine environmental considerations from new or upgraded equipment 3.3. Seek feedback from users, where appropriate

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Research skills for identifying broad features of new technologies
- Ability to assist in the decision making process
- Literacy skills in regard to interpretation of technical manuals
- Ability to solve known problems in a variety of situations and locations
- General analytical skills in relation to known problems

Required knowledge

- Broad awareness of current technology trends and directions in IT (e.g. software, hardware, services, new developments, new protocols)
- Broad knowledge of vendor product directions
- Ability to locate appropriate sources of information regarding IT and new technologies
- Current industry hardware and software products, with broad knowledge of general features and capabilities
- Information gathering techniques

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

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

Evidence of the following is essential:

- Competency must confirm the ability to transfer the application of existing skills and knowledge to new technology.

To demonstrate competency in this unit the person will require access to:

- Workplace or simulated workplace

EVIDENCE GUIDE	
	• Documented organisational requirements
Context of and specific resources for assessment	The rationale behind this unit emphasises the importance of constantly reviewing work processes, skills and techniques in order to ensure that the quality of the entire business process is maintained at the highest level possible through the appropriate application of new technology. To this end, the person is typically engaged in on-going review and research in order to discover and apply new technology or techniques to improve aspects of the organisation's activities. The breadth, depth and complexity of knowledge and skills in this competency would cover selecting, adapting and transferring skills and knowledge to new environments and providing technical advice and some leadership in resolution of specified problems. This would be applied across a range of roles in a variety of contexts with some complexity in the extent and choice of options available. Assessment must ensure: • Performance of a defined range of skilled operations, usually within a range of broader related activities involving known routines, methods and procedures, where some discretion and judgement is required in the selection of equipment, services or contingency measures and within known time constraints would be characteristic. • Applications may involve some responsibility for others. Participation in teams including group or team coordination may be involved.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1.

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	- Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. - Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. An individual demonstrating this competency would be able to: - Demonstrate some relevant theoretical knowledge - Apply a range of well-developed skills - Apply known solutions to a variety of predictable problems - Perform processes that require a range of well-developed skills where some discretion and judgement is required - Interpret available information, using discretion and judgement - Take responsibility for own outputs in work and learning - Take limited responsibility for the output of others - Maintain knowledge of industry products and services

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.

<i>Equipment</i> may include but is not limited to:	• workstations • personal computers • modems and other connectivity devices • printers • hard drives • DSL modems • monitors • switches • hubs • personal digital assistant (PDA) • other peripheral devices
<i>Applications</i>	• May include but are not limited to commercial software applications; organisation-specific software; word processing, spreadsheet, database, graphic, communication packages and presentation functionalities. • May include presentation applications contained in: Microsoft Office, Lotus Suite, Claris Works, Star Office or other similar applications.
<i>Technology skills</i> - new skills can include but are not limited to:	• Hardware • PCs • networks • storage • communications equipment
<i>Feedback</i> may include:	• surveys • questionnaires • interviews • meetings
<i>Software</i> may include but are not limited to:	• user-based software for new business processes • customer relationship management • integrated services (e.g. banking and financial

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	services)
Sources of information may include but is not limited to:	- documents - test pages - web pages - appliances software and technical connections guidance and other outputs supplied by vendors and manufacturers
OH&S standards	- May include correct posture, lighting, type of desk, type of monitor, style of chair, typing position, repetitive strain injury prevention, ventilation, light position, correct lifting method, and length of time in front of computer. - May also include physical safety considerations such as general electrical safety and cabling, power supply and leads as they apply to computer and peripheral installations.
Environmental Considerations may include but is not limited to:	- recycling - safe disposal of packaging (e.g. cardboard, polystyrene, paper, plastic) - correct disposal of redundant hardware (e.g. motherboards, hard drives, circuit boards) by an authorised body

Unit Sector(s)

Unit sector	Use

Co-requisite units

Co-requisite units	

Competency field

Competency field	

ICAU3028B Customise packaged software applications for clients

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to analyse, design, implement and review the customisation of packaged software applications, using simple programming constructs. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		
	ICAU3126B	Use advanced features of computer applications

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. Analyse customisation requirements	1.1. Determine client requirements and document these in a requirements specification file in line with organisational requirements 1.2. Confirm that the projected specifications meet client requirements 1.3. Determine the required level of documentation necessary to meet client requirements
2. Develop customisation	2.1. Design software applications, taking into account system limitations and client needs 2.2. Customise software applications using simple programming constructs, conforming to organisational requirements 2.3. Have the client test the customised software applications and obtain feedback from the client 2.4. Make further changes to software applications to meet client requirements 2.5. Document the changes
3. Provide support for customised application	3.1. Produce documentation for client 3.2. Produce help desk documentation for ongoing support 3.3. Obtain client evaluation and feedback to ensure that their requirements have been met

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Decision making, in the context of determining whether the new features are useful or desirable
- Application skills
- Customising skills
- Solving problems when customising an application's features, in order to implement the new modifications appropriately
- Questioning and active listening to convey and clarify complex information (e.g. when eliciting the requirements of features in the package from an end-user)
- Ability to analyse and interpret technical aspects of implementation in relation to initial problems and issues
- Use of simple programming constructs

Required knowledge

- Detailed knowledge of functions and features of software applications
- General knowledge of organisational security procedures
- Organisational policy for customising software
- Broad knowledge of IT structure and system infrastructure
- Organisational policy and procedures relating to customising software
- General knowledge of functions and features of the operating system
- Current industry-accepted hardware and software products, with broad knowledge of general features and capabilities

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

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

Evidence of the following is essential:

- Competency must be demonstrated in customising existing software applications, such as relational databases. Competency must also be demonstrated in the analysis, implementation and review of customisation of packaged software applications.

To demonstrate competency in this unit the person will require access to:

- Customisable software application
- Client requirements documentation

Context of and specific resources for assessment

The principal aim of this unit is to focus on analysing the range of software-based activities in the workplace, in order to improve upon the processes involved. By conferring with other users and subsequently customising features of the package, the person will be able to increase its effectiveness in how quickly, efficiently or simply a given task is carried out.

A person demonstrating these competencies would be able to:

- Demonstrate reasonable knowledge of a software package and how to modify it, using its built-in structures (but not necessarily using a programming language (e.g. visual basic))
- Apply a range of well-developed skills in carrying out the modification process

The breadth, depth and complexity of knowledge and skills in this competency would cover selecting, adapting and transferring skills and knowledge to new environments and providing technical advice and some leadership in resolution of specified problems. This would be applied across a range of roles in a variety of contexts with some complexity in the extent and choice of options available.

Assessment must ensure:

- Performance of a defined range of skilled operations, usually within a range of broader related activities

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	involving known routines, methods and procedures, where some discretion and judgement is required in the selection of equipment, services or contingency measures and within known time constraints would be characteristic. • Applications may involve some responsibility for others. Participation in teams including group or team coordination may be involved.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. An individual demonstrating this competency would be able to:

EVIDENCE GUIDE

	• Demonstrate some relevant theoretical knowledge • Apply a range of well-developed skills • Apply known solutions to a variety of predictable problems • Perform processes that require a range of well-developed skills where some discretion and judgement is required • Interpret available information, using discretion and judgement • Take responsibility for own outputs in work and learning • Take limited responsibility for the output of others • Maintain knowledge of industry products and services

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.

Client may include but is not limited to:

- internal departments
- external organisations
- clubs
- individual people
- internal employees

Documentation may follow:

- ISO/IEC/AS standards
- audit trails
- naming standards
- version control
- project management templates and report writing
- maintaining equipment inventory
- client training
- satisfaction reports

RANGE STATEMENT	
Organisational requirements may include but is not limited to:	• how and what the organisation wants in regard to work environment • problem solution processes • preventative maintenance and diagnostic policy • roles and technical responsibilities in the IT department • vendor and product service-level support agreements
Software applications	• May include but are not limited to commercial software applications; organisation-specific software; word processing, spreadsheet, database, graphic, communication packages and presentation functionalities. • May include presentation applications contained in Microsoft Office, Lotus Suite, Claris Works, Star Office or other similar applications.
System may include but is not limited to:	• network • application • software • business • computers • financial system • management system • information system

Unit Sector(s)

Unit sector	Use

Co-requisite units

Co-requisite units	

Co-requisite units		

Competency field

Competency field	

ICAU3126B Use advanced features of computer applications

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to use computer applications employing advanced features. The following unit is linked and forms an appropriate cluster: • ICAB3018B Develop macros and templates for clients using standard products No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

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. Manipulate data	1.1. Employ advanced features of <i>applications</i> in the preparation and presentation of data 1.2. Efficiently transfer data between <i>applications</i>, linking and embedding related data files as required 1.3. Create and employ <i>objects</i>, macros and templates for routine activities 1.4. Use shortcuts and features to increase personal productivity
2. Access and use support resources	2.1. Solve routine problems using support resources 2.2. Use on-line help to overcome difficulties with <i>applications</i> 2.3. Solve problems with manuals and training booklets 2.4. Access and apply technical support for <i>system</i> problems, utilising troubleshooting results and alert messages

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Basic analysis skills in relation to normal routine work processes
- Detailed skills in using applications features
- Basic skills in interpreting technical information
- Problem solving skills in known areas during normal routine work processes
- Plain English literacy and communication skills in relation to dealing with clients and team members

Required knowledge

- Basic understanding of operating systems software and system tools
- Broad knowledge of vendor product directions
- Broad knowledge of vendor applications and their features

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

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

Evidence of the following is essential:

- Assessment must confirm the ability to use at least three computer applications to their full capacity employing all advanced features and import/export capacities for efficiency and productivity purposes, using at least two industry-recognised application packages.

To demonstrate competency in this unit the person will require access to:

- Personal computer
- Documents or information containing data suitable

EVIDENCE GUIDE	
	for use with multiple computing packages
Context of and specific resources for assessment	The use of advanced features of computer applications is increasing as workplaces recognise the full potential and functionality of contemporary commercial applications. Individuals demonstrating this competency would be considered user experts or advanced users and would be capable of tutoring colleagues in the use of commercial applications. The breadth, depth and complexity of knowledge and skills in this competency would cover selecting, adapting and transferring skills and knowledge to new environments and providing technical advice and some leadership in resolution of specified problems. This would be applied across a range of roles in a variety of contexts with some complexity in the extent and choice of options available. Assessment must ensure: • Performance of a defined range of skilled operations, usually within a range of broader related activities involving known routines, methods and procedures, where some discretion and judgement is required in the selection of equipment, services or contingency measures and within known time constraints would be characteristic. • Applications may involve some responsibility for others. Participation in teams including group or team coordination may be involved.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should be assessed using summative assessment to ensure consistency of

EVIDENCE GUIDE

	performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: - ICAB3018B Develop macros and templates for clients using standard products An individual demonstrating this competency would be able to: - Demonstrate some relevant theoretical knowledge - Apply a range of well-developed skills - Apply known solutions to a variety of predictable problems - Perform processes that require a range of well-developed skills where some discretion and judgement is required - Interpret available information, using discretion and judgement - Take responsibility for own outputs in work and learning - Take limited responsibility for the output of others - Maintain knowledge of industry products and services

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.

<i>Applications</i>	• May include but are not limited to commercial software applications; organisation-specific software; word processing, spreadsheet, database, graphic, communication packages and presentation functionalities. • May include presentation applications contained in: Microsoft Office, Lotus Suite, Claris Works, Star Office or other similar applications.
<i>Objects</i> may include:	• buttons • checkboxes • option buttons • text boxes • drop down lists
<i>System</i> may include but is not limited to:	• network • application • software • business • computers • financial system • management system • information system

Unit Sector(s)

Unit sector	Use

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAU4205B Select and employ software and hardware tools

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to select and use software and hardware diagnostic tools, including multimedia contexts and automated testing environments. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

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. Establish process operational requirements	1.1. Identify the process requirements ensuring they are accurate, complete, prioritised, have functionality and reference appropriate method/media types 1.2. Identify conflicting or overlapping requirements 1.3. Document and validate functional requirements of the client 1.4. Identify and validate available resources and budget of the client
2. Select hardware and software for processing function	2.1. Identify and evaluate relevant hardware and software with reference to functional requirements 2.2. Identify and analyse relevant products and equipment interdependencies with reference to functional requirements and system architecture 2.3. Identify and document appropriate tools, including their limitations for the required use and industry standards 2.4. Select and acquire tools in accordance with purchasing policies
3. Configure and test hardware and software	3.1. Install and configure appropriate hardware and software according to vendor guidelines with reference to system architecture and client functionality requirements

ELEMENT	PERFORMANCE CRITERIA
	3.2. Configure system architecture for optimal usage 3.3. Prepare, schedule and execute tests and record outcomes 3.4. Track errors, interpret and correct 3.5. Make changes based on test results 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 4.2. Use hardware and software according to vendor guidelines 4.3. Validate hardware and software performance with reference to client functional requirements

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Ability to analyse hardware and software tools
- Ability to integrate multiple items of data and reconcile conflicting information
- Ability to develop creative solutions and demonstrate automating process capability
- Ability to predict outcomes and results of selection of tools
- Ability to identify key sources of information
- Ability to understand specification sheets
- Ability to accurately summarise and document information
- Ability to see the conflicts and integration capabilities between diverse equipment
- Ability to organise and assess importance and relevance of product information
- Ability to communicate with vendors effectively

Required knowledge

- Batch scripting of nominated automating software routines
- The interaction between relevant hardware and software products
- Broad general knowledge of the client business domain (e.g. when confirming system components to acquire, and when agreeing to methods to acquire)

REQUIRED SKILLS AND KNOWLEDGE

- components)
- Current industry-accepted hardware and software products, with knowledge of general features and capabilities and detailed knowledge in some areas
 - Broad knowledge of vendor product directions
 - Functions and features of animation development tools as required (e.g. Animator Studio and Director, Encore)
 - Functions and features of development tools as required (e.g. Fireworks, Adobe, Director Shockwave Studio)
 - Functions and features of media management tools as required (e.g. Media On Demand Producer, Windows Media Author, Windows Media Presenter, ASF Chop, ASF Check)
 - Functions and features of development tools as required (e.g. scripting languages, development package automating options, third-party tools for automating a range of software applications)
 - Functions and features of technologies as required, including but not limited to 3D graphic simulations, internet applications, verification processes, VOIP and wireless communication
 - Knowledge of basic design principles of each media type as required

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

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

Evidence of the following is essential:

- Assessment must confirm the ability to select and use the correct automating tools and to develop an automating process that produces an outcome that is measurable and meets specified requirements.

To demonstrate competency in this unit the person will require access to:

- Specifications for a range of automating vendor products

EVIDENCE GUIDE**Context of and specific resources for assessment**

Meeting modern IT needs can be complex and difficult. Using process automating can improve organisation performance and remove mundane tasks. Designing and automating processes should undergo an analysis and design across a broad range of technical and/or managerial functions.

Meeting technical applications involves significant judgement in planning, design, evaluation, technical or leadership/guidance and communications functions related to services, operations and processes.

The breadth, depth and complexity of knowledge and skills in this competency would cover a broad range of varied activities or application in a wider variety of contexts most of which are complex and non-routine. Leadership and guidance would be involved when organising activities of self and others as well as contributing to technical solutions of a non-routine or contingency nature.

Assessment must ensure:

- Performance of a broad range of skilled applications including the requirement to evaluate and analyse current practices, develop new criteria and procedures for performing current practices and provision of some leadership and guidance to others in the application and planning of the skills would be characteristic.
- Applications may involve responsibility for, and limited organisation of, others.

Method of assessment

The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1.

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	- Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. - Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. An individual demonstrating this competency would be able to: - Demonstrate understanding of a broad knowledge base incorporating some theoretical concepts - Apply solutions to a defined range of unpredictable problems - Identify and apply skill and knowledge areas to a wide variety of contexts, with depth in some areas - Identify, analyse and evaluate information from a variety of sources - Take responsibility for own outputs in relation to specified quality standards - Take limited responsibility for the quantity and quality of the output of others Additionally, an individual demonstrating this competency would be able to: - Demonstrate understanding of automating processes, with depth in some areas

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	• Use judgements and analysis to employ automated processes in the organisation • Demonstrate a command of wide-ranging, highly specialised technical, creative or conceptual skills • Generate ideas through the analysis of information and concepts at an abstract level • Demonstrate accountability for personal outputs within defined technical requirements • Maintain knowledge of industry products and services

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.

Requirements may be in reference to:	• business • system • application • network • people in the organisation for the purpose of developing multimedia products or carrying out automated testing of software and systems
Equipment may include but is not limited to:	• workstations • personal computers • other peripherals or standalone units
Client may include but is not limited to:	• internal departments • external organisations • clubs • individual people • internal employees
System architecture may include but is not limited to:	• Operating system: Novell NetWare 5 or above or operating system that has multi-user ability; Linux, Mac OS, Windows 2000 or

RANGE STATEMENT	
	above - Database software: PostgreSQL, Oracle, Sybase, Microsoft SQL Server, Ingres, DB2, Informix, mSQL, MySQL, SQL server - Configuration: small memory model, large memory model, requests per second
Solution may include but is not limited to:	- new hardware - hardware upgrades - new software - software upgrades - user training - implementing a new system
Standards may include:	- ISO/IEC/AS standards - organisational standards - project standards (for further information refer to the Standards Australia website at: www.standards.com.au)
Hardware may include but is not limited to:	- workstations - personal computers - modems and other connectivity devices - networks - DSL modems - remote sites - servers
Software may include but is not limited to:	- commercial software applications - organisation-specific software, packaged software, in-house or customised software

Unit Sector(s)

Unit sector	Use

Co-requisite units

Co-requisite units	

Co-requisite units		

Competency field

Competency field	

ICAU4207B Apply web authoring tool to convert client data for websites

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency 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 appropriate web protocols. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

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. Create files	1.1.Create files and save in correct location/directory 1.2.Insert and format text content according to business requirements 1.3.Insert and optimise images as required 1.4.Identify usage for, and create, templates
2. Create formatting templates	2.1.Create basic external cascading style sheets (CSS) 2.2.Define styles for the required tags according to the business requirements 2.3.Link CSS to the relevant files and display the relevant formatting
3. Define library items	3.1.Identify items that recur on several pages and include in library 3.2.Format selected items according to CSS definition 3.3.Check the tags of the selected items 3.4.Selected library items are created and clearly named 3.5.Update items contained in library as required by business requirements
4. Develop templates	4.1.Create and save a file as a template and link with CSS 4.2.Format the template and create and name editable regions

ELEMENT	PERFORMANCE CRITERIA
	4.3. Place generic image icons in page as required by business image 4.4. Save and modify templates
5. Identify authoring requirements	5.1. Select preferred web authoring tool according to business requirements 5.2. Set preferences for the web authoring tool, including site file transfer protocol client 5.3. Customise and navigate the web author tool environment/workspace to meet individual requirements 5.4. Select buttons and tools correctly, both opened and closed to access a full range of features 5.5. Define and clearly name site and a root folder
6. Create simple forms	6.1. Add form elements to page 6.2. Set form element properties for each form element 6.3. Insert additional fields as required for processing form 6.4. Identify availability and location of CGI script 6.5. Connect the form to a script in a server CGI bin 6.6. Test the form to ensure no errors
7. Create simple navigation	7.1. Create a site map to plan navigation 7.2. Create links between pages to reflect content structure using both text and images 7.3. Check links in multiple browsers for errors 7.4. Check website content across a number of different browsers and browser versions to ensure consistency of presentation, performance and accessibility

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- HTML
- Basic design

REQUIRED SKILLS AND KNOWLEDGE

- Read and interpret authoring specifications
- Appropriate software and tools are selected to meet the required specifications

Required knowledge

- Website architecture
- SGML and the associated standards
- Basic design principles
- Authoring tool accessibility guidelines
- Technical environment characteristics
- Australian Computer Society Code of Ethics

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

Evidence of the following is essential:

- Assessment must confirm the ability to develop web content using authoring tools to meet specifications. Authoring tools are applied to create cross browser web documents.

To demonstrate competency in this unit the person will require access to:

- Site authoring software and tools
- Business expectations brief

Context of and specific resources for assessment

Using web authoring to convert data is an appropriate method for rapid data translation and prevents the need for a rewrite.

The breadth, depth and complexity of knowledge and skills in this competency would cover a broad range of varied activities or application in a wider variety of

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	contexts most of which are complex and non-routine. Leadership and guidance would be involved when organising activities of self and others as well as contributing to technical solutions of a non-routine or contingency nature. Assessment must ensure: • Performance of a broad range of skilled applications including the requirement to evaluate and analyse current practices, develop new criteria and procedures for performing current practices and provision of some leadership and guidance to others in the application and planning of the skills would be characteristic. • Applications may involve responsibility for, and limited organisation of, others.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment

EVIDENCE GUIDE	
	purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. An individual demonstrating this competency would be able to: • Demonstrate understanding of a broad knowledge base incorporating some theoretical concepts • Apply solutions to a defined range of unpredictable problems • Identify and apply skill and knowledge areas to a wide variety of contexts, with depth in some areas • Identify, analyse and evaluate information from a variety of sources • Take responsibility for own outputs in relation to specified quality standards • Take limited responsibility for the quantity and quality of the output of others Additionally, an individual demonstrating this competency would be able to: • Demonstrate skills and knowledge in using a web authoring tools • Apply solutions to a variety of data conversion problems • Perform processes that require a range of well-developed skills where some discretion and judgement is required • Interpret available information, using discretion and judgement • Take responsibility for outputs in data conversion work • Maintain knowledge of industry products and services

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.

Browser may include but is not limited to:

- Netscape Navigator
- Internet Explorer
- Mozilla
- Opera
- Galleon
- Phoenix
- Konqueror
- Lynx

Images may include but is not limited to:

- graphics
- clipart
- pictures

Server may include:

- Application/web servers
- BEA Weblogic servers
- IBM VisualAge and WebSphere
- Novell NDS servers
- Email servers
- File and print servers
- FTP servers
- Firewall servers
- Proxy/cache servers

Business requirements may include:

- customer
- supplier
- payroll
- inventory
- tax requirements of the organisation

Requirements may be in reference to:

- business
- system
- application
- network
- people in the organisation

File transfer protocol client may

- AxY FTP for Windows, Linux and Unix
- Cftp for Unix

RANGE STATEMENT	
include:	• Curl for Unix supports FTP, HTTP, Telnet, etc. • gFTP with GUI for Unix supports FTP, HTTP and SSH • Lftp command line FTP for Solaris, IRIX, HP-UX, Digital UNIX and Linux • Lukemftp command-line FTP supports FTP and HTTP URLs • NcFTP Client command-line FTP and HTTP URLs for Solaris, FreeBSD, AIX and Linux • WS-FTP

Unit Sector(s)

Unit sector	Use

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAU5208B Use site server tools for transaction management

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to use site server tools to build, host, track and monitor transactions on an e-business site. The following units are linked and form an appropriate cluster: • ICAD4198B Develop guidelines for uploading information to a website • ICAS5199B Manage business websites and servers • ICAS4201B Transfer content to a website using commercial packages • ICAS5203B Evaluate and select a web hosting service • ICAD4209B Write content for web pages No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

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. Confirm task requirements	1.1. Confirm <i>task requirements</i> , features and functionality of site with <i>client</i> as required 1.2. Confirm <i>platform</i> and/or <i>software</i> with reference to business systems 1.3. Confirm the <i>integration requirements</i> of site with client 1.4. Confirm standards relevant to the task and site functionality 1.5. Document current and proposed configuration 1.6. Document and validate client <i>task requirements</i> , performance criteria and scope of work with <i>client</i> 1.7. Confirm available resources and budget with <i>client</i>

ELEMENT	PERFORMANCE CRITERIA
2. Select tools	2.1. Identify relevant site server tools with reference to requirements 2.2. Review and evaluate tools with reference to task requirements and required site functionality 2.3. Load and configure server tools according to vendor guidelines and client requirements 2.4. Use server tools to test equipment
3. Use tools	3.1. Use server tools to maintain or update relevant functionality 3.2. Coordinate and implement procedures 3.3. Use server tools according to vendor guidelines to achieve relevant task requirements
4. Review server tools and task requirements	4.1. Monitor, analyse and evaluate organisational procedures 4.2. Review site server configuration with reference to client task requirements and make adjustments to configuration 4.3. Review server tools with reference to client task requirements 4.4. Use site analysis software to validate server outcomes 4.5. Create and use reports and other documentation for record keeping and auditing

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Evaluating and selecting products to suit a given business profile
- Use of site server tools associated with relevant site server
- Analysis of SQL

Required knowledge

- Business site features in relation to choice of tools
- Site building considerations in relation to new versus established business, B2B

REQUIRED SKILLS AND KNOWLEDGE

versus B2C

- The role of protocols in relation to features and functionality (e.g. HTTP, SMTP, FTP, HTTPS)
- Relevant tools and products in relation to site construction (e.g. SSJS, Java, JAP, Perl, Cold Fusion, ASP)
- Relevant security measures as required by site functionality (e.g. SSL, encryption, authentication, VPN, PPTP, SSH)
- Functions and features of tools relevant to HTTP servers as required (e.g. Apache, Netscape Communications Server, Microsoft IIS, IBM's Web-Sphere)
- Functions and features of tools relevant to search engines as required (e.g. Excite, Fulcrum Surfboard, ICE, MS Index Server)
- Functions and features of tools relevant to firewalls and proxy servers as required (e.g. Smoothwall, IP-Cop, AltaVista firewall, Guardian, Netscape Proxy Server, Microsoft ISA, Cisco PIX)

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

Evidence of the following is essential:

- Assessment must confirm the ability to use website server tools to maintain expected business performance and technical standards in an e-business environment.

To demonstrate competency in this unit the person will require access to:

- Server hardware
- Server tools
- Existing e-business website

Context of and specific resources for assessment

Businesses increasingly rely on their networks and websites to move data, provide communication, and enable basic operations. As websites and computer

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	technology become more integrated with business, system outages can seriously impact the bottom line. Website tools can help organisations monitor critical network and site resources and immediately detect system failures or performance problems. Site server tools enable the person to build, host, track and monitor transactions on an e-business site. The breadth, depth and complexity covering planning and initiation of alternative approaches to skills or knowledge applications across a broad range of technical and/or management requirements, evaluation and coordination would be characteristic. The demonstration of competency may also require self-directed application of knowledge and skills, with substantial depth in some areas where judgement is required in planning and selecting appropriate equipment, services and techniques for self and others. Assessment must ensure: • Applications involve participation in development of strategic initiatives as well as personal responsibility and autonomy in performing complex technical operations or organising others. It may include participation in teams including teams concerned with planning and evaluation functions. Group or team coordination may also be involved.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be

EVIDENCE GUIDE	
	assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: - ICAD4198B Develop guidelines for uploading information to a website - ICAS5199B Manage business websites and servers - ICAS4201B Transfer content to a website using commercial packages - ICAS5203B Evaluate and select a web hosting service - ICAD4209B Write content for web pages An individual demonstrating this competency would be able to: - Demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas - Analyse and plan approaches to technical problems or management requirements - Transfer and apply theoretical concepts and/or technical or creative skills to a range of situations - Evaluate information, using it to forecast for planning or research purposes - Take responsibility for own outputs in relation to broad quantity and quality parameters - Take some responsibility for the achievement of

EVIDENCE GUIDE

	- group outcomes • Maintain knowledge of industry products and services

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.

Task requirements may be in relation to:

- building
- database connectivity
- hosting
- customer tracking and profiling
- payment and delivery systems
- monitoring
- ensuring secure transactions on an business site

Integration requirements may include but are not limited to:

- site server tools
- hosting services
- monitor transactions
- data synchronisation
- database implementation
- migration

Platform may include but is not limited to:

- Linux
- BSD
- Windows servers WebSphere

Procedures may include:

- check points and sign-offs with documented procedures and templates
- implementation of financial control mechanisms; communication with stakeholders
- dispute resolution and modification procedures
- processes for determining size and cost

RANGE STATEMENT	
Site analysis software may include:	• WebTrends Log Analyzer • Linkbot Pro • InContext WebAnalyzer • CyberSpyder • AccessWatch • WebCounter
Client may include but is not limited to:	• internal departments • external organisations • individual people • internal employees
Software may include but is not limited to:	• commercial software applications • organisation-specific software, packaged software, in-house or customised software
Server tools may include:	• server benchmark tools • disaster recovery tools • disk management tools • network management tools • security tools • storage and back-up tools • user management tools • development tools • purchasing and payment tools • maintenance tools

Unit Sector(s)

Unit sector	Use

Co-requisite units

Co-requisite units	

Competency field

Competency field	

ICAW2001B Work effectively in an IT environment

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to work effectively within the IT environment of an organisation by researching and assembling information about the organisation's IT systems, equipment, software, policies and governance arrangements. The following unit is linked and forms an appropriate cluster: • ICAW2002B Communicate in the workplace No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

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 IT in an organisation and related relevant policies and procedures	1.1. Identify IT roles in an organisation and briefly describe what services they perform 1.2. Identify and describe key players from the IT service areas previously identified 1.3. Identify IT policies and procedures and research whether they are used in practice
2. Identify IT equipment, software and operating systems used by the organisation	2.1. Identify IT equipment, operating systems and software used in the organisation and understand the importance and role within the organisation 2.2. Establish that all of the equipment locations and service requirements are maintained according to organisational requirements and prevailing policies and procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Reading and writing at a level where workplace documents can be written and understood
- Verbal communication which is clear and precise (e.g. when explaining the role of key players in the IT organisation)
- Problem solving is limited to basic known problems within normal routines (e.g. when complying with policies and procedures as directed by supervisor)
- Basic analysis skills in relation to normal routine work processes (e.g. when complying with policies and procedures as directed by supervisor)
- Using the features of applications (e.g. when complying with policies and procedures as directed by supervisor)
- Basic skills in interpreting technical information (e.g. when complying with policies and procedures as directed by supervisor)

Required knowledge

- Basic principles of EEO and anti-discrimination to ensure consistency with the organisational values and community best practice
- Broad knowledge of organisational code of conduct and values that are consistent with the organisational mission
- Basic understanding of organisational systems and the management structure
- Understanding of the role and positioning of IT within the overall business objectives of the organisation
- Current industry-accepted hardware and software products, with broad knowledge of features and capabilities
- Broad knowledge of vendor product directions

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

EVIDENCE GUIDE	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: - Assessment must confirm the ability to effectively integrate into and operate in the IT environment of an organisation. An individual would be expected to demonstrate an understanding of the organisation's IT policies, systems, management structure and operating arrangements. To demonstrate competency in this unit the learner will require access to: - A Workstation
Context of and specific resources for assessment	Information systems areas within organisations play an increasingly important role in helping the business achieve its core objectives. When joining and working within an organisation in an IT capacity, it is important to understand the role of IT and the type and extent of IT assets managed by the IT area and staff. The breadth, depth and complexity of knowledge and skills in this competency would prepare a person to perform in a range of varied activities or knowledge applications where there is a clearly defined range of contexts in which the choice of actions required is usually clear. There would generally be limited complexity in the range of operations to be applied. Assessment must ensure: - Performance of a prescribed range of functions involving known routines and procedures and some accountability for the quality of outcomes would be characteristic. - Applications may include some complex or non-routine activities involving individual responsibility or autonomy and/or collaboration with others as part of a group or team.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the

EVIDENCE GUIDE

	implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • ICAW2002B Communicate in the workplace An individual demonstrating this competency would be able to: • Demonstrate basic operational knowledge in a moderate range of areas • Apply a defined range of skills • Apply known solutions to a limited range of predictable problems • Perform a range of tasks where choice between a limited range of options is required • Assess and record information from varied sources • Take limited responsibility for own outputs in work and learning • Maintain knowledge of industry products and

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services

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.

Key players may include but are not limited to:

- IT organisations
- vendors of IT products and services
- IT professional bodies
- industry publications and government departments involved in IT industry promotion
- employer organisations
- relevant unions

Equipment may include but is not limited to:

- workstations
- personal computers
- modems and other connectivity devices
- printers
- DSL modems
- hard drives
- monitors
- switches
- hubs
- personal digital assistant (PDA)
- other peripheral devices

Operating system may include but is not limited to:

- Linux 7.0 or above
- Windows 2000 or above
- Apple OS X or above

Software may include but is not limited to:

- commercial software applications
- organisation-specific software

Unit Sector(s)

Unit sector	Team Work

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAW2002B Communicate in the workplace

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to provide limited client support through verbal and nonverbal communication and to effectively communicate with colleagues. The following unit is linked and forms an appropriate cluster: • ICAW2001B Work effectively in an IT environment No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

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. Establish contact with clients	1.1. Receive requests and enquiries from clients in a polite and appropriate manner 1.2. Use verbal and non-verbal communication to respond to the client requests and enquiries effectively 1.3. Use appropriate questioning and active listening techniques to understand client needs and determine support requirements 1.4. Accommodate cultural differences in the workplace
2. Process information	2.1. Answer enquiries promptly and appropriately 2.2. Record information or messages and refer client requests to the appropriate person in accordance with organisational procedures 2.3. Inform client of the progress of their request or enquiry and advise them of the organisational process for answering their request or enquiry 2.4. Investigate the organisational follow-up procedure or policy and record follow-up action taken in regard to the client request or enquiry

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Questioning and active listening techniques (e.g. when obtaining information and determining client support needs)
- Problem solving skills for a defined range of predictable problems (e.g. when responding to client requests and inquiries)
- Basic negotiation skills in relation to other team members applied to a defined range of predictable problems (e.g. when creating an effective service environment)
- Basic customer service skills in relation to obtaining information (e.g. when responding to client requests and inquiries)
- Conveying meaning clearly, concisely and coherently (e.g. when responding to client requests and inquiries)
- Clear and precise non-verbal communication (e.g. when creating an effective service environment)
- Literacy skills in regard to basic workplace documents

Required knowledge

- Basic understanding of organisational systems (e.g. when processing information and establishing contact with clients)
- Broad knowledge of organisational values (e.g. when establishing contact with clients)
- Broad knowledge of organisational code of conduct (e.g. when establishing contact with clients)
- General OH&S principles and responsibilities
- Broad knowledge of vendor applications and their features (e.g. when processing information)
- Access and equity principles when communicating with people from diverse backgrounds and people with special needs

Evidence Guide

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

Evidence of the following is essential:

- Assessment must confirm the ability to adhere to organisational policies in regard to external and internal client contact and the processing of internal and external requests, including from colleagues.

To demonstrate competency in this unit the learner will require access to:

- Equipment to facilitate verbal and non-verbal communication with others
- Clients and colleagues

Context of and specific resources for assessment

Interaction and communication with clients (both internal and external clients) is important to organisations. Prompt response to client enquiries in a courteous fashion promotes goodwill, repeat custom, productivity and credibility.

The breadth, depth and complexity of knowledge and skills in this competency would prepare a person to perform in a range of varied activities or knowledge applications where there is a clearly defined range of contexts in which the choice of actions required is usually clear. There would generally be limited complexity in the range of operations to be applied.

Assessment must ensure:

- Performance of a prescribed range of functions involving known routines and procedures and some accountability for the quality of outcomes would be characteristic.
- Applications may include some complex or non-routine activities involving individual responsibility or autonomy and/or collaboration with

EVIDENCE GUIDE	
	others as part of a group or team
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. - Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. - Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: - ICAW2001B Work effectively in an IT environment An individual demonstrating this competency would be able to: - Demonstrate basic operational knowledge in a moderate range of areas - Apply a defined range of skills - Apply known solutions to a limited range of predictable problems - Perform a range of tasks where choice between a

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	limited range of options is required • Assess and record information from varied sources • Take limited responsibility for own outputs in work and learning • Maintain knowledge of industry products and services

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.

<i>Cultural differences</i> may include but is not limited to:	• the way people interact with each other • content of emails and business documents • design of templates • policies relating to safety standards • customer service • quality • security
<i>Appropriate person</i> may include:	• supervisor • teacher • authorised business representative • client
<i>Client</i> may include but is not limited to:	• internal departments • external organisations • individual people • working colleagues • internal employees
<i>Communication</i> may include but is not limited to:	• external clients and internal clients, including team members, supervisors and management • inquiries related to routine client support needs • clarifying and recording information that does

RANGE STATEMENT

	not involve technical problem solving

Unit Sector(s)

Unit sector	Team Work

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAW2011B Work individually or as a team member to achieve organisational goals

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to work individually and with others in an organisation. The following units are linked and form an appropriate cluster: • ICAW2002B Communicate in the workplace • ICAS2010B Apply problem solving techniques to routine malfunctions No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

Prerequisite units		

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. Establish own work schedule	1.1. Identify work to be completed based on instructions from the <i>appropriate person</i> 1.2. Prioritise work according to deadlines and organisational guidelines 1.3. Submit completed work to <i>appropriate person</i> for feedback
2. Participate in team structure	2.1. Identify the <i>team members</i> of a team and the role of each member 2.2. Identify the <i>task</i> or <i>problem</i> to be solved 2.3. Clarify and document an action plan including <i>tasks</i> and goals to be achieved by the team 2.4. Determine team standards for documentation and version control 2.5. Monitor progress of team against initial plan and <i>organisational goals</i>

ELEMENT	PERFORMANCE CRITERIA
	2.6.Submit documentation to <i>appropriate person</i> for feedback

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Decision making within a limited range of options (e.g. when prioritising work according to organisational guidelines and deadlines)
- Assertiveness (e.g. when identifying team roles)
- Questioning and active listening (e.g. when giving and receiving feedback)
- General customer service (e.g. when processing urgent tasks according to organisational guidelines)
- Time management for self-management purposes (e.g. when prioritising work according to organisational guidelines)
- Basic planning skills (e.g. when creating the action plan for work to be done by the team or individually)
- Problem solving techniques for known problems in routine processes (e.g. when identifying and acting on tasks and goals)
- Literacy skills in relation to general workplace documentation

Required knowledge

- Principles of ethical work practice (e.g. when participating in teams)
- Roles and responsibilities of individual team members
- General understanding of social and organisational systems when participating in teams
- Results orientated approaches (e.g. when establishing own work schedule)
- Organisational structure and IT division structure so as to document own and teamwork practices
- General organisational strategic direction and values so as to plan own and teamwork practices
- General work team processes and group dynamics (e.g. when participating in teams)
- Access and equity principles when communicating with people from diverse backgrounds and people with special needs

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	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: - Assessment must confirm the ability to participate in a team or act individually to meet organisational requirements, and be able to respond to requests and prioritise work schedules to meet organisational guidelines and deadlines. To demonstrate competency in this unit the learner will require access to: - Organisational goals - Team members
Context of and specific resources for assessment	Working in a team allows a project or piece of work to be completed within a shorter timeframe. Achievement of team goals is a group effort that requires planning and communication skills from all team members. The breadth, depth and complexity of knowledge and skills in this competency would prepare a person to perform in a range of varied activities or knowledge applications where there is a clearly defined range of contexts in which the choice of actions required is usually clear. There would generally be limited complexity in the range of operations to be applied. Assessment must ensure: Performance of a prescribed range of functions involving known routines and procedures and some accountability for the quality of outcomes would be characteristic.

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	Applications may include some complex or non-routine activities involving individual responsibility or autonomy and/or collaboration with others as part of a group or team.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. - Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. - Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: - ICAS2010B Apply problem solving techniques to routine malfunctions - ICAW2002B Communicate in the workplace An individual demonstrating this competency would be able to: - Demonstrate basic operational knowledge in a

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	moderate range of areas • Apply a defined range of skills • Apply known solutions to a limited range of predictable problems • Perform a range of tasks where choice between a limited range of options is required • Assess and record information from varied sources • Take limited responsibility for own outputs in work and learning • Maintain knowledge of industry products and services

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.

<i>Appropriate person</i> may include:	• supervisor • teacher • authorised business representative • team leader • client
<i>Problem</i> refer to:	• Refer to routine or non-routine problems that may affect the immediate work environment, particularly in relation to using equipment such as workstations, keyboards, mouse
<i>Tasks</i> may include but are not limited to:	• work • activities • function • job
<i>Organisational goals</i> may include but are not limited to:	• how and what the organisation wants to achieve in the following areas: work environment, problem solution processes, preventative maintenance and diagnostic

RANGE STATEMENT	
	policy, roles and technical responsibilities in the IT department, vendor and product service-level support agreements
Team members	• May include but are not limited to peers, supervisors, team leaders, managers and other members of the organisation; people from outside the organisation; people from a range of social, cultural or ethnic backgrounds. • May involve aspects such as autonomy and responsibility of the team; responsibility of team members; goals of the team.

Unit Sector(s)

Unit sector	Team Work

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAW4026B Coordinate and maintain work teams

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to establish and improve work teams and their performance in an IT environment. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

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. Establish team	1.1. Select and identify suitable <i>team members</i> for a particular project or <i>problem</i> 1.2. Secure agreement from appropriate persons for release of <i>team members</i> 1.3. Identify the type of work <i>team</i> 1.4. Determine time allocation for <i>team members</i> to suit team operations or nature of the project or <i>problem</i> 1.5. Define <i>team</i> and individual responsibilities 1.6. Define how <i>team</i> performance will be measured
2. Coordinate team	2.1. Clarify and plan <i>tasks</i> in consultation with <i>team</i> 2.2. Allocate <i>tasks</i> appropriately 2.3. Determine and apply motivational factors 2.4. Represent the <i>team</i> at meetings 2.5. Work with <i>team members</i> to manage interpersonal conflict
3. Conduct team activities and review team performance	3.1. Regularly review <i>team</i> performance against objectives and take corrective action where necessary 3.2. Regularly communicate with the <i>team</i> on policies, plans and other matters affecting the <i>team</i> 3.3. Seek the input of <i>team members</i> during the decision

ELEMENT	PERFORMANCE CRITERIA
	making process 3.4. Consult the team regarding proposed workplace changes and improvements to processes 3.5. Recognise team and individual achievement 3.6. Validate team objectives against targets 3.7. Determine ongoing nature of the team and either disband, select new objective, incorporate new team members or change team profile

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Leadership skills in relation to guidance for achieving outcomes, transferring and collecting information and gaining consensus on concepts
- Planning skills in relation to time and quality relations (e.g. when clarifying and planning team tasks to ensure effective team operation and efficient use of human resources)
- Basic problem solving involving analysis, diagnosis, evaluation and the development of new criteria, knowledge and procedures
- Problem solving skills involving participation in the development of team building initiatives (e.g. when delegating and encouraging participation and group work)
- Communication skills in relation to analysis, evaluation and presentation of information (e.g. when communicating policies, plans, problems and solutions to the team)
- Teamwork skills that involve the contribution to solutions and goals of a non-routine or contingency nature
- Group facilitation and presentation skills in relation to transferring and collecting information and gaining consensus on concepts

Required knowledge

- Principles of EEO and anti-discrimination (e.g. when establishing, developing and improving teams)
- Detailed knowledge of OH&S requirements in relation to work safety, environmental factors and ergonomic considerations
- Broad knowledge of three or more current industry systems development methodologies

REQUIRED SKILLS AND KNOWLEDGE

- Current business practices in relation to preparing reports (e.g. when establishing, developing and improving teams)
- Components of the business planning process relevant to the development of IT business solutions (e.g. when delegating responsibility and authority)
- Current industry-accepted hardware and software products, with broad knowledge of general features and capabilities
- Broad knowledge of vendor product directions
- Broad general knowledge of the client business domain (e.g. when establishing, developing and improving teams)
- Broad knowledge of quality assurance practices (e.g. when coordinating a team)
- Basic knowledge of information gathering techniques
- Broad general knowledge of change management systems (e.g. when establishing, developing and improving teams)

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

Evidence of the following is essential:

- Assessment must confirm the ability to establish, coordinate and maintain work teams to meet organisation requirements and to coordinate teams to meet requests and prioritise work schedule to meet organisational guidelines.

To demonstrate competency in this unit the learner will require access to:

- Team members
- Team projects or tasks

Context of and specific resources for assessment

Breadth, depth and complexity of knowledge and competencies would cover a broad range of varied activities or application in a wider variety of contexts most of which are complex and non-routine. Leadership

EVIDENCE GUIDE

	and guidance are involved when organising activities of self and others as well as contributing to technical solutions of a non-routine or contingency nature. Assessment must ensure: • Performance of a broad range of skilled applications including the requirement to evaluate and analyse current practices, develop new criteria and procedures for performing current practices and provision of some leadership and guidance to others in the application and planning of the skills. • Applications involve responsibility for, and limited organisation of, others.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.

EVIDENCE GUIDE**Guidance information for assessment**

Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.

An individual demonstrating this competency would be able to:

- Demonstrate understanding of a broad knowledge base incorporating some theoretical concepts
- Apply solutions to a defined range of unpredictable problems
- Identify and apply skill and knowledge areas to a wide variety of contexts, with depth in some areas
- Identify, analyse and evaluate information from a variety of sources
- Take responsibility for own outputs in relation to specified quality standards
- Take limited responsibility for the quantity and quality of the output of others
- Maintain knowledge of industry products and services

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.

Team members may include but are not limited to:

- peers
- supervisors and other members of the organisation
- people from outside the organisation
- people from a range of social, cultural or ethnic backgrounds
- dynamics of team
- autonomy and responsibility of the team
- responsibility of team members

RANGE STATEMENT	
	- degree of delegation authorised - life of the team - size and diversity of team - English language, literacy and numeracy skills may vary - leadership style of team leader - communication style of team members
Problem may be in reference to:	- business - system - application - network - people in the organisation - there may be a business need or opportunity that must be addressed
Team	- May include organisational, workgroup based, interdepartmental - May be temporary or on-going; formal or informal
Tasks may include but are not limited to:	- specific projects - work - activities - function - job

Unit Sector(s)

Unit sector	Team Work

Co-requisite units

Co-requisite units	

Competency field

Competency field	

ICAW4027B Relate to clients on a business level

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to formulate and implement service level agreements. The following units are linked and form an appropriate cluster: • ICAA4041C Determine and confirm client business expectations and needs • ICAW4026B Coordinate and maintain work teams No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

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. Understand organisational environment	1.1. Investigate organisational service standards, values and culture in order to understand the organisational environment 1.2. Become familiar with and document the goods and services provided by the organisation 1.3. Review current <i>service-level agreements</i> if appropriate
2. Identify internal and external client requirements	2.1. Research <i>client</i> service needs and preferred level of service 2.2. Determine the level of service to be provided to the <i>client</i> 2.3. Develop a draft <i>service-level agreement</i> for the <i>client</i> that incorporates quality, time, target performance and cost specifications
3. Negotiate client support service	3.1. Conduct a session with the <i>client</i> to present the draft <i>service-level agreement</i> 3.2. Present proposed <i>service-level agreement</i> to the <i>client</i> in a clear, concise and comprehensive manner 3.3. Present proposed cost and timeframes to the <i>client</i>

ELEMENT	PERFORMANCE CRITERIA
	3.4. Negotiate the terms with the client and record alterations if required 3.5. Seek clarification where areas of uncertainty or disagreement occur 3.6. Document the terms of service negotiated with the client, and refer the document to appropriate person for approval and feedback
4. Monitor, adjust and implement procedures to maintain client focus	4.1. Assess progress in achieving the client support service targets using organisational systems and procedures 4.2. Gather client feedback to improve the provision of client support services where appropriate 4.3. Make adjustments to client support service based on client feedback and in line with organisational guidelines 4.4. Document changes to service-level agreement and report changes to appropriate person

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Applying customer service skills in a range of contexts at various levels
- Problem solving for a broad range of unpredictable problems involving analysis, diagnosis, evaluation and the development of new criteria, knowledge or procedures (e.g. when adjusting client support services based on feedback and in line with organisational policies)
- Facilitation and presentation skills in relation to transferring and collecting information and gaining consensus on concepts (e.g. when determining and building business relationships)
- Plain English, literacy and communication skills in relation to analysis, evaluation and presentation of information to clients
- Teamwork skills involving the contribution to solutions and goals of a non-routine or contingency nature
- Negotiation skills in relation to others applied to an undefined range of predictable problems

REQUIRED SKILLS AND KNOWLEDGE

Required knowledge

- Theoretical concepts relating to negotiation and business relationships
- Current business practices in relation to preparing reports (e.g. when monitoring, adjusting and implementing procedures to maintain client focus)
- Basic legal principles of commercial contracts and service-level agreements
- Components of the client's business planning process relevant to the development of IT business solutions
- Current industry-accepted hardware and software products, with broad knowledge of general features and capabilities
- Vendor product directions (e.g. when planning to meet internal and external client requirements)
- Basic knowledge of information gathering techniques (e.g. when building and maintaining business networks and relationships)
- General knowledge of change management systems (e.g. when monitoring, adjusting and implementing procedures to maintain client focus)
- General knowledge of organisational policies on contracting (e.g. when negotiating client support service costs)
- Organisational policies on external client relationships

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

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

Evidence of the following is essential:

- Assessment must confirm the ability to formulate and implement service-level agreements to encourage clients to engage in further business. Assessment must confirm the ability to successfully negotiate client support service provision and satisfy client requirements for client support service within quality, time, target performance and cost parameters.

To demonstrate competency in this unit the following

EVIDENCE GUIDE	
	resources will be needed: • Service-level agreement
Context of and specific resources for assessment	The demonstration of this competency requires breadth, depth and complexity of knowledge and skills which would prepare a person to relate to clients at a business level. Operations must be in accordance with organisational policies and procedures. Understanding client needs should be done under competent supervision where there is a clearly defined range of contexts for negotiating service-level agreements and resultant contracts. The breadth, depth and complexity of knowledge and skills in this competency would cover a broad range of varied activities or application in a wider variety of contexts most of which are complex and non-routine. Leadership and guidance would be involved when organising activities of self and others as well as contributing to technical solutions of a non-routine or contingency nature. Assessment must ensure: • Performance of a broad range of skilled applications including the requirement to evaluate and analyse current practices, develop new criteria and procedures for performing current practices and provision of some leadership and guidance to others in the application and planning of the skills would be characteristic. • Applications may involve responsibility for, and limited organisation of, others.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility

EVIDENCE GUIDE

	practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should to be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors, subordinates, peers and clients where appropriate may provide valuable input to the assessment process.
Guidance information for assessment	The interdependence of units for assessment purposes may vary with the particular project or scenario. Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • ICAA4041C Determine and confirm client business expectations and needs • ICAW4026B Coordinate and maintain work teams An individual demonstrating this competency would be able to: • Demonstrate understanding of a broad knowledge base incorporating some theoretical concepts • Apply solutions to a defined range of unpredictable problems • Identify and apply skill and knowledge areas to a wide variety of contexts, with depth in some areas • Identify, analyse and evaluate information from a variety of sources • Take responsibility for own outputs in relation to specified quality standards

EVIDENCE GUIDE

	- Take limited responsibility for the quantity and quality of the output of others Additionally, an individual demonstrating this competency would be able to: - Demonstrate relevant understanding of client needs in line with procedures related to client business domain - Apply known solutions to a variety of predictable client business needs that require some discretion - Interpret available client information using discretion and judgement - Take responsibility for outputs in managing client outcomes - Maintain knowledge of industry products and services

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.

<i>Service-level agreement</i>	- May exist for many different infrastructure services, including communications carriers, ISPs, ASPs and SLAs for vendor products. - SLAs should consider business processes and requirements, clearly specify and quantify service levels, identify evaluation or audit of service levels. May include workload and performance considerations, expectations regarding servicing, penalties, and charge back to business units.
<i>Organisational guidelines</i> may include but are not limited to:	- personal use of emails and internet access - content of emails

RANGE STATEMENT	
	• downloading information and accessing particular websites • opening mail with attachments • virus risk • dispute resolution • document procedures and templates • communication methods • financial control mechanisms
Client may include but is not limited to:	• internal departments • external organisations • individual people • internal employees
Appropriate person may include:	• supervisor • teacher • authorised business representative • client
System may include but is not limited to:	• hardware and software components that run a computer

Unit Sector(s)

Unit sector	Team Work

Co-requisite units

Co-requisite units		

Competency field

Competency field	

ICAW4214B Maintain ethical conduct

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit defines the competency required to maintain professional and ethical conduct when dealing with colleagues, clients and employers. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units		

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. Protect the interests of clients	1.1. Monitor continuity of computing services and information flow 1.2. Ensure the integrity and security of other information as required by organisational policies, <i>legislation and standards</i> 1.3. Identify potential conflicts of interest and notify relevant parties of potential conflicts 1.4. Maintain confidentiality and proprietary rights of <i>client</i> interests
2. Produce quality products and services	2.1. Provide products and services that match the operational and financial needs of <i>clients</i> 2.2. Ensure value for money in services and products produced for <i>clients</i> 2.3. Maintain and work to industry and international <i>standards</i> 2.4. Implement quality processes when developing products and maintaining service
3. Ensure correct representation	3.1. Present skills, knowledge and qualifications in a professional manner 3.2. Acknowledge services and products developed by self and others correctly 3.3. Provide unbiased and objective information to

ELEMENT	PERFORMANCE CRITERIA
	<i>clients</i> 3.4. Provide realistic estimates for work
4. Produce code of ethics	4.1. Investigate and review industry <i>standards</i>, policies and legislations to understand the wider context of ethics 4.2. Create a code of ethics for the organisation based on that review 4.3. Disseminate and collect feedback from stakeholders 4.4. Integrate feedback as appropriate 4.5. Publish and promulgate the code of ethics to ensure all personnel and <i>clients</i> have access
5. Maintain good work practices	5.1. Perform regular checks to ensure all personnel understand and are applying the code of ethics in the workplace 5.2. Establish a review and grievance procedure to enable confidential reporting of issues arising 5.3. Interview and regularly follow up with <i>clients</i> to ensure they are receiving consistent and appropriate service 5.4. Take action to ensure all personnel participate in regular performance reviews and skill updates

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- Application of standards and legislation to policy and procedure development and monitoring
- Professional development skills in relation to identifying personal skills requiring upgrading and updating
- Researching and identifying relevant courses, seminars or industry information to maintain currency

Required knowledge

- Australian Computer Society Code of Ethics (www.acs.org.au)
- Organisational requirements for customer service

REQUIRED SKILLS AND KNOWLEDGE

- OH&S legislation
- Copyright and intellectual property legislation and principles
- Relevant privacy legislation and principles
- Access and equity legislation and principles

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

Evidence of the following is essential:

- Assessment must confirm the ability of the person to conduct their work practices in an ethical and professional manner.

To demonstrate competency in this unit the learner will require access to:

- Organisational policies
- Legislation and standards documentation

Industry codes of practice

Context of and specific resources for assessment

The adoption and application of ethical principles of conduct is significant for the professionalisation of an occupational group such as IT professionals, because it is one of the external hallmarks testifying to the claim that the group recognises an obligation to clients and society in general that transcends mere economic self-interest.

The operation and management of ethical conduct in business relationships is important because it provides a foundation for the establishment of on-going relationships between businesses.

EVIDENCE GUIDE

	The demonstration of this competency requires breadth, depth and complexity of knowledge and competencies which would cover a broad range of varied activities or application in a wider variety of contexts most of which are complex and non-routine. Leadership and guidance are involved when organising activities of self and others as well as contributing to technical solutions of a non-routine or contingency nature. Assessment must ensure: • Performance of a broad range of skilled applications including the requirement to evaluate and analyse current practices, develop new criteria and procedures for performing current practices and provision of some leadership and guidance to others in the application and planning of the skills is important in this competency. • Applications may involve responsibility for, and limited organisation of, others.
Method of assessment	The purpose of this unit is to define the standard of performance to be achieved in the workplace. In undertaking training and assessment activities related to this unit, consideration should be given to the implementation of appropriate diversity and accessibility practices in order to accommodate people who may have special needs. Additional guidance on these and related matters is provided in ICA05 Section 1. • Competency in this unit should be assessed using summative assessment to ensure consistency of performance in a range of contexts. This unit can be assessed either in the workplace or in a simulated environment. However, simulated activities must closely reflect the workplace to enable full demonstration of competency. • Assessment will usually include observation of real or simulated work processes and procedures and/or performance in a project context as well as questioning on underpinning knowledge and skills. The questioning of team members, supervisors,

EVIDENCE GUIDE	
	subordinates, peers and clients where appropriate may provide valuable input to the assessment process. The interdependence of units for assessment purposes may vary with the particular project or scenario.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended An individual demonstrating this competency would be able to: • Demonstrate understanding of a broad knowledge base incorporating some theoretical concepts • Apply solutions to a defined range of unpredictable problems • Identify and apply skill and knowledge areas to a wide variety of contexts, with depth in some areas • Identify, analyse and evaluate information from a variety of sources • Take responsibility for own outputs in relation to specified quality standards • Take limited responsibility for the quantity and quality of the output of others • Maintain knowledge of industry products and services

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.	
<i>Legislation and standards</i> may include:	• OH&S • Industry codes of practice, such as the Australian Computer Society Code of Ethics • OECD International Guidelines for Consumer

RANGE STATEMENT	
	Protection in E-commerce • Access and equity • Copyright laws • Defamation laws • Privacy legislation • Intellectual property, confidentiality requirements • Legal and regulatory policies affecting e-business
Client may include but is not limited to:	• internal departments • external organisations • individual people • colleagues • an employer • internal employees
Standards may include:	• ISO/IEC/AS standards • organisational standards • project standards (for further information refer to the Standards Australia website at: www.standards.com.au)

Unit Sector(s)

Unit sector	Team Work

Co-requisite units

Co-requisite units	

Competency field

Competency field	

Modification History

Not Available

INTRODUCTION

Unit Descriptor This unit covers general Occupational Health and Safety requirements in business organisations and is relevant for employees working under direct supervision with no responsibilities for other people. The unit is based on Generic Competency A in the National Guidelines for Integrating Occupational Health and Safety Competencies into National Industry Competency Standards [NOHSC:7025 (1998) 2nd edition].

This unit is related to BSBCMN211A Participate in workplace safety procedures.

Competency Field Common

Element

Performance Criteria

1. Follow workplace safety procedures	1.1 Hazards in the work area are recognised, while under direct supervision and reported to appropriate people according to workplace procedures 1.2 Workplace procedures and work instructions for own area of responsibility, for assessing and controlling risks are followed accurately while under direct supervision 1.3 Workplace procedures for dealing with incidents (accidents), fire and other emergencies are followed under direct supervision, whenever necessary within the scope of responsibilities and competencies
2. Contribute to Occupational Health & Safety in the workplace	2.1 Occupational Health and Safety issues are raised with appropriate people in accordance with workplace procedures and relevant Occupational Health and Safety legislation 2.2 Contributions to participative arrangements for Occupational

Health and Safety management in the workplace are made within organisational procedures and the scope of responsibilities and competencies

RANGE STATEMENT

The Range Statement provides advice to interpret the scope and context of this unit of competency, allowing for differences between enterprises and workplaces. It relates to the unit as a whole and facilitates holistic assessment. The following variables may be present for this particular unit:

Legislation, codes and national standards relevant to the workplace which may include:

- award and enterprise agreements and relevant industrial instruments
- relevant legislation from all levels of government which affect business operation, especially in regard to Occupational Health and Safety and environmental issues, equal opportunity, industrial relations, anti-discrimination and diversity
- relevant industry codes of practice

Relevant workplace procedures must be under direct supervision and may include:

- hazard reporting procedures
- job procedures and safe work instructions and allocation of responsibilities
- emergency procedures
- accident and near miss reporting and recording procedures
- consultation on Occupational Health and Safety issues
- correct selection, use, storage and maintenance procedures for use of personal protective equipment (PPE)
- control of risks under direct supervision

Hazards identification must be under direct supervision and may include:

- checking equipment or the work station and work area before work commences and during work
- workplace inspections
- on-job housekeeping checks

Appropriate people may include:

- supervisors
- managers
- team leaders

- designated Occupational Health and Safety officers
- health and safety representatives
- other persons authorised or nominated by the enterprise or industry to:
 - perform specified work
 - approve specified work
 - inspect specified work
 - direct specified work

Contributions may include:

- behaviour that contributes to a safe working environment
- identifying and reporting risks or hazards
- using business equipment according to guidelines
- listening to the ideas and opinions of others in the team
- sharing opinions, views, knowledge and skills

Emergencies may include:

- chemical spills
- bomb threats
- fire
- occupational violence

Participative arrangements may include:

- formal and informal health and safety meetings
- meetings called by health and safety representatives
- suggestions, requests, reports and concerns put forward to management

EVIDENCE GUIDE

The Evidence Guide identifies the critical aspects, underpinning knowledge and skills to be demonstrated to confirm competency for this unit. This is an integral part of the assessment of competency and should be read in conjunction with the Range Statement.

Critical Aspects of Evidence	Ability to follow workplace safety directions/ procedures, • Recognise and report hazards and • Raise OHS issues and contribute to participative arrangements for OHS management in the workplace

Underpinning Knowledge*	• Relevant legislation from all levels of government which affect business operation, especially in regard to Occupational Health and Safety and environmental issues, equal opportunity, industrial relations, anti-discrimination and diversity • Understanding ways in which OHS is managed in the workplace including procedures for fire, emergency, accident and near miss and control of risks • Relevant knowledge of workplace hazards • Relevant knowledge of designated personnel responsible for reporting OHS concerns • Understanding of the meaning of Occupational Health and Safety signs and symbols relevant to area of work
Underpinning Skills	• Literacy skills to identify work requirements, hazard identification and reporting procedures; follow written instructions and to interpret Occupational Health and Safety signs and symbols • Communication skills to identify lines of communication, request advice, effectively question, follow safety instructions, receive feedback and report hazards in the workplace • Problem solving skills to solve routine problems related to hazards in the workplace, while under direct supervision • Technology skills to use equipment safely while under direction • Ability to relate to people from a range of social, cultural and ethnic backgrounds and physical and mental abilities
Resource Implications	The learner and trainer should have access to appropriate documentation and resources normally used in the workplace
Consistency of Performance	In order to achieve consistency of performance, evidence should be collected over a set period of time which is sufficient to include dealings with an appropriate range and variety of situations
Context/s of Assessment	• Competency is demonstrated by performance of all stated criteria, including paying particular attention to the critical aspects and the knowledge and skills elaborated in the Evidence Guide, and within the scope as defined by the Range Statement • Assessment must take account of the endorsed assessment

guidelines in the Business Services Training Package

- Assessment of performance requirements in this unit should be undertaken in an actual workplace or simulated environment
- Assessment should reinforce the integration of the key competencies and the Business Services Common Competencies for the particular AQF Level. Refer to the Key Competency Levels at the end of this unit

KEY COMPETENCY LEVELS

NB: These levels do not relate to the Australian Qualifications Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Collect, analyse and organise information	Communicate ideas and information	Plan and organise activities	Work with others and in teams	Use mathematical ideas and techniques	Solve problems	Use technology
Level 1	Level 1	Level 1	Level 1	Level 1	Level 1	Level 1

Three levels of performance denote level of competency required to perform a task.

1. Perform 2. Administer 3. Design

- Collecting, analysing and organising information – to identify safety requirements
- Communicating ideas and information – to communicate and report Occupational Health and Safety issues
- Planning and organising activities – to organise own activities in line with Occupational Health and Safety procedures while under direct supervision
- Working with teams and others – to contribute to safe workplace practices
- Using mathematical ideas and techniques – to record workplace safety information
- Solving problems – to recognise and communicate hazards
- Using technology – to access relevant workplace safety information

Please refer to the Assessment Guidelines for advice on how to use the Key Competencies

Modification History

Not Available

INTRODUCTION

Unit Descriptor

This unit covers the skills and knowledge required to support own learning and skill development needs in the context of an organisation's goals and objectives.

This unit is related to BSBCMN204A Work effectively with others and BSBCMN404A Develop teams and individuals.

Competency Field

Common

Element

Performance Criteria

1. Identify own learning needs for skill development	1.1 Personal learning needs and skill gaps are self assessed 1.2 Advice on learning needs is provided to relevant personnel 1.3 Opportunities for undertaking personal skill development activities are identified and planned in liaison with work groups and relevant personnel
2. Undertake personal skill development	2.1 Appropriate opportunities provided by the workplace are identified 2.2 Opportunities are identified to use appropriate new skills in workplace activities 2.3 Coaching / mentoring advice is followed through in work activities
3. Monitor learning effectiveness	3.1 Feedback from individuals or colleagues is used to identify future learning opportunities 3.2 Where a final assessment process is carried out, the outcomes are reviewed and further learning needs are identified. 3.3 Suggestions for improving learning opportunities and assessment processes are provided to appropriate personnel

RANGE STATEMENT

The Range Statement provides advice to interpret the scope and context of this unit of competency, allowing for differences between enterprises and workplaces. It relates to the unit as a whole and facilitates holistic assessment. The following variables may be present for this particular unit:

They may use legislation, codes and national standards relevant to the workplace including:

- award and enterprise agreements and relevant industrial instruments
- relevant legislation from all levels of government that affects business operation, especially in regard to Occupational Health and Safety and environmental issues, equal opportunity, industrial relations and anti-discrimination
- relevant industry codes of practice

Organisational and individual performance requirements may be included in:

- goals, objectives, plans, systems and processes
- legal and organisational policy/guidelines and requirements
- Occupational Health and Safety policies, procedures and programs
- confidentiality and security requirements
- business and performance plans
- anti-discrimination and related policy
- access and equity principles and practice
- quality and continuous improvement processes and standards
- defined resource parameters
- awards and contracts

Personal skill development activities may include:

- coaching, mentoring and/or supervision
- informal internal training provision
- formal internal/external training provision
- work experience/exchange/opportunities
- personal study
- career planning/development
- performance appraisals
- workplace skills assessment
- Recognition of Prior Learning

- induction
 - job rotation / exchange
- Workgroups and relevant personnel may include but are not limited to:
- coach/mentor
 - training development of officer / assessor
 - supervisor, training manager
 - peers/work colleagues/team/enterprise
 - other members of the organisation
 - external consultants / teachers / trainers
- Assessment may include:
- performance evidence
 - knowledge evidence
 - periodic assessments
 - structured and unstructured simulations
- Feedback on performance may include:
- formal/informal performance appraisals
 - obtaining comments from supervisors and colleagues
 - obtaining comments from clients
 - workplace assessment
 - receiving guidance, technical support and information to assist performance

EVIDENCE GUIDE

The Evidence Guide identifies the critical aspects, underpinning knowledge and skills to be demonstrated to confirm competence for this unit. This is an integral part of the assessment of competence and should be read in conjunction with the Range Statement.

Critical Aspects of Evidence	• Identifying and implementing learning opportunities for self • Following learning plans to match skill needs • Receiving feedback constructively
Underpinning Knowledge*	• The relevant legislation from all levels of government that affects business operation, especially in regard to Occupational Health and Safety and environmental issues, equal opportunity, industrial relations and anti-discrimination
- * At this level the learner

must demonstrate some relevant theoretical knowledge.	• Knowledge of the organisation's training policies, plans and procedures • Knowledge of relevant competency standards and assessment processes • Knowledge of the principles and techniques of measuring performance and self-assessment • Understanding methods to identify and prioritise personal learning needs • Understanding / knowledge of systems and processes to direct personal learning • Knowledge of legislation and statutory requirements
Underpinning Skills	• Literacy skills to interpret written and oral information about training requirements, company policies and procedures • Communication skills including giving, receiving and analysing feedback • Planning skills to organise learning related activities • Team work skills to work effectively with teams/groups • Ability to relate to people from a range of social, cultural and ethnic backgrounds and physical and mental abilities
Resource Implications	The learner and trainer should have access to appropriate documentation and resources normally used in the workplace
Consistency of Performance	In order to achieve consistency of performance, evidence should be collected over a set period of time which is sufficient to include dealings with an appropriate range and variety of situations
Context/s of Assessment	• Competency is demonstrated by performance of all stated criteria, including paying particular attention to the critical aspects and the knowledge and skills elaborated in the Evidence Guide, and within the scope as defined by the Range Statement • Assessment must take account of the endorsed assessment guidelines in the Business Services Training Package • Assessment of performance requirements in this unit should be undertaken in an actual workplace or simulated environment • Assessment should reinforce the integration of the key competencies and the Business Services Common Competencies for the particular AQF Level. Refer to the Key

Competency Levels at the end of this unit

KEY COMPETENCY LEVELS

NB: These levels do not relate to the Australian Qualifications Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Collect, analyse and organise information	Communicate ideas and information	Plan and organise activities	Work with others and in teams	Use mathematical ideas and techniques	Solve problems	Use technology
Level 2	Level 1	Level 2	Level 2	Level 1	Level 2	Level 1

Three levels of performance denote level of competency required to perform a task.

1. Perform 2. Administer 3. Design

- Collecting, analysing and organising information – to measure self-performance
- Communicating ideas and information – with members of the work team
- Planning and organising activities – for self
- Working with teams and others – in completing scheduled tasks
- Using mathematical ideas and techniques – as an aid to measure and schedule tasks
- Solving problems – as an aid to self-development
- Using technology – to manage scheduling of tasks

Please refer to the Assessment Guidelines for advice on how to use the Key Competencies

BSBEBUS501A Evaluate e-business opportunities

Modification History

Not applicable.

Unit Descriptor

This unit covers evaluation of the impact of e-business for an industry sector, new opportunities or capabilities provided by the Internet, threats and opportunities related to e-business, and risks / obstacles to be overcome to take advantage of e-business opportunities.

This unit is related to BSBEBUS601A Develop an e-business strategy. Consider co-assessment with BSBEBUS502A Evaluate e-business models and BSBEBUS503A Design an e-business.

Competency field

e-business

This unit covers evaluation of the impact of e-business for an industry sector, new opportunities or capabilities provided by the Internet, threats and opportunities related to e-business, and risks / obstacles to be overcome to take advantage of e-business opportunities.

This unit is related to BSBEBUS601A Develop an e-business strategy. Consider co-assessment with BSBEBUS502A Evaluate e-business models and BSBEBUS503A Design an e-business.

Competency field

e-business

Application of the Unit

Not applicable.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Not applicable.

Elements and Performance Criteria Pre-Content

Not applicable.

Elements and Performance Criteria

Elements and Performance Criteria

Element	Performance Criteria
1 Analyse the external e-business environment	1.1 The extent of e-business and its applications are identified
	1.2 The current or likely effect of e-business on key sectors of the economy which impact on the business, is evaluated
	1.3 The impact of e-business in the business' industry sector is researched and evaluated
	1.4 A competitive analysis of existing and potential competitors and allies in e-business is undertaken
	1.5 The likely impact of embracing e-business solutions is estimated for the business using valid and reliable information sources
	1.6 The potential impact of foreign and domestic government legislation is evaluated
2 Analyse the business' capabilities in relation to e-business	2.1 The business' existing resources and core competencies are evaluated to identify competitive advantage
	2.2 Value chain analysis is completed across the organisation to identify processes and relationships that may benefit from the adoption of e-business solutions
	2.3 Threats and opportunities for the business related to the introduction of e-business solutions are identified
	2.4 Implications for the value chain of adopting e-business solutions are assessed
	2.5 Risks and obstacles in implementing e-business solutions are evaluated and ways to deal with them identified

- 2.6 Resource analysis is conducted to identify cost and revenue implications in developing opportunities
- 3 Evaluate e-business opportunities
 - 3.1 New capabilities provided by the Internet and other forms of e-business are identified through research and consultation and possible changes to the business and its culture are evaluated
 - 3.2 New e-business opportunities are identified and evaluated in terms of their compatibility with business goals and direction and their likely contribution to the business
 - 3.3 Legal and ethical issues relating to e-business opportunities are identified and evaluated
 - 3.4 The impact of the international nature of e-business is evaluated for each business opportunity
 - 3.5 The viability of making changes to current operations to take advantage of e-business opportunities is determined through cost-benefit analysis
 - 3.6 Timeframes required for implementation are evaluated for e-business opportunities

Required Skills and Knowledge

Not applicable.

Evidence Guide

The Evidence Guide identifies the critical aspects, underpinning knowledge and skills to be demonstrated to confirm competence for this unit. This is an integral part of the assessment of competence and should be read in conjunction with the Range Statement.

Critical aspects of evidence

Integrated demonstration of all elements of competency and their performance criteria

Evaluation of e-business opportunities involving new business models not simply electronic versions of existing businesses

Underpinning knowledge*

* Required knowledge/skills is to be limited to that which is sufficient to perform the particular workplace competency

Relevant legislation from all levels of government that affects business operation, especially in regard to Occupational Health and Safety and environmental issues, equal opportunity, industrial relations and anti-discrimination

Familiarity with Internet / World Wide Web

e-business environment

e-business terminology

Sources of market information

Value chain analysis

Cost-benefit analysis

Underpinning skills

Computer operating skills

Literacy skills to identify and interpret market information

Numeracy skills for data analysis and cost-benefit analysis

Ability to relate to stakeholders from a range of social, cultural and ethnic backgrounds and physical and mental abilities

Resource implications

The learner and trainer should have access to appropriate documentation and resources normally used in the workplace

Consistency of performance

In order to achieve consistency of performance, evidence should be collected over a set period of time which is sufficient to include dealings with an appropriate range and variety of situations

Context/s of assessment

Competency is demonstrated by performance of all stated criteria, including paying particular attention to the critical aspects and the knowledge and skills elaborated in the Evidence Guide, and within the scope as defined by the Range Statement

Assessment must take account of the endorsed assessment guidelines in the Business Services Training Package

Assessment of performance requirements in this unit should be undertaken in an actual workplace or simulated environment

Assessment should reinforce the integration of the key competencies and the business services common competencies for the particular AQF level. Refer to the Key Competency Levels at the end of this unit

Three levels of performance denote level of competency required to perform a task.

1. Perform
2. Administer
3. Design

Collecting, analysing and organising information - to analyse the e-business market and to determine the impact of e-business solutions (3)

Communicating ideas and information - to identify and communicate e-business opportunities and objectives and to identify and encourage business enabled by new capabilities which may become available (3)

Planning and organising activities - to analyse the current external environment, to evaluate the business's current capabilities and to identify new business opportunities (3)

Working with teams and others - to provide effective leadership and direction and to facilitate change in order to take advantage of new business opportunities (3)

Using mathematical ideas and techniques - to conduct an analysis of current and future business opportunities in relation to the current business position (2)

Solving problems - to evaluate current situation and to position the business to take advantage of new business opportunities (3)

Using technology - to facilitate analysis and evaluation of current situation and future opportunities (2)

The Evidence Guide identifies the critical aspects, underpinning knowledge and skills to be demonstrated to confirm competence for this unit. This is an integral part of the assessment of competence and should be read in conjunction with the Range Statement.

Critical aspects of evidence

Integrated demonstration of all elements of competency and their performance criteria

Evaluation of e-business opportunities involving new business models not simply electronic versions of existing businesses

Underpinning knowledge*

* Required knowledge/skills is to be limited to that which is sufficient to perform the particular workplace competency

Relevant legislation from all levels of government that affects business operation, especially in regard to Occupational Health and Safety and environmental issues, equal opportunity, industrial relations and anti-discrimination

Familiarity with Internet / World Wide Web

e-business environment

e-business terminology

Sources of market information

Value chain analysis

Cost-benefit analysis

Underpinning skills

Computer operating skills

Literacy skills to identify and interpret market information

Numeracy skills for data analysis and cost-benefit analysis

Ability to relate to stakeholders from a range of social, cultural and ethnic backgrounds and physical and mental abilities

Resource implications

The learner and trainer should have access to appropriate documentation and resources normally used in the workplace

Consistency of performance

In order to achieve consistency of performance, evidence should be collected over a set period of time which is sufficient to include dealings with an appropriate range and variety of situations

Context/s of assessment

Competency is demonstrated by performance of all stated criteria, including paying particular attention to the critical aspects and the knowledge and skills elaborated in the Evidence Guide, and within the scope as defined by the Range Statement

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Three levels of performance denote level of competency required to perform a task.

1. Perform
2. Administer
3. Design

Collecting, analysing and organising information - to analyse the e-business market and to determine the impact of e-business solutions (3)

Communicating ideas and information - to identify and communicate e-business opportunities and objectives and to identify and encourage business enabled by new capabilities which may become available (3)

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Solving problems - to evaluate current situation and to position the business to take advantage of new business opportunities (3)

Using technology - to facilitate analysis and evaluation of current situation and future opportunities (2)

Range Statement

Range statement

The Range Statement provides advice to interpret the scope and context of this unit of competency, allowing for differences between enterprises and workplaces. It relates to the unit as a whole and facilitates holistic assessment. The following variables may be present for this particular unit:

Legislation, codes and national standards relevant to the workplace may include:

award and enterprise agreements

national, State/Territory legislative requirements especially in regard to Occupational Health and Safety

industry codes of practice

OECD International Guidelines for Consumer Protection in E-Commerce

copyright laws

defamation laws

privacy legislation

intellectual property, confidentiality requirements

legal and regulatory policies affecting e-business

Internet codes of practice

e-business is:

every type of business transaction in which the participants (ie suppliers, end users etc) prepare or transact business or conduct their trade in goods or services electronically (A definition of e-business in E-competent Australia, ANTA, May 2000)

Processes and relationships may include:

organisation structures

customer service

delivery of core services

delivery of products

delivery of Government services

trading communities

development of new products, services and markets

Value chain analysis is:

an analysis of a series of primary activities, such as:

inbound logistics

operations

outbound logistics

marketing and sales

service support

and their support activities, such as:

business infrastructure

human resource management

technological development

procurement

Threats and opportunities may include:

business-to-business (B2B) opportunities where e-business is conducted between companies

business-to-consumer (B2C) opportunities where e-business is conducted between an enterprise and a customer

business to Government (B2G) opportunities where e-business is conducted between an enterprise and the Government

disintermediation threats/opportunities where the role of 'middlemen' or other middle supply chain elements is reduced or made redundant as newer more efficient supply chain technologies are implemented

re-intermediation opportunities, where e-business creates new value between producers and consumers

Competition legislation

internal business opportunities that improve productivity utilising e-business development

risk management: payments, fraud etc

infrastructure requirements: disaster recovery, failsafe systems

New capabilities may include:

24-hour operation

communication

global reach

supply channel

distribution channel

online customer service

automated marketing efforts

Contribution to the business may include:

effect on:

sales

market share

profitability

growth

return on investment

customer satisfaction ratings

staff productivity and professional development

staff morale ie using efficient technologies to enhance workplace

International nature of e-business may include:

language

culture

legal issues

technology

distribution factors

Technology focus of e-business may include:

access to support

basic understanding of processes

Range statement

The Range Statement provides advice to interpret the scope and context of this unit of competency, allowing for differences between enterprises and workplaces. It relates to the unit as a whole and facilitates holistic assessment. The following variables may be present for this particular unit:

Legislation, codes and national standards relevant to the workplace may include:

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national, State/Territory legislative requirements especially in regard to Occupational Health and Safety

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copyright laws

defamation laws

privacy legislation

intellectual property, confidentiality requirements

legal and regulatory policies affecting e-business

Internet codes of practice

e-business is:

every type of business transaction in which the participants (ie suppliers, end users etc) prepare or transact business or conduct their trade in goods or services electronically (A definition of e-business in E-competent Australia, ANTA, May 2000)

Processes and relationships may include:

organisation structures
customer service
delivery of core services
delivery of products
delivery of Government services
trading communities
development of new products, services and markets

Value chain analysis is:

an analysis of a series of primary activities, such as:

inbound logistics

operations

outbound logistics

marketing and sales

service support

and their support activities, such as:

business infrastructure

human resource management

technological development

procurement

Threats and opportunities may include:

business-to-business (B2B) opportunities where e-business is conducted between companies

business-to-consumer (B2C) opportunities where e-business is conducted between an enterprise and a customer

business to Government (B2G) opportunities where e-business is conducted between an enterprise and the Government

disintermediation threats/opportunities where the role of 'middlemen' or other middle supply chain elements is reduced or made redundant as newer more efficient supply chain technologies are implemented

re-intermediation opportunities, where e-business creates new value between producers and consumers

Competition legislation

internal business opportunities that improve productivity utilising e-business development

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infrastructure requirements: disaster recovery, failsafe systems

New capabilities may include:

24-hour operation

communication

global reach

supply channel

distribution channel

online customer service

automated marketing efforts

Contribution to the business may include:

effect on:

sales

market share

profitability

growth

return on investment

customer satisfaction ratings

staff productivity and professional development

staff morale ie using efficient technologies to enhance workplace

International nature of e-business may include:

language

culture

legal issues

technology

distribution factors

Technology focus of e-business may include:

access to support

basic understanding of processes

Unit Sector(s)

Not applicable.

BSBEBUS504A Implement an e-business strategy

Modification History

Not applicable.

Unit Descriptor

This unit covers implementation, monitoring and review of e-business strategy.

This unit is related to BSBEBUS601A Develop an e-business strategy. Consider co-assessment with BSBEBUS505A Implement new technologies for business.

Competency field

e-business

This unit covers implementation, monitoring and review of e-business strategy.

This unit is related to BSBEBUS601A Develop an e-business strategy. Consider co-assessment with BSBEBUS505A Implement new technologies for business.

Competency field

e-business

Application of the Unit

Not applicable.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Not applicable.

Elements and Performance Criteria Pre-Content

Not applicable.

Elements and Performance Criteria

Elements and Performance Criteria

Element	Performance Criteria
1 Implement action plan for e-business strategy	1.1 Business processes are identified and re-engineered using online technologies in accordance with the business plan and the e-business model 1.2 Technology for e-business implementation is acquired in accordance with the action plan and budgetary requirements 1.3 Policies and procedures are used to guide business operations in accordance with the e-business model 1.4 Learning and development opportunities are provided in accordance with the business plan and staff needs 1.5 Information and development support is provided to customers and supply chain to assist in implementation of the e-business strategy
2 Manage the business change process	2.1 Coaching and mentoring is provided to assist staff, supply chain and customers to master new processes and new technologies in accordance with individual needs 2.2 Staff, supply chain and customers are kept informed of progress in the implementation of change to an e-business model
3 Monitor implementation and manage contingencies	3.1 The culture of the business and its effect on achievement of business goals is monitored and processes for dealing with culture change are managed in accordance with the e-business strategy 3.2 Opportunities are identified to adjust policies and processes to respond to the changing needs of customers, supply chain and the organisation 3.3 Adjustments to manage contingencies are made in accordance with level of responsibility and authority
4 Evaluate and improve	4.1 Review of the implementation of the e-business strategy is undertaken in accordance with

e-business strategy

organisational requirements

- 4.2 Information and reports are used to compare plans, budgets, timelines and forecasts to actual performance
- 4.3 e-business systems are reviewed in consultation with users and personnel responsible for e-business and recommendations made for improvements
- 4.4 Evaluation results and feedback from users are used to plan and improve future e-business strategies

Required Skills and Knowledge

Not applicable.

Evidence Guide

The Evidence Guide identifies the critical aspects, underpinning knowledge and skills to be demonstrated to confirm competence for this unit. This is an integral part of the assessment of competence and should be read in conjunction with the Range Statement.

Critical aspects of evidence

Integrated demonstration of all elements of competency and their performance criteria

The importance of culture change for the successful implementation of an e-business strategy

Underpinning knowledge*

* Required knowledge/skills is to be limited to that which is sufficient to perform the particular workplace competency

Relevant legislation from all levels of government that affects business operation, especially in regard to Occupational Health and Safety and environmental issues, equal opportunity, industrial relations and anti-discrimination

e-business environment

e-business terminology

Legal, ethical and security issues relating to e-business

Culture of e-business versus traditional business models

Open and international standards

Implementation issues

Underpinning skills

Computer technology skills

Literacy skills to interpret policies and procedures and provide information to others

Numeracy skills for complying with budgetary requirements

Communication skills for consultation with users, supply chain and customers

Change management

Ability to relate to stakeholders from a range of social, cultural and ethnic backgrounds and physical and mental abilities

Resource implications

The learner and trainer should have access to appropriate documentation and resources normally used in the workplace

Consistency of performance

In order to achieve consistency of performance, evidence should be collected over a set period of time which is sufficient to include dealings with an appropriate range and variety of situations

Context/s of assessment

Competency is demonstrated by performance of all stated criteria, including paying particular attention to the critical aspects and the knowledge and skills elaborated in the Evidence Guide, and within the scope as defined by the Range Statement

Assessment must take account of the endorsed assessment guidelines in the Business Services Training Package

Assessment of performance requirements in this unit should be undertaken in an actual workplace or simulated environment

Assessment should reinforce the integration of the key competencies and the business services common competencies for the particular AQF level. Refer to the Key Competency Levels at the end of this unit

Three levels of performance denote level of competency required to perform a task.

1. Perform
2. Administer
3. Design

Collecting, analysing and organising information - to re-engineer business processes and to evaluate and produce reports (3)

Communicating ideas and information - to assist and coach staff, supply chain and customers with new e-business model and to keep stakeholders constantly informed of the changes in e-business strategies (3)

Planning and organising activities - by developing policies and procedures to inform business operations and to implement e-business strategies (3)

Working with teams and others - to provide training and development and to bring about the culture change necessary to manage change and to implement effective e-business strategies (3)

Using mathematical ideas and techniques - to meet budgetary requirements (1)

Solving problems - to manage change, to deal with contingencies and to develop and adapt processes and procedures to implement e-business strategies (3)

Using technology -to provide business services (3)

The Evidence Guide identifies the critical aspects, underpinning knowledge and skills to be demonstrated to confirm competence for this unit. This is an integral part of the assessment of competence and should be read in conjunction with the Range Statement.

Critical aspects of evidence

Integrated demonstration of all elements of competency and their performance criteria

The importance of culture change for the successful implementation of an e-business strategy

Underpinning knowledge*

* Required knowledge/skills is to be limited to that which is sufficient to perform the particular workplace competency

Relevant legislation from all levels of government that affects business operation, especially in regard to Occupational Health and Safety and environmental issues, equal opportunity, industrial relations and anti-discrimination

e-business environment

e-business terminology

Legal, ethical and security issues relating to e-business

Culture of e-business versus traditional business models

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Implementation issues

Underpinning skills

Computer technology skills

Literacy skills to interpret policies and procedures and provide information to others

Numeracy skills for complying with budgetary requirements

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1. Perform
2. Administer
3. Design

Collecting, analysing and organising information - to re-engineer business processes and to evaluate and produce reports (3)

Communicating ideas and information - to assist and coach staff, supply chain and customers with new e-business model and to keep stakeholders constantly informed of the changes in e-business strategies (3)

Planning and organising activities - by developing policies and procedures to inform business operations and to implement e-business strategies (3)

Working with teams and others - to provide training and development and to bring about the culture change necessary to manage change and to implement effective e-business strategies (3)

Using mathematical ideas and techniques - to meet budgetary requirements (1)

Solving problems - to manage change, to deal with contingencies and to develop and adapt processes and procedures to implement e-business strategies (3)

Using technology -to provide business services (3)

Range Statement

Range statement

The Range Statement provides advice to interpret the scope and context of this unit of competency, allowing for differences between enterprises and workplaces. It relates to the unit as a whole and facilitates holistic assessment. The following variables may be present for this particular unit:

Legislation, codes and national standards relevant to the workplace may include:

award and enterprise agreements

national, State/Territory legislative requirements especially in regard to Occupational Health and Safety

industry codes of practice

OECD International Guidelines for Consumer Protection in E-Commerce

copyright laws

defamation laws

privacy legislation

intellectual property, confidentiality requirements

legal and regulatory policies affecting e-business

e-business is:

every type of business transaction in which the participants (ie suppliers, end users etc) prepare or transact business or conduct their trade in goods or services electronically (Definition of e-commerce in **E-competent Australia**, ANTA, May 2000)

Policies and guidelines may include:

security

privacy

confidentiality

information management

risk management

intellectual property

fraud prevention and detection

business ethics

human resource management

performance management

electronic communication

outsourcing

legal issues eg jurisdiction, contract validity, taxation

Information and development support may include:

personal identification and password for online access to business processes eg purchasing or supply

banking information for electronic funds transfer

new protocols relating to legal or security issues for e-business

open and international standards e.g. EAN.UCC or UN/EDIFACT

contact person

advice on staffing arrangements

advice on technology issues / compatibility

advice on existing business strategy and base business versus growth business

feedback loops

Range statement

The Range Statement provides advice to interpret the scope and context of this unit of competency, allowing for differences between enterprises and workplaces. It relates to the unit as a whole and facilitates holistic assessment. The following variables may be present for this particular unit:

Legislation, codes and national standards relevant to the workplace may include:

award and enterprise agreements

national, State/Territory legislative requirements especially in regard to Occupational Health and Safety

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OECD International Guidelines for Consumer Protection in E-Commerce

copyright laws

defamation laws

privacy legislation

intellectual property, confidentiality requirements

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outsourcing

legal issues eg jurisdiction, contract validity, taxation

Information and development support may include:

personal identification and password for online access to business processes eg purchasing or supply

banking information for electronic funds transfer

new protocols relating to legal or security issues for e-business

open and international standards e.g. EAN.UCC or UN/EDIFACT

contact person

advice on staffing arrangements

advice on technology issues / compatibility

advice on existing business strategy and base business versus growth business

feedback loops

Unit Sector(s)

Not applicable.

Modification History

Not Available

INTRODUCTION

Unit Descriptor This unit covers planning for the introduction of new technologies, implementing new technologies for the business and managing the change process associated with implementation.

Consider co-assessment with BSBEBUS504A Implement an e-business strategy.

Competency Field e-business

Element	Performance Criteria
1. Develop implementation plan for new technologies	1.1 Staff skills and culture change issues in adoption of new technologies are determined in accordance with organisational requirements 1.2 Risks and obstacles relating to the introduction of new technologies are identified and planned for 1.3 Changes to current business practices necessary in adopting new technologies are identified 1.4 Suppliers of new technologies are confirmed and their provision of initial and ongoing training and support identified 1.5 Implementation plan identifies objectives, activities, timeframes and budget for the introduction of new technologies
2. Implement new technologies	2.1 Responsibility for new technologies is assigned in accordance with organisational requirements 2.2 Technologies are introduced and business processes are re-engineered in accordance with the implementation plan 2.3 New policy and procedures are developed for the introduction and integration of new technologies into the business 2.4 New and existing staff are inducted, and learning and development opportunities for staff affected by new technologies are provided in accordance with the implementation plan 2.5 Information and support are made available to customers and supply chain affected by the introduction of new technologies in accordance with organisational requirements
3. Monitor implementation of new technologies and manage contingencies	3.1 Staff, supply chain and customers are kept informed of progress in the implementation of change to new technologies 3.2 The culture of the business is monitored and processes for facilitating culture change are utilised in accordance with the e-business strategy 3.3 Opportunities are identified to adjust policies and processes to respond to the changing needs of customers, supply chain and the organisation within budgetary requirements 3.4 Adjustments to policy and procedures to manage

contingencies are made in accordance with level of responsibility and authority

RANGE STATEMENT

The Range Statement provides advice to interpret the scope and context of this unit of competency, allowing for differences between enterprises and workplaces. It relates to the unit as a whole and facilitates holistic assessment. The following variables may be present for this particular unit:

Legislation, codes and national standards relevant to the workplace may include:	• award and enterprise agreements • national, State/Territory legislative requirements especially in regard to Occupational Health and Safety • industry codes of practice • OECD International Guidelines for Consumer Protection in E-Commerce • copyright laws • defamation laws • privacy legislation • intellectual property, confidentiality requirements • legal and regulatory policies affecting e-business
e-business is:	• every type of business transaction in which the participants (ie suppliers, end users etc) prepare or transact business or conduct their trade in goods or services electronically (Definition of e-commerce in E-competent Australia, ANTA, May 2000)
New technologies may include:	• mobile technologies eg second generation such as GSM (Global System for Mobile communications) • 3G (third generation cellular radio for mobile technology, designed to support wideband data communications just as well as voice - the basis for a wireless information society) • location based services for mobile • digital signature technology for mobile phone users • General Packet Radio Services (GPRS) • WAP (wireless application protocol) • UMTS (universal mobile telephony system) • xDSL technologies eg ADSL (Asymmetric Digital Subscriber

Line)

- computer telephony integration
- access gateways (to hide type of access that may be via cable modem, mobile telephone, landline, ADSL modem)
- fax gateways
- Bluetooth chips for short distance wireless connections over short distances (alternative to cable)
- EDGE (Enhanced Data rates for GSM Evolution) to increase GSM network capacity and data rates
- Internet telephony
- voice verification technology
- business to business electronic data intranet e.g. UN/EDIFACT, XML via internet, web browsers.

Policies and procedures may include:

- security
- risk management
- information management
- human resource management
- business ethics
- privacy
- confidentiality
- intellectual property
- fraud prevention and detection
- electronic communication

EVIDENCE GUIDE

The Evidence Guide identifies the critical aspects, underpinning knowledge and skills to be demonstrated to confirm competence for this unit. This is an integral part of the assessment of competence and should be read in conjunction with the Range Statement.

Critical Aspects of Evidence

- Integrated demonstration of all elements of competency and their performance criteria
- Sufficiency of provision for staff support and training, attention to cultural change issues, and integration of new technologies with other business processes

Underpinning Knowledge*

- Relevant legislation from all levels of government that

* Required knowledge/skills is to be limited to that which is sufficient to perform the particular workplace competency	affects business operation, especially in regard to Occupational Health and Safety and environmental issues, equal opportunity, industrial relations and anti-discrimination • e-business • e-business terminology • Change management • Legal, ethical and security issues relating to introduction of new technologies • Culture of e-business versus traditional business models • Implementation issues
Underpinning Skills	• Computer technology skills • Literacy skills to adjust policies and procedures and provide information to others • Numeracy skills for complying with budgetary requirements • Communication skills for consultation with suppliers, staff, supply chain and customers • Ability to relate to stakeholders from a range of social, cultural and ethnic backgrounds and physical and mental abilities
Resource Implications	The learner and trainer should have access to appropriate documentation and resources normally used in the workplace
Consistency of Performance	In order to achieve consistency of performance, evidence should be collected over a set period of time which is sufficient to include dealings with an appropriate range and variety of situations
Context/s of Assessment	• Competency is demonstrated by performance of all stated criteria, including paying particular attention to the critical aspects and the knowledge and skills elaborated in the Evidence Guide, and within the scope as defined by the Range Statement • Assessment must take account of the endorsed assessment guidelines in the Business Services Training Package • Assessment of performance requirements in this unit

should be undertaken in an actual workplace or simulated environment

- Assessment should reinforce the integration of the key competencies and the business services common competencies for the particular AQF level. Refer to the Key Competency Levels at the end of this unit

KEY COMPETENCY LEVELS

NB: These levels do not relate to the Australian Qualifications Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Collect, analyse and organise information	Communicate ideas and information	Plan and organise activities	Work with others and in teams	Use mathematical ideas and techniques	Solve problems	Use technology
Level 2	Level 3	Level 3	Level 3	Level 2	Level 3	Level 2

Three levels of performance denote level of competency required to perform a task.

1. Perform
2. Administer
3. Design

- Collecting, analysing and organising information – to develop an implementation plan and to identify risks and changes needed to develop the business
- Communicating ideas and information – through updated policy and procedures, to keep staff and customers informed of implementation progress of new technologies for the business
- Planning and organising activities – to prepare for the implementation of new technologies for the business, including the training and development of new and existing staff and other stakeholders
- Working with teams and others – to provide training to staff and others affected by the introduction of new technologies to the business

- Using mathematical ideas and techniques – to prepare budgets and timeframes for the implementation of new technologies for the business
- Solving problems – to manage cultural change, business process change and contingencies relating to the introduction of new technologies to the business
- Using technology – once integrated into the business

Please refer to the Assessment Guidelines for advice on how to use the Key Competencies

Modification History

Not Available

INTRODUCTION

Unit Descriptor This unit covers establishing strategies for managing outsourcing and communication with service providers, performance management, monitoring and review of contractual arrangements.

This unit is related to BSBEBUS607A Develop e-business outsourcing policy and guidelines. Consider co-assessment with BSBEBUS509A Implement e-business outsourcing arrangements and BSBEBUS516A Manage online purchasing.

Competency Field e-business

Element

Performance Criteria

1. Establish a management strategy for e-business outsourcing	1.1 Contractual arrangements are re-confirmed with all parties to ensure a common understanding of responsibilities and planned outcomes
	1.2 Agreed technology and information exchange requirements are checked and an electronic communication strategy negotiated in accordance with contractual obligations
	1.3 Start-up or transition arrangements are agreed and implemented in accordance with contractual obligations
	1.4 A strategy for day to day and contingency management of e-business outsourcing is negotiated and documented in

accordance with organisational requirements

1.5 A contract review strategy is agreed for e-business outsourcing in accordance with organisational requirements

2. Maintain and monitor outsourcing performance

2.1 Relationship with outsourcing service provider is managed in accordance with e-business outsourcing policy and guidelines

2.2 Outsourcing service quality and performance is monitored against forecasts, customer service requirements and budgets for early identification of problems and to ensure contractual obligations are met

2.3 Obligations of the business to the e-business service provider are met and any negotiation of issues occurs in accordance with contractual obligations

2.4 Emerging or potential risks are managed in accordance with the organisation's risk management strategy

2.5 Management and communication strategies are monitored for effectiveness and adapted as necessary during the life of the contract in accordance with organisational requirements and level of authority

2.6 Business records for e-business outsourcing are maintained in accordance with organisational requirements to allow management reporting / decision-making

3. Review and renegotiate or finalise e-business outsourcing arrangements

3.1 Contract review strategy is implemented, including customer review, and performance data related to contract management, customer and service provider satisfaction, profitability and value adding, analysed

3.2 Contract review information is used to report on service level agreements, provider performance and outcomes, and to adapt e-business outsourcing policy and guidelines

3.3 Where contractual obligations have not been met in full, variances are documented, explained and remedied

3.4 Contract is finalised or renegotiated based on review outcomes in accordance with contractual obligations

3.5 Close-out, renewal of the contract or transition to a new contract are managed in accordance with organisational requirements and contractual obligations

RANGE STATEMENT

The Range Statement provides advice to interpret the scope and context of this unit of competency, allowing for differences between enterprises and workplaces. It relates to the unit as a whole and facilitates holistic assessment. The following variables may be present for this particular unit:

Legislation, codes and national standards relevant to the workplace may include:

- award and enterprise agreements
- national, State/Territory legislative requirements especially in regard to Occupational Health and Safety
- industry codes of practice
- OECD International Guidelines for Consumer Protection in E-Commerce
- copyright laws
- privacy legislation
- intellectual property, confidentiality requirements
- legal and regulatory policies affecting e-business
- Trade Practices Act

Contractual arrangements may include:

- collaborative agreement
- partnership
- licence
- contract
- letter of intent
- memorandum of agreement
- management reporting criteria including vendor reporting and service level agreement compliance

e-business is:

- every type of business transaction in which the participants (ie suppliers, end users etc) prepare or transact business or conduct their trade in goods or services electronically (Definition of e-commerce in E-competent Australia, ANTA, May 2000)

e-business outsourcing may include:

- website setup, maintenance and management
- online catalogue setup and maintenance
- technology maintenance
- authentication services
- ordering
- production

- e-marketing
- inventory management
- labelling
- distribution
- invoicing
- credit card facilities
- accounting

Negotiation of issues may include:

- resolving disputes
- dealing with complaints
- dealing with non-compliance
- consequences of defaulting
- contract variations
- continuous improvement
- innovations

EVIDENCE GUIDE

The Evidence Guide identifies the critical aspects, underpinning knowledge and skills to be demonstrated to confirm competence for this unit. This is an integral part of the assessment of competence and should be read in conjunction with the Range Statement.

Critical Aspects of Evidence

- Integrated demonstration of all elements of competency and their performance criteria
- Negotiation of issues arising /management of contingencies
- mutually beneficial e-business outsourcing arrangements

Underpinning Knowledge*

* Required knowledge/skills is to be limited to that which is sufficient to perform the particular workplace competency

- Relevant legislation from all levels of government that affects business operation, especially in regard to Occupational Health and Safety and environmental issues, equal opportunity, industrial relations and anti-discrimination
- Outsourcing policy and procedures
- Legal and ethical issues related managing contracts
- Legal issues related to collaboration or partnerships

	(intellectual property, copyright, confidentiality etc) • relevant aspects of trade practices, commercial and contract law
Underpinning Skills	• Literacy skills to read contractual agreements, and document contract management strategies and contract variations • Numeracy skills to determine profitability, value adding • Communication skills to deal with contingencies and re-negotiate contract or partnership arrangements • Oral skills to present reports to stakeholders on outsourcing • Computer technology skills • Ability to relate to stakeholders from a range of social, cultural and ethnic backgrounds and physical and mental abilities
Resource Implications	The learner and trainer should have access to appropriate documentation and resources normally used in the workplace
Consistency of Performance	In order to achieve consistency of performance, evidence should be collected over a set period of time which is sufficient to include dealings with an appropriate range and variety of situations
Context/s of Assessment	• Competency is demonstrated by performance of all stated criteria, including paying particular attention to the critical aspects and the knowledge and skills elaborated in the Evidence Guide, and within the scope as defined by the Range Statement • Assessment must take account of the endorsed assessment guidelines in the Business Services Training Package • Assessment of performance requirements in this unit should be undertaken in an actual workplace or simulated environment • Assessment should reinforce the integration of the key competencies and the business services common competencies for the particular AQF level. Refer to the Key Competency Levels at the end of this unit

KEY COMPETENCY LEVELS

NB: These levels do not relate to the Australian Qualifications Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Collect, analyse and organise information	Communicate ideas and information	Plan and organise activities	Work with others and in teams	Use mathematical ideas and techniques	Solve problems	Use technology
Level 3	Level 3	Level 3	Level 3	Level 2	Level 3	Level 2

Three levels of performance denote level of competency required to perform a task.

1. Perform
 2. Administer
 3. Design
- Collecting, analysing and organising information – to determine project specifications , establish processes, review specifications and contracts and outsourcing arrangements
 - Communicating ideas and information – to confirm outsourcing arrangements and to negotiate issues relating to outsourcing arrangements
 - Planning and organising activities – to co-ordinate the requirements and information necessary to implement the contract brief, to make decisions on outsourcing arrangements and to manage contingencies
 - Working with teams and others – to develop relationships with business partners and negotiate contractual arrangements to minimise risks associated with outsourcing
 - Using mathematical ideas and techniques – to analyse cost effectiveness of outsourcing arrangements
 - Solving problems – to implement specifications and contracts, to co-ordinate the project brief and to deal with disputes or complaints
 - Using technology – to manage e-business outsourcing

Please refer to the Assessment Guidelines for advice on how to use the Key Competencies

Modification History

Not Available

INTRODUCTION

Unit Descriptor This unit covers implementation of a knowledge management strategy for an e-business through technology and cultural change.

This unit is related to BSBEBUS609A Develop a knowledge management strategy for an e-business.

Competency Field e-business

Element

Performance Criteria

1. Implement knowledge management system and procedures	1.1 A culture of sharing knowledge within the e-business is fostered through a system of formal and/or informal incentives and rewards 1.2 Policy and procedures for capturing knowledge within the organisation are implemented in accordance with the e-business knowledge management strategy and integrated into existing business processes to change the enterprise processes to an e-business one. 1.3 Ways of contributing to the organisation's knowledge management system are modelled, and learning and development opportunities are provided for staff to assist them to contribute and provide feedback 1.4 Staff are provided with coaching, mentoring and ongoing support in accessing and using the organisation's knowledge management system in accordance with the e-business knowledge management strategy 1.5 Protection and security of knowledge / information and levels of access are managed in accordance with organisational requirements
2. Maintain e-business knowledge base	2.1 Input procedures are monitored to ensure that sources are tapped and knowledge captured in accordance with the e-business knowledge management strategy and to ensure the effectiveness

- of accurate data capture
- 2.2 Data on access and use of the knowledge management system is collected and analysed to ascertain the organisation's strategic use of knowledge
- 2.3 Contingency measures are implemented to address shortfalls in the knowledge management system and procedures in accordance with level of responsibility and authority
- 3. Review knowledge management system and procedures
 - 3.1 The effectiveness of the knowledge management system and procedures is evaluated to ensure they are meeting the needs of clients, organisational aims, objectives and standards
 - 3.2 Organisational knowledge content, accuracy and currency is periodically reviewed in accordance with organisational requirements
 - 3.3 Improvements to the system and to the organisation's strategic use of knowledge are identified in consultation with users and a cost-benefit analysis prepared for recommendations

RANGE STATEMENT

The Range Statement provides advice to interpret the scope and context of this unit of competency, allowing for differences between enterprises and workplaces. It relates to the unit as a whole and facilitates holistic assessment. The following variables may be present for this particular unit:

Legislation, codes and national standards relevant to the workplace may include:	• award and enterprise agreements • national, State/Territory legislative requirements especially in regard to Occupational Health and Safety • industry codes of practice • OECD International Guidelines for Consumer Protection in E-Commerce • copyright laws • defamation laws • privacy legislation • intellectual property, confidentiality requirements • legal and regulatory policies affecting e-business
e-business is:	• every type of business transaction in which the participants (ie suppliers, end users etc) prepare or transact business or conduct their trade in goods or services electronically

(Definition of e-commerce in E-competent Australia, ANTA, May 2000)

- Accurate data capture can involve:
- ensuring effectiveness of accurate data capture
 - minimisation of inefficient processing
 - using open standards e.g. EAN.UCC, UN/EDIFACT

EVIDENCE GUIDE

The Evidence Guide identifies the critical aspects, underpinning knowledge and skills to be demonstrated to confirm competence for this unit. This is an integral part of the assessment of competence and should be read in conjunction with the Range Statement.

Critical Aspects of Evidence	• Integrated demonstration of all elements of competency and their performance criteria • Contingency measures for overcoming barriers to implementation of the knowledge management system
Underpinning Knowledge*	• Relevant legislation from all levels of government that affects business operation, especially in regard to Occupational Health and Safety and environmental issues, equal opportunity, industrial relations and anti-discrimination • Internal and external sources of information • Structure of the e-business • Culture of e-business versus traditional business models • Legal, ethical and security issues relating to knowledge management • Knowledge maintenance issues • e-business terminology
Underpinning Skills	• Computer technology skills • Literacy skills to access and use knowledge management system • Numeracy skills data analysis • Communication skills for consultation with staff • Ability to relate to stakeholders from a range of social, cultural and ethnic backgrounds and physical and

mental abilities

Resource Implications	The learner and trainer should have access to appropriate documentation and resources normally used in the workplace
Consistency of Performance	In order to achieve consistency of performance, evidence should be collected over a set period of time which is sufficient to include dealings with an appropriate range and variety of situations
Context/s of Assessment	- Competency is demonstrated by performance of all stated criteria, including paying particular attention to the critical aspects and the knowledge and skills elaborated in the Evidence Guide, and within the scope as defined by the Range Statement - Assessment must take account of the endorsed assessment guidelines in the Business Services Training Package - Assessment of performance requirements in this unit should be undertaken in an actual workplace or simulated environment - Assessment should reinforce the integration of the key competencies and the business services common competencies for the particular AQF level. Refer to the Key Competency Levels at the end of this unit

KEY COMPETENCY LEVELS

NB: These levels do not relate to the Australian Qualifications Framework. They relate to the seven areas of generic competency that underpin effective workplace practices.

Collect, analyse and organise information	Communicate ideas and information	Plan and organise activities	Work with others and in teams	Use mathematical ideas and techniques	Solve problems	Use technology
Level 3	Level 3	Level 3	Level 3	Level 1	Level 3	Level 2

Three levels of performance denote level of competency required to perform a task.

1. Perform
2. Administer
3. Design
 - Collecting, analysing and organising information – to collect and analyse data to assess use of the organisation's knowledge management system and to develop policies and procedures
 - Communicating ideas and information – through coaching and mentoring staff in the use of the organisation's knowledge management system and in seeking ways to improve the system
 - Planning and organising activities – to co-ordinate the requirements and information necessary to manage the organisation's knowledge system and to maintain and develop the organisation's knowledge base
 - Working with teams and others – to implement change, to identify requirements and to develop systems to implement the organisation's knowledge management system
 - Using mathematical ideas and techniques – for data analysis
 - Solving problems – by implementing contingency measures to address shortfalls in the system and by developing systems to ensure the system is effective, secure and sufficient for the organisation's requirements
 - Using technology – to manage organisational knowledge

Please refer to the Assessment Guidelines for advice on how to use the Key Competencies

BSBEBUS601A Develop an e-business strategy

Modification History

Not applicable.

Unit Descriptor

This unit covers environmental analysis and strategic planning for e-business that supports the organisation's overall business strategy.

This unit is related to BSBEBUS501A Evaluate e-business opportunities and BSBEBUS502A Evaluate e-business models. Consider co-assessment with BSBEBUS602A Develop an action plan for an e-business strategy and BSBEBUS604A Develop a business website.

Competency field

e-business

This unit covers environmental analysis and strategic planning for e-business that supports the organisation's overall business strategy.

This unit is related to BSBEBUS501A Evaluate e-business opportunities and BSBEBUS502A Evaluate e-business models. Consider co-assessment with BSBEBUS602A Develop an action plan for an e-business strategy and BSBEBUS604A Develop a business website.

Competency field

e-business

Application of the Unit

Not applicable.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Not applicable.

Elements and Performance Criteria Pre-Content

Not applicable.

Elements and Performance Criteria

Elements and Performance Criteria

Element	Performance Criteria
1 Analyse the organisation's internal business environment	1.1 The organisation's strategic direction, general business goals and priorities are confirmed and potential benefits from the adoption of an e-business strategy are identified 1.2 Current business practices, responsibilities, and business culture are re-evaluated in light of e-business requirements 1.3 Organisational policies, procedures and relationships that may benefit from the adoption of e-business solutions are identified 1.4 The impact of e-business strategies on employees and existing customers is evaluated and documented in accordance with organisational requirements 1.5 The business' strengths, weaknesses, opportunities and threats are analysed in relation to e-business 1.6 The potential for the e-business strategy to transform the business is considered within the planning process and risk management processes identified
2 Evaluate external factors impacting on e-business strategy	2.1 The impact of e-business in the organisation's industry sector is researched and evaluated 2.2 Legal, ethical and security issues relating to e-business are identified and analysed 2.3 A competitive analysis of existing and potential e-business competitors and allies in is undertaken to determine the relative competitive advantage of e-business strategies 2.4 The impact on the strategy of the potential international nature of e-business is evaluated

- 2.5 Potential e-business models are evaluated in terms of their ability to satisfy business objectives and an economic evaluation of each option completed
 - 2.6 Opportunities, risks and obstacles in implementing an e-business model are evaluated and ways to deal with them identified
- 3 Determine the strategic direction of the business in relation to e-business
 - 3.1 Strategic e-business goals are determined for the business in accordance with the overall strategic direction and business goals of the organisation
 - 3.2 Critical e-business success factors are determined in accordance with the overall business goals of the organisation
 - 3.3 Key result areas for the e-business strategy are identified in accordance with overall business goals
 - 3.4 The strategy identifies areas of the business that are trading online and off-line and the management of these, including operations that may overlap
- 4 Formulate an e-business strategy
 - 4.1 The e-business strategy identifies prioritised objectives within key result areas and includes strategies to achieve each objective in accordance with overall strategic direction and business goals
 - 4.2 The strategy identifies an e-business model for the organisation in accordance with strategic direction and overall business objectives and capabilities
 - 4.3 The strategy includes a risk analysis for key result areas, and strategies for dealing with culture change in the organisation relating to e-business
 - 4.4 Policies and procedures are identified for development to guide business operation in accordance with the e-business model and overall business objectives
 - 4.5 Valid and reliable performance measures are determined for each e-business objective along with strategies for performance monitoring and reporting
 - 4.6 The strategy meets organisational requirements in terms of format and level of detail

Required Skills and Knowledge

Not applicable.

Evidence Guide

The Evidence Guide identifies the critical aspects, knowledge and skills to be demonstrated to confirm competency for this unit. This is an integral part of the assessment of competency and should be read in conjunction with the Range Statement.

Critical aspects of evidence

Integrated demonstration of all elements of competency and their performance criteria

Information to support choice of critical success factors, key result areas, strategic objectives and their priorities

Underpinning knowledge*

* Required knowledge/skills is to be limited to that which is sufficient to perform the particular workplace competency

Relevant legislation from all levels of government that affects business operation, especially in regard to Occupational Health and Safety and environmental issues, equal opportunity, industrial relations and anti-discrimination

e-business environment

e-business terminology

Business planning methodologies

Legal, ethical and security issues relating to e-business

Culture of e-business versus traditional business models

Intellectual property laws

Underpinning skills

Computer technology skills

Literacy skills to research and develop e-business strategy

Numeracy skills for data analysis

Risk analysis

Business development skills commensurate with understanding the business' marketing needs

Ability to relate to stakeholders from a range of social, cultural and ethnic backgrounds and physical and mental abilities

Resource implications

The learner and trainer should have access to appropriate documentation and resources normally used in the workplace, in particular, technology related resources

Consistency of performance

In order to achieve consistency of performance, evidence should be collected over a set period of time which is sufficient to include dealings with an appropriate range and variety of situations

Context/s of assessment

Competency is demonstrated by performance of all stated criteria, including paying particular attention to the critical aspects and the knowledge and skills elaborated in the Evidence Guide, and within the scope as defined by the Range Statement

Assessment must take account of the endorsed assessment guidelines in the Business Services Training Package

Assessment of performance requirements in this unit should be undertaken in an actual workplace or simulated environment

Assessment should reinforce the integration of the key competencies and the business services common competencies for the particular AQF level. Refer to the Key Competency Levels at the end of this unit

Three levels of performance denote level of competency required to perform a task.

1. Perform
2. Administer
3. Design

Collecting, analysing and organising information - to design and develop an e-business strategy (3)

Communicating ideas and information - through a clear strategy document (3)

Planning and organising activities - to identify critical success factors and key result areas (3)

Working with teams and others - to determine priorities (3)

Using mathematical ideas and techniques - to analyse data (2)

Solving problems - through risk analysis (3)

Using technology - to prepare strategy document (2)

The Evidence Guide identifies the critical aspects, knowledge and skills to be demonstrated to confirm competency for this unit. This is an integral part of the assessment of competency and should be read in conjunction with the Range Statement.

Critical aspects of evidence

Integrated demonstration of all elements of competency and their performance criteria

Information to support choice of critical success factors, key result areas, strategic objectives and their priorities

Underpinning knowledge*

* Required knowledge/skills is to be limited to that which is sufficient to perform the particular workplace competency

Relevant legislation from all levels of government that affects business operation, especially in regard to Occupational Health and Safety and environmental issues, equal opportunity, industrial relations and anti-discrimination

e-business environment

e-business terminology

Business planning methodologies

Legal, ethical and security issues relating to e-business

Culture of e-business versus traditional business models

Intellectual property laws

Underpinning skills

Computer technology skills

Literacy skills to research and develop e-business strategy

Numeracy skills for data analysis

Risk analysis

Business development skills commensurate with understanding the business' marketing needs

Ability to relate to stakeholders from a range of social, cultural and ethnic backgrounds and physical and mental abilities

Resource implications

The learner and trainer should have access to appropriate documentation and resources normally used in the workplace, in particular, technology related resources

Consistency of performance

In order to achieve consistency of performance, evidence should be collected over a set period of time which is sufficient to include dealings with an appropriate range and variety of situations

Context/s of assessment

Competency is demonstrated by performance of all stated criteria, including paying particular attention to the critical aspects and the knowledge and skills elaborated in the Evidence Guide, and within the scope as defined by the Range Statement

Assessment must take account of the endorsed assessment guidelines in the Business Services Training Package

Assessment of performance requirements in this unit should be undertaken in an actual workplace or simulated environment

Assessment should reinforce the integration of the key competencies and the business services common competencies for the particular AQF level. Refer to the Key Competency Levels at the end of this unit

Three levels of performance denote level of competency required to perform a task.

1. Perform

2. Administer

3. Design

Collecting, analysing and organising information - to design and develop an e-business strategy (3)

Communicating ideas and information - through a clear strategy document (3)

Planning and organising activities - to identify critical success factors and key result areas (3)

Working with teams and others - to determine priorities (3)

Using mathematical ideas and techniques - to analyse data (2)

Solving problems - through risk analysis (3)

Using technology - to prepare strategy document (2)

Range Statement

Range Statement

The Range Statement provides advice to interpret the scope and context of this unit of competency, allowing for differences between enterprises and workplaces. It relates to the unit as a whole and facilitates holistic assessment. The following variables may be present for this particular unit:

Legislation, codes and national standards relevant to the workplace may include:

award and enterprise agreements

national, State/Territory legislative requirements especially in regard to Occupational Health and Safety

industry codes of practice

OECD International Guidelines for Consumer Protection in E-Commerce

copyright laws

defamation laws

privacy legislation

intellectual property, confidentiality requirements

legal and regulatory policies affecting e-business

e-business is:

every type of business transaction in which the participants (ie suppliers, end users etc) prepare or transact business or conduct their trade in goods or services electronically (Definition of e-commerce in **E-competent Australia**, ANTA, May 2000)

Procedures and relationships may include:

organisation structures, plans, strategies

customer service

delivery of core services

delivery of products

delivery of wider business services

delivery of Government services

trading communities

development of new products, services and markets

human resource development

Threats and opportunities may include:

business-to-business (B2B) opportunities involving e-business between two companies

business-to-consumer (B2C) opportunities involving e-business between an enterprise and a customer

disintermediation threats/opportunities where the role of 'middlemen' or other middle supply chain elements is reduced or made redundant as newer more efficient supply chain technologies are implemented

re-intermediation opportunities, where e-business creates new value between producers and consumers

rate of change of the market

acceptance of the community to validity of e-business

threats to the reliability of supply in the provision of goods and services from suppliers outside the enterprise

Legal and ethical issues may include:

security

privacy

confidentiality

ownership of information

intellectual property

fraud prevention and detection

business ethics

legal issues eg jurisdiction, contract validity, taxation

occupational health and safety

International nature of e-business may include:

language

culture

legal issues

technology

Policies and procedures may include:

security
privacy
confidentiality
information management
risk management
intellectual property
fraud prevention and detection
code of practice
business ethics
human resource management
human resource development
performance management
electronic communication
outsourcing
legal issues eg jurisdiction, contract validity, taxation
quality assurance and warranty
cultural communication aspects eg forms of address, expression, site navigation assistance, client feedback

Range Statement

The Range Statement provides advice to interpret the scope and context of this unit of competency, allowing for differences between enterprises and workplaces. It relates to the unit as a whole and facilitates holistic assessment. The following variables may be present for this particular unit:

Legislation, codes and national standards relevant to the workplace may include:

award and enterprise agreements
national, State/Territory legislative requirements especially in regard to Occupational Health and Safety
industry codes of practice
OECD International Guidelines for Consumer Protection in E-Commerce
copyright laws
defamation laws
privacy legislation
intellectual property, confidentiality requirements
legal and regulatory policies affecting e-business

e-business is:

every type of business transaction in which the participants (ie suppliers, end users etc) prepare or transact business or conduct their trade in goods or services electronically (Definition of e-commerce in **E-competent Australia**, ANTA, May 2000)

Procedures and relationships may include:

organisation structures, plans, strategies
customer service
delivery of core services
delivery of products
delivery of wider business services
delivery of Government services
trading communities
development of new products, services and markets
human resource development

Threats and opportunities may include:

business-to-business (B2B) opportunities involving e-business between two companies
business-to-consumer (B2C) opportunities involving e-business between an enterprise and a customer
disintermediation threats/opportunities where the role of 'middlemen' or other middle supply chain elements is reduced or made redundant as newer more efficient supply chain technologies are implemented
re-intermediation opportunities, where e-business creates new value between producers and consumers
rate of change of the market
acceptance of the community to validity of e-business
threats to the reliability of supply in the provision of goods and services from suppliers outside the enterprise

Legal and ethical issues may include:

security
privacy
confidentiality
ownership of information
intellectual property
fraud prevention and detection
business ethics
legal issues eg jurisdiction, contract validity, taxation

occupational health and safety

International nature of e-business may include:

language

culture

legal issues

technology

Policies and procedures may include:

security

privacy

confidentiality

information management

risk management

intellectual property

fraud prevention and detection

code of practice

business ethics

human resource management

human resource development

performance management

electronic communication

outsourcing

legal issues eg jurisdiction, contract validity, taxation

quality assurance and warranty

cultural communication aspects eg forms of address, expression, site navigation assistance, client feedback

Unit Sector(s)

Not applicable.

Modification History

Not Available

INTRODUCTION

Unit Descriptor This unit covers analysis of traditional business processes to identify and implement e-business opportunities for innovation and reform.

Consider co-assessment with BSBEBUS603A Evaluate new technologies for business and BSBEBUS606A Manage e-business risk.

Competency Field e-business

Element

Performance Criteria

1. Compare the business with e-businesses
 - 1.1 Information on e-business markets, customers and methods of doing business are investigated
 - 1.2 The current market for the business and the customer base are analysed and compared with typical e-business markets and customers
 - 1.3 Current business relationships, business processes and methods of doing business are analysed and contrasted with e-facilitated businesses
2. Identify e-business opportunities for innovation and reform
 - 2.1 Innovation and reform of aspects of the business through e-business strategies are investigated and opportunities identified
 - 2.2 Opportunities are assessed for their compatibility with business goals and objectives, and a cost-benefit analysis conducted for each
 - 2.3 The degree of likely change and the ramifications for the business and its culture are evaluated for each opportunity
 - 2.4 A risk management analysis is conducted and a plan for dealing with contingencies is formulated in accordance with organisational requirements
 - 2.5 Opportunities are ranked in terms of their viability and applicability to the organisation
 - 2.6 Opportunities for innovation are included in the organisation's e-business strategy and prioritised for implementation

3. Implement e-business innovation	3.1 Aspects of the business are redesigned in an innovative manner using online technologies in accordance with the organisation's e-business strategy 3.2 e-business innovation/s are integrated into the business and monitored to gauge their usefulness and maximise implementation 3.3 e-business innovation is reviewed in consultation with users and recommendations for improvement or further innovation documented and evaluated

RANGE STATEMENT

The Range Statement provides advice to interpret the scope and context of this unit of competency, allowing for differences between enterprises and workplaces. It relates to the unit as a whole and facilitates holistic assessment. The following variables may be present for this particular unit:

Legislation, codes and national standards relevant to the workplace may include:	• award and enterprise agreements • national, State/Territory legislative requirements especially in regard to Occupational Health and Safety • industry codes of practice • OECD International Guidelines for Consumer Protection in E-Commerce • copyright laws • privacy legislation • intellectual property, confidentiality requirements • legal and regulatory policies affecting e-business
e-business is:	• every type of business transaction in which the participants (ie suppliers, end users etc) prepare or transact business or conduct their trade in goods or services electronically (Definition of e-commerce in E-competent Australia, ANTA, May 2000)
Aspects of the business may include:	• delivery of products • delivery of core services • customer service

- product development
- market development

EVIDENCE GUIDE

The Evidence Guide identifies the critical aspects, knowledge and skills to be demonstrated to confirm competency for this unit. This is an integral part of the assessment of competency and should be read in conjunction with the Range Statement.

Critical Aspects of Evidence

- Integrated demonstration of all elements of competency and their performance criteria
- Value-added nature of the innovation/redesign of aspects of the business

Underpinning Knowledge*

* Required knowledge/skills is to be limited to that which is sufficient to perform the particular workplace competency

- Relevant legislation from all levels of government that affects business operation, especially in regard to Occupational Health and Safety and environmental issues, equal opportunity, industrial relations and anti-discrimination
- e-business environment
- e-business terminology
- Business planning processes
- Change management
- Legal, ethical and security issues relating to e-business
- Culture of e-business versus traditional business models
- Business process re-engineering
- Implementation issues

Underpinning Skills

- Computer technology skills
- Literacy skills to research e-business information
- Numeracy skills for cost-benefit analysis
- Communication skills for consultation with users
- Ability to relate to stakeholders from a range of social, cultural and ethnic backgrounds and physical and mental abilities

Resource Implications	The learner and trainer should have access to appropriate documentation and resources normally used in the workplace
Consistency of Performance	In order to achieve consistency of performance, evidence should be collected over a set period of time which is sufficient to include dealings with an appropriate range and variety of situations
Context/s of Assessment	- Competency is demonstrated by performance of all stated criteria, including paying particular attention to the critical aspects and the knowledge and skills elaborated in the Evidence Guide, and within the scope as defined by the Range Statement - Assessment must take account of the endorsed assessment guidelines in the Business Services Training Package - Assessment of performance requirements in this unit should be undertaken in an actual workplace or simulated environment - Assessment should reinforce the integration of the key competencies and the business services common competencies for the particular AQF level. Refer to the Key Competency Levels at the end of this unit

KEY COMPETENCY LEVELS

Collect, analyse and organise information	Communicate ideas and information	Plan and organise activities	Work with others and in teams	Use mathematical ideas and techniques	Solve problems	Use technology
Level 3	Level 3	Level 3	Level 2	Level 2	Level 2	Level 2

Three levels of performance denote level of competency required to perform a task.

1. Perform
2. Administer
3. Design
 - Collecting, analysing and organising information – to identify e-business information
 - Communicating ideas and information – to identify opportunities for innovation and reform
 - Planning and organising activities – to redesign aspects of the business
 - Working with teams and others – to integrate business innovation into the business
 - Using mathematical ideas and techniques – to conduct cost-benefit analysis and rate opportunities
 - Solving problems – to determine the viability of e-business opportunities for business innovation
 - Using technology – to redesign aspects of the business

Please refer to the Assessment Guidelines for advice on how to use the Key Competencies

BSBFLM510B Facilitate and capitalise on change and innovation

Modification History

Not applicable.

Unit Descriptor

This unit specifies the outcomes required to plan and manage the introduction and facilitation of change. Particular emphasis is on the development of creative and flexible approaches, and on managing emerging opportunities and challenges.

This unit replaces BSBFLM510A Facilitate and capitalise on change and innovation.

Frontline managers have an active role in fostering change and acting as a catalyst in the implementation of change and innovation. They have a creative role in ensuring that individuals, the team and the organisation gain from change; and that the customer benefits through improved products and services.

At this level, work will normally be carried out within complex and diverse methods and procedures which require the exercise of considerable discretion and judgement, using a range of problem solving and decision making strategies.

This unit builds on BSBCMN412A Promote innovation and change. Consider co-assessment with BSBFLM512A Ensure team effectiveness, BSBFLM505B Manage operational plan, and BSBFLM509B Facilitate continuous improvement.

This unit specifies the outcomes required to plan and manage the introduction and facilitation of change. Particular emphasis is on the development of creative and flexible approaches, and on managing emerging opportunities and challenges.

This unit replaces BSBFLM510A Facilitate and capitalise on change and innovation.

Frontline managers have an active role in fostering change and acting as a catalyst in the implementation of change and innovation. They have a creative role in ensuring that individuals, the team and the organisation gain from change; and that the customer benefits through improved products and services.

At this level, work will normally be carried out within complex and diverse methods and procedures which require the exercise of considerable discretion and judgement, using a range of problem solving and decision making strategies.

This unit builds on BSBCMN412A Promote innovation and change. Consider co-assessment with BSBFLM512A Ensure team effectiveness, BSBFLM505B Manage operational plan, and BSBFLM509B Facilitate continuous improvement.

Application of the Unit

Not applicable.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Not applicable.

Elements and Performance Criteria Pre-Content

Not applicable.

Elements and Performance Criteria

Elements and Performance Criteria

Element	Performance Criteria
1 Participate in planning the introduction and facilitation of change	1.1 The manager contributes effectively to the organisation's planning processes to introduce and facilitate change
	1.2 Plans to introduce change are made in consultation with appropriate stakeholders
	1.3 The organisation's objectives and plans to introduce change are communicated effectively to individuals and teams
2 Develop creative and flexible approaches and solutions	2.1 A variety of approaches to managing workplace issues and problems are identified and analysed
	2.2 Risks are identified and assessed, and action initiated to manage these to achieve a recognised benefit or advantage to the organisation
	2.3 The workplace is managed in a way which promotes the development of innovative approaches and outcomes
	2.4 Creative and responsive approaches to resource management improve productivity and services,

and/or reduce costs

- 3 Manage emerging challenges and opportunities
 - 3.1 Individuals and teams are supported to respond effectively and efficiently to changes in the organisation's goals, plans and priorities
 - 3.2 Coaching and mentoring assist individuals and teams to develop competencies to handle change efficiently and effectively
 - 3.3 Opportunities are identified and taken as appropriate, to make adjustments and to respond to the changing needs of customers and the organisation
 - 3.4 Information needs of individuals and teams are anticipated and facilitated as part of change implementation and management
 - 3.5 Recommendations for improving the methods and techniques to manage change are identified, evaluated and negotiated with appropriate individuals and groups

Required Skills and Knowledge

Not applicable.

Evidence Guide

The Evidence Guide provides advice to inform and support appropriate assessment of this unit. It contains an overview of the assessment requirements followed by identification of specific aspects of evidence that will need to be addressed in determining competence. The Evidence Guide is an integral part of the unit and should be read and interpreted in conjunction with the other components of competency. Assessment must reflect the endorsed Assessment Guidelines of the parent Training Package.

Overview of Assessment Requirements

A person who demonstrates competence in this standard must be able to provide evidence that they are able to identify opportunities to improve performance in consultation with appropriate individuals and groups. They must be able to show evidence of the ability to develop flexible and creative approaches and strategies to introduce and manage change and innovation and to provide coaching and mentoring support to facilitate change. They must be able to assess risks associated with the introduction of change and manage emerging challenges and opportunities.

Specific Evidence Requirements

Required knowledge and understanding includes:

relevant legislation from all levels of government that affects business operation, especially in regard to occupational health and safety and environmental issues, equal opportunity, industrial relations and anti-discrimination

the principles and techniques involved in:

- change and innovation management
- development of strategies and procedures to implement and facilitate change and innovation
- use of risk management strategies: identifying hazards, assessing risks and implementing risk control measures
- problem identification and resolution
- leadership and mentoring techniques
- management of quality customer service delivery
- consultation and communication techniques
- record keeping and management methods

the sources of change and how they impact

the factors which lead/cause resistance to change

Required skills and attributes include:

ability to relate to people from a range of social, cultural and ethnic backgrounds and physical and mental abilities

functional literacy skills to access and use workplace information

communication skills to:

- gain the trust and confidence of colleagues
- deal with people openly and fairly
- use consultation skills effectively

research, analysis and reporting skills

skills to:

- influence the organisation's culture so that it is receptive to change and innovation
 - monitor trends in the internal and/or external environment
 - respond positively to new situations/challenges
 - evaluate alternative proposals for change
 - manage resistance to change
 - draw on the diversity of the workplace to assist the organisation benefit from change
- coaching and mentoring skills to provide support to colleagues

Key competencies or generic skills relevant to this unit

The seven key competencies represent generic skills considered essential for effective work participation. Innovation skills represent a further area of generic competence. The bracketed numbering indicates the performance level required in this unit:

Level (1) represents the competence to undertake tasks effectively

Level (2) represents the competence to manage tasks

Level (3) represents the competence to use concepts for evaluating and reshaping tasks. The bulleted points provide examples of how the key competencies can be applied for this unit.

Communicating ideas and information (3)

consulting with team and stakeholders on plans to introduce change

communicating changes to team and individuals

providing recommendations to management

Collecting, analysing and organising information (3)

obtaining information about the change process and identifying opportunities and risks

Planning and organising activities (3)

organising occasions to discuss change with the team and stakeholders

Working in a team (3)

supporting the team to respond positively to change

encouraging creative responses from team members

Using mathematical ideas and techniques (2)

making calculations associated with implementing change

Solving problems (3)

addressing difficulties arising from the changes

Using technology (2)

using technology to assist in the management of information to facilitate change

Innovation skills (3)

taking an innovative approach to the development of the change process to enhance business operations

Products that could be used as evidence include:

documentation produced in leading change and innovation, such as:

- contribution to organisational policies and procedures
- procedures and policies for dealing with change and innovation, and related codes of conduct
- evidence of actions taken to address information collection and retrieval
- evidence of actions taken to address methods of analysing information and developing change and innovation processes

- evidence of actions taken to address internal and external change and innovation management issues
- evidence of actions taken to address issues and problems within work team and change process
- evidence of advice and input into management decisions related to the work team and change process
- learning and development plans for team members
- materials developed for coaching, mentoring and training
- induction programs developed and/or delivered
- records of OHS consultation
- risk assessment records
- reviews of people management
- records of people management lessons learned

Processes that could be used as evidence include:

how planning processes have introduced and facilitated change

how plans for change were introduced and consulted on

how communication processes were conducted

how the operational plan was managed

examples of approaches to managing workplace issues

examples of risk assessments and measures to minimise risk

how performance management system was implemented within work team

how problems and issues within the work team were addressed

how creative and innovative responses/approaches have affected productivity

examples of team members responses to change and how coaching and mentoring was of assistance

examples of adjustments to respond to changing needs of customers and/or the organisation

examples of response to information needs

examples of recommendations for improving methods for managing change

Resource implications for assessment include:

access by the learner and trainer to appropriate documentation and resources normally used in the workplace

Validity and sufficiency of evidence requires:

that this unit can be assessed in the workplace or in a closely simulated work environment

that where assessment is part of a learning experience, evidence will need to be collected over a period of time, involving both formative and summative assessment

that examples of actions taken by the candidate to facilitate and capitalise on change and innovation are provided

Integrated competency assessment means:

that this unit should be assessed with other frontline management units taken as part of this qualification, as applicable to the candidate's leadership role in a work team and as part of an integrated assessment activity

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Solving problems (3)

addressing difficulties arising from the changes

Using technology (2)

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taking an innovative approach to the development of the change process to enhance business operations

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Resource implications for assessment include:

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Range Statement

The Range Statement adds definition to the unit by elaborating critical or significant aspects of the performance requirements of the unit. The Range Statement establishes the range of indicative meanings or applications of these requirements in different operating contexts and conditions.

The specific aspects which require elaboration are identified by the use of italics in the Performance Criteria.

Legislation, codes and national standards relevant to the workplace may include:

award and enterprise agreements and relevant industrial instruments

relevant legislation from all levels of government that affects business operation, especially in regard to occupational health and safety (OHS) and environmental issues, equal opportunity, industrial relations and anti-discrimination

relevant industry codes of practice

OHS considerations may include:

knowledge of OHS legislation, principles and practice within the context of the organisation's operations and plans

OHS practice as an ethical standard and legislative requirement

training of all employees in health and safety procedures, and regular updating of records

OHS hazard identification, risk assessment and control

implementation of procedures for dealing with hazardous events

adjustment of communications and OHS approach to cater for social and cultural diversity and special needs

Manager refers to:

a person with frontline management roles and responsibilities, regardless of the title of their position

Appropriate stakeholders may refer to:

those individuals and organisations who have a stake in the change and innovation being planned, including:

- organisation directors and other relevant managers

- teams and individual employees who are both directly and indirectly involved in the proposed change

- union/employee representatives or groups

- OHS committees

- other people with specialist responsibilities

- external stakeholders where appropriate - such as clients, suppliers, industry associations, regulatory and licensing agencies

Risks may refer to:

any event, process or action that may result in goals and objectives of the organisation not being met

any adverse impact on individuals or the organisation

various risks identified in a risk management process

Information needs may include:

new and emerging workplace issues

implications for current work roles and practices including training and development

changes relative to workplace legislation, such as OHS

workplace data such as productivity, inputs/outputs and future projections

planning documents

reports

market trend data

scenario plans

customer/competitor data

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planning documents

reports

market trend data

scenario plans

customer/competitor data

Unit Sector(s)

Not applicable.

BSBFLM514A Manage people

Modification History

Not applicable.

Unit Descriptor

This unit specifies the outcomes required to manage and lead team members within an organisation. This includes determining work allocations; implementing performance management processes; addressing issues related to own personal leadership style and performance within the work team; demonstrating leadership; building commitment within the team; and analysing, reviewing and evaluating the effectiveness of human resource management processes in line with the objectives of the work team and the organisation.

Frontline managers have a key role in managing and leading individuals within work teams. They play a prominent part in managing the performance of people who report to them directly and in providing leadership to teams.

At this level, work will normally be carried out within complex and diverse methods and procedures which require the exercise of considerable discretion and judgement, using a range of problem solving and decision making strategies.

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Application of the Unit

Not applicable.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Not applicable.

Elements and Performance Criteria Pre-Content

Not applicable.

Elements and Performance Criteria

Elements and Performance Criteria

Element	Performance Criteria
1 Manage performance of individuals in teams	1.1 Performance management systems/plans are developed and/or implemented in consultation with relevant personnel in accordance with documented processes, timelines and legal requirements, particularly OHS regulations 1.2 Work and resources required by the operational plan are allocated in consultation with relevant personnel 1.3 Strategies including mentoring and coaching are developed to ensure that team members are actively encouraged and supported in assessing their own competence, identifying their own learning needs and identifying a range of learning opportunities
2 Address performance related issues	2.1 Systems are established to ensure that the efforts of team members are monitored and that formal and informal feedback is provided in a constructive manner 2.2 Performance above expectations is identified and reinforced through recognition and continuous feedback 2.3 Performance below expectations is identified and a development plan for improved performance is negotiated, agreed on and documented in

- accordance with organisational and legal requirements
- 2.4 Action plans for improving performance are established, monitored, documented and reported in accordance with organisational and legal requirements
- 3 Address issues and problems of individuals in teams
- 3.1 Potential and current issues and problems arising within the work team are identified and acted on in accordance with organisation policies and legal requirements and, as appropriate, in consultation with concerned parties
- 3.2 Advice, support and expertise is sought from specialised human resource services as required, to resolve issues and problems
- 3.3 Issues and problems that impact on individual team members are followed through and resolved with concerned individuals/parties
- 4 Build support and commitment within the work team
- 4.1 Management performance and behaviour meets the organisation's requirements, provides leadership and serves as a positive role model for others
- 4.2 Personal performance supports organisation policies, codes of conduct and values and contributes to the development of an organisation which has integrity and credibility
- 4.3 Own performance is monitored and adjusted to ensure it aligns with key performance indicators and organisational goals
- 4.4 Team members are treated in a fair and equal manner and individual differences and abilities are identified and accommodated
- 4.5 Effective communication channels and processes with management and between relevant stakeholders are developed and maintained
- 5 Review and evaluate management of individuals within the work team
- 5.1 Data and information on the effectiveness of performance management systems/plans for individuals within the work team are collected, analysed, reported and evaluated to aid future planning

- 5.2 Advice and recommendations for performance management systems/plans for individuals within the work team are provided to management
- 5.3 Improvements and changes agreed with individual team members are implemented and monitored in line with objectives of the work team and the organisation

Required Skills and Knowledge

Not applicable.

Evidence Guide

The Evidence Guide provides advice to inform and support appropriate assessment of this unit. It contains an overview of the assessment requirements followed by identification of specific aspects of evidence that will need to be addressed in determining competence. The Evidence Guide is an integral part of the unit and should be read and interpreted in conjunction with the other components of competency. Assessment must reflect the endorsed Assessment Guidelines of the parent Training Package.

Overview of Assessment Requirements

A person who demonstrates competence in this unit must be able to provide evidence that they have taken responsibility for managing team members directly reporting to them. This will include evidence of managing issues arising within the work team; managing different levels of performance; and providing advice and input into decisions taken by management in relation to human resources within the team. More specifically it requires evidence of determining work allocations; implementing performance management processes; addressing issues related to own personal leadership style and performance within work teams; and analysing, reviewing and evaluating the effectiveness of human resource management processes.

Required knowledge and understanding includes:

relevant legislation from all levels of government that affects business operation, especially in regard to occupational health and safety and environmental issues, equal opportunity, industrial relations and anti-discrimination

organisational policies and procedures related to human resources

relevant awards and certified agreements

legislation impacting on people management such as equal opportunity, OHS, industrial relations, anti-discrimination and unfair dismissal

key result areas of the team and the organisation

range of support services and expertise available within and through the organisation

requirements of the operational plan

the principles and techniques involved in:

- performance management system
- problem identification and resolution
- record keeping and management
- leadership and mentoring
- learning and development options or expertise to be able to refer team members to such expertise
- identifying the cultural and social environment
- developing trust and confidence
- consistent behaviour in work relationships

consultation and communication techniques and strategies:

- counselling
- identifying and assessing interpersonal styles
- conflict resolution
- strategies to obtain and address individual and team feedback
- developing networks to source specialist advice, support and expertise
- managing relationships with all stakeholders

processes for monitoring team and own performance

strategies that contribute to the elimination of discrimination/bias

Required skills and attributes include:

ability to relate to people from a range of social, cultural and ethnic backgrounds and physical and mental abilities

communication and negotiation

leadership and personnel management

planning and organising skills

problem solving skills

monitoring and review skills

training skills

counselling skills, including providing feedback

attributes:

- empathic
- assertive
- communicative

- show positive leadership
- self-aware
- supportive
- trusting
- open
- flexible
- accommodating
- initiating
- loyal
- recognising achievement
- fair
- adaptable

Key competencies or generic skills relevant to this unit

The seven key competencies represent generic skills considered essential for effective work participation. Innovation skills represent a further area of generic competence. The bracketed numbering indicates the performance level required in this unit:

Level (1) represents the competence to undertake tasks effectively

Level (2) represents the competence to manage tasks

Level (3) represents the competence to use concepts for evaluating and reshaping tasks. The bulleted points provide examples of how the key competencies can be applied for this unit.

Communicating ideas and information (3)

communicating to lead a team including negotiating, counselling and providing feedback
using written communication skills including those involved in report writing

Collecting, analysing and organising information (3)

tracking, monitoring and controlling human resource data and information
reviewing people management within team

Planning and organising activities (3)

planning own work and that of team members to achieve team outcomes

Working in a team (3)

leading and representing the work team
consulting the work team on a wide range of issues

working with others including management and other stakeholders, employees outside the work team, and external parties/clients

Using mathematical ideas and techniques (1)

using calculation skills associated with data manipulation involved in managing data

Solving problems (3)

applying problem solving skills as required to address issues and problems arising in managing the team

assisting others within team to solve problems arising

Using technology (1)

using word processing packages, spreadsheets, databases and other packages to produce written correspondence and reports, and for data collation

Innovation skills (3)

using review process to improve people management and to explore alternatives to build support and commitment within the team

Products that could be used as evidence include:

documentation produced in managing people within the work team, such as:

- rosters and staff allocation
- timesheets
- learning and development plans for team members
- materials developed for coaching, mentoring and training
- induction programs developed and/or delivered
- actions taken to address poor, unsafe or excellent performance
- actions taken to address issues and problems within work team
- reviews of people management
- advice and input into management decisions related to the work team
- records of people management lessons learned

Processes that could be used as evidence include:

how resource allocation has been managed

how work was allocated within work team, and rationale for allocations

how financial plans and budgets were formulated

how the operational plan was managed

how team members were guided and supported in performing their role, including induction process for new team members

how individual learning and development pathways were developed

how performance management system was implemented within work team

how problems and issues within the work team have been addressed

how input and advice was provided to management in relation to human resource management of the work team

how own people management processes were reviewed and evaluated, and improvements identified, reported and acted upon

Resource implications for assessment include:

access by the learner and trainer to appropriate documentation and resources normally used in the workplace

Validity and sufficiency of evidence requires:

that this unit can be assessed in the workplace or in a closely simulated work environment

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Resource implications for assessment include:

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relevant industry codes of practice

OHS considerations may include:

knowledge of OHS legislation, principles and practice within the context of the organisation's operations and plans

OHS practice as an ethical standard and legislative requirement

training of all employees in health and safety procedures

regular updating and review of the organisation's OHS systems, procedures and records

organisation's responsibilities to internal and external personnel

adjustment of communications and OHS approach to cater for social and cultural diversity and special needs

Performance management systems/plans may refer to:

documented systems for managing performance within the organisation - usually incorporating performance plans for individuals directly relating to team and organisation objectives

informal systems developed by frontline manager for individuals and/or the work team in the place of existing organisation-wide system

Relevant personnel may include:

management

team members

human resources manager and personnel

fellow frontline managers

union/employee representatives or groups

Mentoring and coaching may include:

team leaders, supervisors and leading hands

arrangements with training personnel

arrangements with skilled personnel outside the work team

Learning needs may include:

gaps between the competencies held by the employee and the skills and knowledge required to effectively undertake workplace tasks

developmental learning, for example the learning required to progress through an organisation and take on new tasks and roles

Learning opportunities may include:

learning activities outside the workplace such as:

- training through an RTO leading to a nationally recognised Australian Qualifications Framework (AQF) qualification or Statement of Attainment, for example through a traineeship or New Apprenticeship

- accredited training through an independent organisation such as a State OHS authority
- workshops

- short courses

workplace learning activities which may also lead to a recognised credential or be part of structured training such as:

- induction

- mentoring

- action learning

- coaching

- shadowing

- exchange/rotation

A development plan may include:

work allocation

team competencies

team roles and responsibilities

performance standards

work outputs and process

learning opportunities

Key Performance Indicators (KPIs)

codes of conduct

OHS requirements

negotiated agreement with individual

capacity for inserting ongoing evaluation, review and input such as:

- individual assessment of progress towards the KPIs

- comments from manager, and team members as appropriate

- review of the individual's workload

- referral to specialist support services available either within the organisation or externally through the organisation

- progress towards identified learning opportunities

- warnings and reporting of poor performance to management in accordance with organisational policies and procedures

- timelines for performance improvement including probationary period

Action plans for improving performance may include:

- plans that specify:

 - areas requiring improved performance

 - specific actions expected of the employee

 - level of improvement required

 - timing of expected improvement

 - support provided

Issues and problems may include:

perceived or actual issues and problems relating to:

- work roles, job design and allocation of duties

- work performance of self and others

stress or personal problems that may be referred to specialist human resources personnel or external service providers

injury rehabilitation

prejudice or racial vilification

bullying

dispute between individuals or parties

grievances

appeals against formal decisions such as assessments, promotion

discrimination and harassment

Acted on (in relation to organisation policies and legal requirements) may include but is not limited to:

bringing parties together to seek clarification of the issue and plan for action to resolve it

formal or informal processes including discussions and meetings to resolve the issue

involving a mediator

referral to specialist human resources support services/personnel

making 'reasonable adjustments' to work procedures and facilities where required, for example in the case of a person with a disability

referral to more senior management

coaching

counselling

disciplinary procedures

Organisation policies and legal requirements may include, but are not limited to:

workplace policies and procedures such as those covering:

grievances

complaints

appeals

Equal Employment Opportunity

sexual/workplace harassment

privacy

workplace standards

legislation such as anti-discrimination legislation, OHS, WorkCover

mission, vision and values statements or similar

Concerned parties may include:

individuals, other employees outside team, employee groups and management

Specialised human resource services may include:

management

human resources specialists

organisational resources outside immediate team

rehabilitation coordinator

OHS practitioners
external service providers
employee assistance program providers
counsellors
ministers of religion
medical practitioners
paraprofessional health related services

Relevant stakeholders may be:

within the work team
the organisation's clients/customers
Board members
business or government contacts
funding bodies
professional associations
unions/employee groups

Data and information may include:

employee turnover figures
employee satisfaction surveys or 'climate' surveys
records of performance management system implementation across work team
records of participation in learning opportunities
productivity data
human resource records, such as absenteeism and lateness
benchmarking exercises against relevant data for other work teams or other organisation
industry standards

The Range Statement adds definition to the unit by elaborating critical or significant aspects of the performance requirements of the unit. The Range Statement establishes the range of indicative meanings or applications of these requirements in different operating contexts and conditions. The specific aspects which require elaboration are identified by the use of italics in the Performance Criteria.

Legislation, codes and national standards relevant to the workplace may include:

award and enterprise agreements and relevant industrial instruments
relevant legislation from all levels of government that affects business operation, especially in regard to occupational health and safety (OHS) and environmental issues, equal opportunity, industrial relations and anti-discrimination
relevant industry codes of practice

OHS considerations may include:

knowledge of OHS legislation, principles and practice within the context of the organisation's operations and plans

OHS practice as an ethical standard and legislative requirement

training of all employees in health and safety procedures

regular updating and review of the organisation's OHS systems, procedures and records

organisation's responsibilities to internal and external personnel

adjustment of communications and OHS approach to cater for social and cultural diversity and special needs

Performance management systems/plans may refer to:

documented systems for managing performance within the organisation - usually incorporating performance plans for individuals directly relating to team and organisation objectives

informal systems developed by frontline manager for individuals and/or the work team in the place of existing organisation-wide system

Relevant personnel may include:

management

team members

human resources manager and personnel

fellow frontline managers

union/employee representatives or groups

Mentoring and coaching may include:

team leaders, supervisors and leading hands

arrangements with training personnel

arrangements with skilled personnel outside the work team

Learning needs may include:

gaps between the competencies held by the employee and the skills and knowledge required to effectively undertake workplace tasks

developmental learning, for example the learning required to progress through an organisation and take on new tasks and roles

Learning opportunities may include:

learning activities outside the workplace such as:

training through an RTO leading to a nationally recognised Australian Qualifications Framework (AQF) qualification or Statement of Attainment, for example through a traineeship or New Apprenticeship

accredited training through an independent organisation such as a State OHS authority workshops

short courses

workplace learning activities which may also lead to a recognised credential or be part of structured training such as:

induction

mentoring

action learning

coaching

shadowing

exchange/rotation

A development plan may include:

work allocation

team competencies

team roles and responsibilities

performance standards

work outputs and process

learning opportunities

Key Performance Indicators (KPIs)

codes of conduct

OHS requirements

negotiated agreement with individual

capacity for inserting ongoing evaluation, review and input such as:

individual assessment of progress towards the KPIs

comments from manager, and team members as appropriate

review of the individual's workload

referral to specialist support services available either within the organisation or externally through the organisation

progress towards identified learning opportunities

warnings and reporting of poor performance to management in accordance with organisational policies and procedures

timelines for performance improvement including probationary period

Action plans for improving performance may include:

plans that specify:

areas requiring improved performance

specific actions expected of the employee

level of improvement required

timing of expected improvement

support provided

Issues and problems may include:

perceived or actual issues and problems relating to:

work roles, job design and allocation of duties

work performance of self and others

stress or personal problems that may be referred to specialist human resources personnel or external service providers

injury rehabilitation

prejudice or racial vilification

bullying

dispute between individuals or parties

grievances

appeals against formal decisions such as assessments, promotion

discrimination and harassment

Acted on (in relation to organisation policies and legal requirements) may include but is not limited to:

bringing parties together to seek clarification of the issue and plan for action to resolve it

formal or informal processes including discussions and meetings to resolve the issue

involving a mediator

referral to specialist human resources support services/personnel

making 'reasonable adjustments' to work procedures and facilities where required, for example in the case of a person with a disability

referral to more senior management

coaching

counselling

disciplinary procedures

Organisation policies and legal requirements may include, but are not limited to:

workplace policies and procedures such as those covering:

grievances

complaints

appeals

Equal Employment Opportunity

sexual/workplace harassment

privacy

workplace standards
legislation such as anti-discrimination legislation, OHS, WorkCover
mission, vision and values statements or similar

Concerned parties may include:

individuals, other employees outside team, employee groups and management

Specialised human resource services may include:

management
human resources specialists
organisational resources outside immediate team
rehabilitation coordinator
OHS practitioners
external service providers
employee assistance program providers
counsellors
ministers of religion
medical practitioners
paraprofessional health related services

Relevant stakeholders may be:

within the work team
the organisation's clients/customers
Board members
business or government contacts
funding bodies
professional associations
unions/employee groups

Data and information may include:

employee turnover figures
employee satisfaction surveys or 'climate' surveys
records of performance management system implementation across work team
records of participation in learning opportunities
productivity data
human resource records, such as absenteeism and lateness
benchmarking exercises against relevant data for other work teams or other organisation
industry standards

Unit Sector(s)

Not applicable.

BSBMGT516A Facilitate continuous improvement

Modification History

Not Applicable

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to lead and manage continuous improvement systems and processes. Particular emphasis is on the development of systems and the analysis of information to monitor and adjust performance strategies, and to manage opportunities for further improvements.

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

Application of the Unit

This unit applies to managers who take an active role in managing the continuous improvement process in order to achieve the organisation's objectives. Particularly where managers are closely associated with the creation and delivery of products and services, they play an important part in influencing the ongoing development and betterment of the organisation.

At this level, work will normally be carried out within complex and diverse methods and procedures which require the exercise of considerable discretion and judgement, using a range of problem solving and decision making strategies.

Licensing/Regulatory Information

Not Applicable

Pre-Requisites

Not Applicable

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold

unit of competency.	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. Lead continuous improvement systems and processes	1.1. Develop strategies to ensure that team members are actively encouraged and supported to participate in decision making processes, and to assume responsibility and exercise initiative as appropriate 1.2. Establish systems to ensure that the organisation's continuous improvement processes are communicated to all stakeholders 1.3. Develop effective mentoring and coaching processes to ensure that individuals and teams are able to implement and support the organisation's continuous improvement processes
2. Monitor and adjust performance strategies	2.1. Develop strategies to ensure that systems and processes are used to monitor operational progress and to identify ways in which planning and operations could be improved 2.2. Adjust and communicate strategies to all stakeholders according to organisational procedures
3. Manage opportunities for further improvement	3.1. Establish processes to ensure that team members are informed of outcomes of continuous improvement efforts 3.2. Ensure processes include documentation of work team performance to aid the identification of further opportunities for improvement 3.3. Consider areas identified for further improvement when undertaking future planning

Required Skills and Knowledge

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

Required skills

- innovation and lateral thinking skills to design better ways for achieving work outcomes
- leadership skills to gain the confidence and trust of others
- communication skills to communicate opportunities for improvement, and to coach and mentor staff.

Required knowledge

- continuous improvement models
- quality systems.

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 of the following is essential:

- examples of strategies and approaches to improve work outcomes or organisational functioning
- methods for monitoring performance and customer service
- knowledge of continuous improvement models.

Context of and specific resources for assessment

Assessment must ensure:

- access to appropriate documentation and resources normally used in the workplace.

Method of assessment

A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:

- analysis of responses to case studies and scenarios
- assessment of written reports
- direct questioning combined with review of

	portfolios of evidence and third party workplace reports of on-the-job performance by the candidate • observation of presentations • oral or written questioning to assess knowledge of quality systems • review of strategies developed to ensure that team members are actively encouraged and supported to participate in decision making processes, and to assume responsibility and exercise initiative • evaluation of how customer service strategies were communicated to all stakeholders • review of documentation outlining work team performance.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • other units from the Diploma of Management.

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.

<i>Strategies</i> may refer to:	• clarification of roles and expectations • communication devices and processes, such as intranet and email communication systems, to facilitate input into workplace decisions • long-term or short-term plans factoring in opportunities for team input • mentoring and 'buddy' systems to support team members to participate in decision making • performance plans • reward/recognition programs for high performing staff • training and development activities
<i>Systems</i> may refer to:	• forums, meetings • newsletters and reports

	• policies and procedures • web-based communication devices
Continuous improvement processes may include:	• cyclical audits and reviews of workplace, team and individual performance • evaluations and monitoring of effectiveness • modifications and improvements to systems, processes, services and products • policies and procedures which allow an organisation to systematically review and improve the quality of its products, services and procedures • seeking and considering feedback from a range of stakeholders
Stakeholders may include:	• business or government contacts • funding bodies • individuals within the work team • internal and external contacts • organisation's clients and customers • professional associations • senior management and board members • unions/employee groups
Operational progress may refer to:	• customer service indicators • occupational health and safety indicators • productivity gains • success in meeting agreed goals and performance indicators
Documentation of work team performance may include:	• annotated performance plans • quantitative data such as production figures • recommendations for improvement • records and reports

Unit Sector(s)

Management and Leadership - Management

BSBMGT608B Manage innovation and continuous improvement

Modification History

Not Applicable

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to sustain and develop an environment in which continuous improvement, innovation and learning are promoted and rewarded.

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

Application of the Unit

This unit applies to people who have managerial responsibilities which include building 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.

Links may be made between continuous improvement and formal quality systems such as International Standardization for Organization (ISO) or quality software. However it is not assumed that formal quality systems or software are in the workplace.

Innovation is seen as an important attitude and set of practices which should be fostered by people working at this level in teams and across the organisation.

Licensing/Regulatory Information

Not Applicable

Pre-Requisites

Not Applicable

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold

unit of competency.	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. Review programs, systems and processes	1.1. Establish strategies to monitor and evaluate performance of key systems and processes 1.2. Undertake detailed analyses of supply chains, operational and product/service delivery systems 1.3. Identify performance measures, and assessment tools and techniques, and evaluate their effectiveness 1.4. Analyse performance reports and variance from plans for all key result areas of the organisation 1.5. Identify and analyse changing trends and opportunities relevant to the organisation 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 2.2. Foster creative climate and organisational learning through the promotion of interaction within and between work groups 2.3. Encourage, test and recognise new ideas and entrepreneurial behaviour where successful 2.4. Accept failure of an idea during trialling, and recognise, celebrate and embed success into systems 2.5. Undertake risk management and cost benefit analyses for each option/idea approved for trial 2.6. Approve innovations through agreed organisational processes

3. Implement innovative processes	3.1. Promote continuous improvement as an essential part of doing business 3.2. Address impact of change and consequences for people, and implement transition plans 3.3. Ensure objectives, timeframes, measures and communication plans are in place to manage implementation 3.4. Implement contingency plans in the event of non-performance 3.5. Follow-up failure by prompt investigation and analysis of causes 3.6. Manage emerging challenges and opportunities effectively 3.7. Evaluate continuous improvement systems and processes regularly 3.8. Communicate costs and benefits of innovations and improvements to all relevant groups and individuals

Required Skills and Knowledge

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

Required skills

- analytical skills to identify improvement opportunities in relation to the services/products delivered or concepts/ideas developed
- flexibility and creativity skills to think laterally
- leadership skills to foster a commitment to quality and an openness to innovation.

Required knowledge

- quality management and continuous improvement theories
- creativity/innovation theories/concepts
- risk management.

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 of the following is essential: - documentation of consultation processes to introduce or evaluate an existing continuous improvement process or system, including suggested actions or an action plan - generation of an idea or concept which exhibits creative thinking and which offers the possibility of advantaging the organisation - how the concept or idea was introduced, tested and evaluated - the idea or concept does not have to have been shown to work or to be adopted by the business - knowledge of quality management and continuous improvement theories.
Context of and specific resources for assessment	Assessment must ensure: access to appropriate documentation and resources normally used in the workplace.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: - analysis of responses to case studies and scenarios - assessment of written reports - direct questioning combined with review of portfolios of evidence and third party workplace reports of on-the-job performance by the candidate - observation of presentations - oral or written questioning to assess knowledge of creativity/innovation theories/concepts - evaluation of strategies established to monitor and evaluate performance of key systems and processes - review of briefing of groups on performance improvement strategies and innovation - review of documentation communicating costs and benefits of innovations and improvements to relevant groups and individuals.
Guidance information for	Holistic assessment with other units relevant to the

assessment	industry sector, workplace and job role is recommended, for example: other units from the Advanced Diploma of Management.

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.

<i>Supply chains</i> includes:	- network of facilities that procures raw materials, transforms them into intermediate products (or services) and then finished goods (or services), and delivers them through a distribution system - procurement, production and distribution, which are viewed as being interlinked not as discrete elements
<i>Performance reports</i> may include:	- budget/cost variance - customer service - environmental - financial - occupational health and safety - quality - other operating parameters
<i>Specialists</i> refers to:	those people inside and outside the organisation who are expert in the application of technology to process systems and procedures, relevant to the organisation's business
<i>Creative climate</i> means:	climate of high motivation with extensive expertise, and deliberative and lateral thinking time to think through and test out ideas
<i>Organisational learning</i> refers to:	extent to which groups and individuals within an organisation are given the opportunity to learn from each other and encouraged to share their learning
<i>Risk management</i> means:	process of identification of potential negative events and the development of plans to

	mitigate or minimise the likelihood of the negative event occurring and/or the consequences in the event it does occur
Cost benefit analyses means:	• calculation to determine whether the results/outcomes of a particular course of action are sufficient to justify the costs and risks in taking that action
Continuous improvement means:	• consistently reviewing what we do in search of a better way and improving the organisation in every aspect of its activities
Transition plan means:	• process of communication and education to help people through major change programs which impact on the way they do their work or them personally
Contingency plan means:	• plan which will deal with the uncertainty of a proposal and will come into operation in the event of a failure or non-conformance

Unit Sector(s)

Management and Leadership - Management

BSBMGT615A Contribute to organisation development

Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to contribute to the creation of an organisation development plan which ensures that the organisation will become more effective over time in achieving its goals. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement.

Application of the Unit

Application of the unit	This unit applies to senior managers with organisation wide responsibilities who are critically involved in shaping and focussing the organisation so that it can adapt to new technologies, challenges and markets. People who have this responsibility may be in a dedicated organisation design role or may be change managers, or human resources managers. They may also be employed as consultants or contractors.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisite units		

Prerequisite units		

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. Develop organisation development plan	1.1. Analyse strategic plans to determine organisation development needs and objectives 1.2. Consult with relevant groups and individuals to profile the organisation's culture and readiness for organisational development 1.3. Determine who will take key roles in the organisational development process and confirm their commitment 1.4. Collect and analyse data on areas of the business experiencing problems or that need realignment 1.5. Determine and agree on objectives and strategies for organisational development 1.6. Consider change management techniques required to achieve the workplace culture outcomes and build them into the organisation development plan 1.7. Develop communication/education plans to achieve communication objectives in relation to the desired

ELEMENT	PERFORMANCE CRITERIA
	work environment and desired approach to problem-solving and developmental activities
2. Implement organisation development activities	2.1. Identify and implement consultative processes to maximise participation in the organisation development process 2.2. Undertake team development and training activities to develop collaborative approaches to problem-solving and development 2.3. Facilitate groups to articulate problems and to propose means for resolving the problems 2.4. Manage conflict between individuals and/or groups to achieve consensus or agreement 2.5. Undertake interventions in accordance with the organisation development plan 2.6. Brainstorm alternative proposals, and negotiate and agree on outcomes
3. Maintain organisation development program	3.1. Undertake surveys to identify any loss of support for organisation development program and activities 3.2. Maintain regular team meetings and individual feedback in accordance with communication plan 3.3. Set out activities and interventions in the organisation development plan and maintain, evaluate and modify them as required 3.4. Ensure senior management reinforces organisation development program by ongoing messages of support and appropriate resource allocation 3.5. Evaluate organisation development plans in terms of costs and benefits, including opportunity costs

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- leadership skills to gain commitment and followership
- communication and interpersonal skills to persuade others
- lateral thinking skills to find new, improved or different ways of working or engineering the organisation.

REQUIRED SKILLS AND KNOWLEDGE**Required knowledge**

- planning processes
- concepts and theory of organisation behaviour; organisation dynamics; organisation culture; organisation change.

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

Evidence of the following is essential:

- detailed organisation development plan which clearly addresses what is to be developed and why, and how development will occur
- analysis of an organisation development process
- knowledge of concepts and theory of organisation behaviour; organisation dynamics; organisation culture; organisation change.

Context of and specific resources for assessment

Assessment must ensure:

- access to appropriate documentation and resources normally used in the workplace.

Method of assessment

A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:

- analysis of responses to organisation development processes or organisational case studies
- assessment of written reports on organisation development
- direct questioning combined with review of portfolios of evidence and third party workplace reports of on-the-job performance by the candidate
- observation of demonstrated techniques in engaging others in change processes
- review of analysis of data on areas of the business

EVIDENCE GUIDE	
	experiencing problems or that need realignment • review of documentation outlining interventions undertaken • review of organisation development consultative processes implemented • evaluation of documentation outlining alternative proposals brainstormed, and negotiation and agreement on outcomes.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • other units from the Advanced Diploma of Management.

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.	
<i>Relevant groups and individuals</i> refers to:	• personnel who have knowledge about the issue being dealt with and the expertise to assist the decision-making process
<i>Change management techniques</i> may include:	• business re-engineering • consultative processes • job redesign • organisational redesign • sensitivity training • systems redesign • work re-organisation
<i>Communication/education plans</i> refers to:	• documented range of activities designed to ensure all affected groups and individuals (and other relevant parties) obtain sufficient knowledge to allow them to understand what is happening and why, and to allow them to participate where appropriate

RANGE STATEMENT	
<i>Team development and training activities</i> may include:	• computer-based training • group work • one-on-one sessions • informal coaching • mentoring • sensitivity training
<i>Activities and interventions</i> may include:	• action research • brainstorming • career planning • inter-group team building • job redesign • quality circles • re-engineering • sensitivity training • succession planning • surveys (with feedback) • team building • training • transition analysis

Unit Sector(s)

Unit sector	

Competency field

Competency field	Management and Leadership - Management

Co-requisite units

Co-requisite units		

Co-requisite units		

BSBPMG501A Manage application of project integrative processes

Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to integrate and balance the overall project management functions of scope, time, cost, quality, human resources, communications, risk and procurement; and to align and track the project objectives to comply with organisational goals, strategies and objectives. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement.

Application of the Unit

Application of the unit	This unit applies to an individual who is clearly and solely responsible for the management and leadership of a complex project, either as an employee of an organisation or as an external consultant. In the context of this unit a complex project is defined as a project which involves: • the need for a comprehensive and multi faceted project plan • the need for a formal internal or external communications strategy • a dedicated and diverse project budget • multiple administrative components • multiple operational components • a wide range of stakeholders • a project operations team. The functions performed by a program manager to manage the integration of all functions of project management in a program or multiple project are addressed in BSBPMG601A Direct the integration of projects.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisite units		

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. Manage integration of all functions of project management	1.1. Identify project stakeholders and their interests, with guidance of higher project authority 1.2. Analyse all <i>project management functions</i> with higher project authority and relevant stakeholders to determine achievable project objectives 1.3. Develop a <i>project plan</i> to integrate all project management functions to achieve outcomes and

ELEMENT	PERFORMANCE CRITERIA
	requirements for time, cost, quality and risk 1.4. Obtain endorsement of project plan by higher project authority 1.5. Establish designated mechanisms to control planned activity
2. Coordinate internal and external environments	2.1. Manage the project within an established internal working environment to ensure work is conducted effectively throughout the project 2.2. Maintain established links to align project objectives with organisation objectives throughout the project life cycle 2.3. Seek assistance, where necessary, from higher project authority to resolve conflicts which may negatively affect project objectives
3. Implement project activities throughout life cycle	3.1. Ensure agreed project phases, approval points and review points occur 3.2. Report progress against established project baselines to measure performance throughout the project life cycle 3.3. Implement established finalisation plans, procedures and activities 3.4. Identify and document integration management issues and recommended improvements, and pass on to higher project authority for application to future projects

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- literacy skills to write project plans, progress reports and project communications
- teamwork and communication skills to lead the project team and deal with stakeholders
- time management skills to ensure priorities are addressed
- planning and organising skills to manage the integration of project activities

Required knowledge

REQUIRED SKILLS AND KNOWLEDGE

- project life cycle
- role and responsibilities of the project manager
- project planning tools and techniques.

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

Evidence of the following is essential:

- development of project plans for multiple complex projects
- details of how plans were monitored and outcomes were reported
- knowledge of project life cycle.

Context of and specific resources for assessment

Assessment must ensure:

- access to project documentation relevant to project integration
- access to feedback from project stakeholders.

Method of assessment

A range of assessment methods should be used to assess practical skill and knowledge. The following examples are appropriate for this unit:

- direct questioning combined with review of portfolios of evidence and third party workplace reports of on-the-job performance by the candidate
- oral or written questioning to assess knowledge of strategies for managing project integration and their application to different situations
- analysis of responses addressing case studies and scenarios which present project integration management issues and problems
- assessment of project reports and examples of project plans.

Guidance information for

Holistic assessment with other units relevant to the

EVIDENCE GUIDE**assessment**

industry sector, workplace and job role is recommended, for example:

- other units from the Diploma of Project Management.

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.

The nine ***project management functions*** are:

- communications
- cost
- human resources
- procurement and contracting
- project integration
- quality
- risk
- scope
- time

Project plan may include:

- covering document which integrates the requirements of the nine functions of project management using appropriate formats and procedures
- single document
- multiple documents

Internal working environment may include:

- arrangement of project personnel and equipment
- identity and differentiation of the project within the larger environment
- personal working conditions
- physical location of project
- team dynamics

Finalisation plans, procedures and activities may include:

- final audit/reconciliation
- finalisation of account codes and other financial documentation

RANGE STATEMENT	
	• forwarding finalisation report to senior personnel • project evaluation • settling of financial liabilities • transferring of assets to client or originating owner • transition of responsibility/ownership of project deliverables/products • warranty requirements
<i>Integration management issues and recommended improvements</i> may include:	• evaluation using established success and failure criteria • knowledge management • lessons learned • records • training programs

Unit Sector(s)

Unit sector	

Competency field

Competency field	Management and Leadership - Project Management

Co-requisite units

Co-requisite units		

BSBPMG505A Manage project quality

Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to manage quality within projects. It covers determining quality requirements, implementing quality assurance processes, and using review and evaluation to make quality improvements in current and future projects. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement.

Application of the Unit

Application of the unit	This unit applies to an individual who is clearly and solely responsible for the management and leadership of a complex project, either as an employee of an organisation or an external consultant. In the context of this unit a complex project is defined as a project which involves: • the need for a comprehensive and multi faceted project plan • the need for a formal internal or external communications strategy • a dedicated and diverse project budget • multiple administrative components • multiple operational components • a wide range of stakeholders • a project operations team. The functions performed by a program manager to manage quality within multiple projects are addressed in BSBPMG605A Direct quality management of a project program.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisite units		

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. Determine quality requirements	1.1.Determine quality objectives, standards and levels, with input from stakeholders and guidance of a higher project authority, to establish the basis for quality outcomes and a quality management plan 1.2.Select and use established quality management methods, techniques and tools to determine preferred mix of quality, capability, cost and time 1.3.Identify quality criteria, obtain agreement from a higher project authority and communicate to stakeholders, to ensure clarity of understanding and

ELEMENT	PERFORMANCE CRITERIA
	achievement of quality and overall project objectives 1.4. Include agreed quality requirements in the project plan and implement as basis for performance measurement
2. Implement quality assurance processes	2.1. Measure and document results of project activities and product performance throughout the project life cycle to determine compliance with agreed quality standards 2.2. Identify causes of unsatisfactory results, in consultation with client, and recommend appropriate actions to a higher project authority to enable continuous improvement in quality outcomes 2.3. Conduct inspections of quality processes and quality control results to determine compliance of quality standards to overall quality objectives 2.4. Maintain a quality management system to enable effective recording and communication of quality issues and outcomes to a higher project authority and stakeholders
3. Implement project quality improvements	3.1. Review processes and implement agreed changes continually throughout the project life cycle to ensure continuous quality improvement 3.2. Review project outcomes against performance criteria to determine the effectiveness of quality management processes and procedures 3.3. Identify and document lessons learned and recommended improvements, and pass on to higher project authority for application in future projects

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- literacy skills to develop quality objectives and criteria
- communication and leadership skills to motivate staff, convey expectations and ensure outcomes are met
- analytical skills to monitor achievement of project outcomes against quality criteria

REQUIRED SKILLS AND KNOWLEDGE

- coaching and mentoring skills to boost performance.

Required knowledge

- quality management theory, techniques, tools and methodologies
- roles and responsibilities in project management
- methods for managing and improving performance
- relevant legislation codes and national standards:
 - award and enterprise agreements and industrial instruments
 - industry codes of practice
 - legislation from all levels of government that affects business operation, especially in regard to occupational health and safety and environmental issues, equal opportunity, industrial relations and anti-discrimination.

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

Evidence of the following is essential:

- demonstrated evidence of successfully managing project staff so that quality outcomes were achieved on multiple complex projects
- knowledge of a range of quality management tools, techniques and methodologies.

Context of and specific resources for assessment

Assessment must ensure:

- access to project documentation which includes quality criteria and evidence of quality monitoring and improvement practices
- consideration of feedback from project stakeholders regarding project quality management.

Method of assessment

This unit applies to an individual who is clearly and solely responsible for the management and leadership of a complex project, either as an employee of an organisation or an external consultant.

- direct questioning combined with review of

EVIDENCE GUIDE

	portfolios of evidence and third party workplace reports of on-the-job performance by the candidate • oral or written questioning to assess knowledge of strategies for managing project quality and their application to different situations • analysis of candidate responses in addressing case studies and scenarios which present project quality management issues and problems • review of project plan quality requirements • review of implementation of agreed changes • evaluation of review of project outcomes against performance criteria.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • other units from the Diploma of Project Management.

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.

Quality objectives may include:	• negotiated trade-offs between cost, schedule and performance • requirements from a higher project authority • requirements from the client and other stakeholders • those quality aspects which may impact on customer satisfaction
Quality management plan may include:	• authorisations and responsibilities for quality control • continuous improvement • established processes • quality assurance

RANGE STATEMENT	
Quality management methods, techniques and tools may include:	• benchmarking • brainstorming • charting processes • control charts • defining control • flowcharts • group work activities • histograms • pareto charts • processes that limit and/or indicate variation • ranking candidates • run charts • scattergrams • undertaking benefit/cost analysis
Quality control may include:	• monitoring conformance with specifications • monitoring of regular inspections by internal or external agents • recommending ways to eliminate causes of unsatisfactory performance of products or processes
Improvements may include:	• formal practices, such as total quality management or continuous improvement • improvement by less formal processes that enhance both the product quality and processes of the project, for example client surveys to determine client satisfaction with project team performance

Unit Sector(s)

Unit sector	

Competency field

Competency field	Management and Leadership - Project Management

Co-requisite units

Co-requisite units		

BSBPMG508A Manage project risk

Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to manage risk within a project to avoid adverse effects on project outcomes. It covers determining, monitoring and controlling project risks, and assessing risk management outcomes. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement.

Application of the Unit

Application of the unit	This unit applies to an individual who is clearly and solely responsible for the management and leadership of a complex project, either as an employee of an organisation or an external consultant. In the context of this unit a complex project is defined as a project which involves: • the need for a comprehensive and multi faceted project plan • the need for a formal internal or external communications strategy • a dedicated and diverse project budget • multiple administrative components • multiple operational components • a wide range of stakeholders • a project operations team. The functions performed by a program manager to manage risk within multiple projects are addressed in BSBPMG608A Direct risk management of a project program.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisite units		

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. Determine project risks	1.1. Identify, document and analyse <i>risks</i>, in consultation with stakeholders and higher project authority, as the basis for risk planning 1.2. Use established <i>risk management techniques and tools</i>, within <i>delegated authority</i>, to analyse risks, assess options and recommend preferred risk approaches 1.3. Develop risk management plans, secure agreement of stakeholders and communicate plans to ensure clarity of understanding and ongoing management of

ELEMENT	PERFORMANCE CRITERIA
	risk factors 1.4. Establish designated <i>risk management processes and procedures</i> to enable effective management and communication of risk events, responses and results
2. Monitor and control project risks	2.1. Manage project in accordance with established project and risk management plans to ensure a common approach to the achievement of objectives 2.2. Monitor progress against project plans to identify variances and <i>recommend responses</i> to a higher project authority for remedial action 2.3. Implement agreed risk responses and modify plans to reflect changing project objectives in an environment of uncertainty
3. Assess risk management outcomes	3.1. Review project outcomes to determine effectiveness of risk management processes and procedures 3.2. Identify and document risk issues and recommended improvements, and pass on to higher project authority for application in future projects

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- literacy skills to write risk management plans
- problem-solving skills to control risks
- lateral thinking skills to identify risks
- planning and organisational skills to monitor project progress
- analytical skills to review project outcomes in terms of risk management.

Required knowledge

- risk management framework
- risk management techniques, tools and approaches.

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

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

Evidence of the following is essential:

- demonstrated evidence of effective risk management for multiple complex projects
- knowledge of risk management techniques, strategies and tools.

Context of and specific resources for assessment

Assessment must ensure:

- access to workplace risk management documentation
- consideration of feedback from project stakeholders as to how risks were managed.

Method of assessment

A range of assessment methods should be used to assess practical skill and knowledge. The following examples are appropriate for this unit:

- direct questioning combined with review of portfolios of evidence and third party workplace reports of on-the-job performance by the candidate
- oral or written questioning to assess knowledge of the risk management framework
- analysis of responses in addressing case studies and scenarios which present project scope management issues and problems
- review of risk management plans
- evaluation of monitoring of progress against project plans
- assessment of identified and documented risk issues and recommended improvements.

Guidance information for assessment

Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example:

- other units in the Diploma of Project Management.

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.

Risks may be:

- actual
- likely/probable
- perceived
- potential

Risk management techniques and tools may include:

- calling upon personal experience and/or subject matter experts
- conducting or supervising qualitative and/or quantitative risk analysis, such as schedule simulation, decision analysis, contingency planning and alternative strategy development
- using specialist risk analysis tools to assist in the decision making process

Delegated authority refers to planning and activities that may:

- be conducted routinely or as changing circumstances dictate
- be done independently within broad guidance or by taking the lead of a team
- involve consultation with other project members, teams and internal stakeholders
- involve the selection, use and supervision of appropriate risk management methods, tools and techniques

Risk management processes and procedures may include:

- communication with stakeholders, dispute resolution and modification procedures
- implementation of risk control trigger mechanisms
- measurement of actual progress against planned milestones
- recording and reporting of major variance
- setting key milestones at significant points during the project and at completion

Recommended responses to variations may be made:

- in consultation with project team members, section heads, project manager and stakeholders
- independently or with higher project authority

RANGE STATEMENT	
	endorsement if necessary • regularly throughout the project life cycle • taking into account internal organisational change and external environmental change

Unit Sector(s)

Unit sector	

Competency field

Competency field	Management and Leadership - Project Management

Co-requisite units

Co-requisite units		

BSBPMG601A Direct the integration of projects

Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to manage the integration of all functions of project management in a program or multiple project context. This covers managing conflicting priorities between projects, directing project managers in re aligning projects within the program, directing the internal environment with the needs and expectations of the external environment, and directing projects within the program throughout their life cycle. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement.

Application of the Unit

Application of the unit	A program is defined as a set of interrelated projects, each of which has a project manager. Multiple projects (sometimes called a portfolio of projects) refers to a number of projects related in some way and managed by the same person as a program to achieve a common organisational objective/s. For the purposes of this unit someone who manages a suite of projects (a program) will be referred to as a program manager. The functions performed by a project manager to manage integration within individual projects are addressed in BSBPMG501A Manage application of project integrative processes.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisite units	

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. Direct integration of all functions of project management	1.1.Support project managers in project stakeholder analysis to determine the influence of others on project outcomes 1.2.Analyse, rationalise and integrate the requirements of all projects and the inter-relationships of <i>project management functions</i> to determine agreed, <i>achievable program objectives</i> that align to organisational goals, strategies and objectives as stated in strategic planning documentation 1.3.Review, rationalise and, when approved, integrate

ELEMENT	PERFORMANCE CRITERIA
	project plans into a structured, cohesive program plan for ongoing program management 1.4. Derive integrated program control mechanisms from project plans, to establish program control requirements 1.5. Use project plans to develop consolidated program budgets, schedules and interdependencies, and to identify program risks
2. Direct the internal project environment to meet external needs and expectations	2.1. Direct the internal project working environment to ensure project managers' work is conducted effectively throughout multiple, aligned project life cycles 2.2. Establish and maintain links to direct the alignment between projects and organisational objectives within the program 2.3. Evaluate project proposals (scope definitions) against the organisation's strategic objectives 2.4. Coordinate and direct conflicting requirements of individual projects to achieve program objectives 2.5. Modify, where necessary, individual project objectives to achieve overall program objectives 2.6. Coordinate the impact of external environmental influences on individual projects to achieve program objectives
3. Direct projects throughout project life cycles	3.1. Direct all project managers to provide project phases, approval points, review points and other milestones, to allow program integration 3.2. Establish project baselines and report progress in relation to these baselines, to measure program performance throughout the business reporting cycle 3.3. Progressively review project baselines to ensure nominated benefits are consistent with organisational expectations 3.4. Direct finalisation plans, procedures and activities to ensure final outcomes are met and that projects meet agreed program objectives 3.5. Review projects finalised in a program management reporting period to evaluate benefits to the business 3.6. Pass on integration management lessons learned to higher project authority and provide feedback for application to other projects

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- high level leadership skills to gain confidence and trust from people working on all levels
- literacy skills to communicate decisions and to write quality reports
- high level prioritising, planning and organising skills
- innovation skills to develop new and better systems for managing in complex situations
- problem-solving skills to deal with project management issues.

Required knowledge

- program planning
- methodologies, tools and techniques for project management
- leadership models
- relevant legislation, codes and national standards.

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

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

Evidence of the following is essential:

- demonstrated experience in directing an integrated range of concurrent projects so that project outcomes and stakeholders expectations are met
- knowledge of relevant legislation, codes and national standards.

Context of and specific resources for assessment

Assessment must ensure:

- access to a range of project documentation
- consideration of feedback from project stakeholders.

EVIDENCE GUIDE**Method of assessment**

A range of assessment methods should be used to assess practical skill and knowledge. The following examples are appropriate for this unit:

- direct questioning combined with review of portfolios of evidence and third party workplace reports of on-the-job performance of scope management techniques by the candidate
- analysis of responses addressing different program management case studies and scenarios
- oral or written questioning to assess knowledge of strategies for managing project integration and their application to different situations
- assessment of consolidated program budgets, schedules, interdependencies and identified program risks
- assessment of project baselines established and progress reported in relation to these baselines
- review of program plan.

Guidance information for assessment

Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example:

- other units in the Advanced Diploma of Project Management.

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.

Project management functions are:

- communications
- cost
- human resources
- procurement
- quality
- risk

RANGE STATEMENT	
	• scope • time
<i>Achievable program objectives</i> may include:	• client's objectives, for example maximum value for money or maximum performance at minimum cost • end-user/s objectives, for example maximum performance as well as optional extras • higher project authorities' objectives (that is, management/projects governance group), for example reputation, retention of market share, buying into market within the constraints of performance, time, cost, quality, resources and skills • organisation's objectives, for example quantifiable benefits • supplier's/contractor's objectives, for example minimum cost, minimum time and acceptable quality
<i>Internal project working environment</i> may include:	• computing support and integrated computer networks • identity and differentiation of the program's projects within the larger environment • personal working conditions (physical and emotional) • physical location of program project managers, personnel and equipment • physical location of projects within the organisation • teams and interpersonal dynamics
<i>External environmental influences</i> may include:	• employee representative groups, such as unions, professional associations and lobby groups • external stakeholder expectations • parent organisation, enterprise and/or industry • physical environment, for example geography, ecology and environmental sensitivity • political, environmental and societal influences • public and media interest
<i>Finalisation plans, procedures and activities</i> may include:	• assessment of stakeholder satisfaction against expectations • evaluation of projects completed in a reporting period

RANGE STATEMENT

	• evaluation of projects for benefits derived • forwarding program progress report to higher governance authority for projects • review of success/failure criteria for projects completed in a given reporting period • settling of financial liabilities for projects completed in a consolidated budget context • transition of responsibility/ownership of projects' deliverables/products for those projects that concluded in a reporting/management period (such as financial year)

Unit Sector(s)

Unit sector	

Competency field

Competency field	Management and Leadership - Project Management

Co-requisite units

Co-requisite units		

BSBPMG602A Direct the scope of a project program

Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to direct the scope of projects within a program or multiple projects context. It covers the management of project authorisations and defining, planning and managing the program scope. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement.

Application of the Unit

Application of the unit	A program is defined as a set of interrelated projects, each of which has a project manager. Multiple projects (sometimes called a portfolio of projects) refers to a number of projects related in some way and managed by the same person as a program to achieve a common organisational objective/s. For the purposes of this unit someone who manages a suite of projects (a program) will be referred to as a program manager. The functions performed by a project manager to manage scope within individual projects are addressed in BSBPMG502A Manage project scope.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisite units	

Prerequisite units		

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. Authorise projects	1.1. Analyse <i>needs</i>, in consultation with client and relevant stakeholders, to justify each project and to designate project managers 1.2. Conduct project selection and prioritisation within guidelines provided by, or under the direction of, a relevant (governance) authority 1.3. Make <i>project authorisation recommendations</i> to relevant authority as the basis for future project management activity, and commitment of resources and effort
2. Define and plan program scope	2.1. Define projects' objectives, major deliverables and resource requirements at the project and program level, and confirm them with the governance group or relevant authority 2.2. Determine and agree measurable project outcomes and benefits to enable quantified evaluation of

ELEMENT	PERFORMANCE CRITERIA
	program performance 2.3. Develop, agree on and communicate scope definition, scope management strategies and plans 2.4. Align program scope to business requirements and organisational strategy
3. Manage program scope	3.1. Conduct regular program reviews to measure project performance and to ensure that stated program and business/strategic objectives are met 3.2. Establish and maintain change management system to form the basis of ongoing scope management 3.3. Conduct reviews of scope changes and take action to ensure that project and program objectives are achieved or modified 3.4. Measure project outcomes against defined program scope and aligned strategic objectives 3.5. Communicate results of program outcomes to relevant authority 3.6. Pass on scope management lessons learned to higher project authority for application in planning and implementation of later projects within the program

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- high level literacy skills to review and amend project plans, to communicate decisions and to write quality reports
- high level analysis, planning, organising, problem-solving and evaluating skills in relation to project scope management
- self management skills to prioritise actions for successful outcomes
- negotiation skills to control proposed changes in scope.

Required knowledge

- scope management plans, methodologies, techniques and tools
- project life cycle and the significance of scope management
- typical challenges and issues encountered in project scope management and options for addressing these.

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	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: - demonstrated experience in directing a range of concurrent projects so that scope is successfully managed across all projects - knowledge of a broad range of project scope management tools, methodologies and techniques.
Context of and specific resources for assessment	Assessment must ensure: access to workplace documentation, including feedback from stakeholders, which reflects how scope was managed for projects.
Method of assessment	A range of assessment methods should be used to assess practical skill and knowledge. The following examples are appropriate for this unit: - direct questioning combined with review of portfolios of evidence and third party workplace reports of on-the-job performance of scope management techniques by the candidate - analysis of responses addressing different project scope management case studies and scenarios - oral or written questioning to assess knowledge of strategies for managing project scope and their application to different situations - review of project authorisation recommendations - assessment of measurement of project performance.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: other units from the Advanced Diploma of Project Management.

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.

Needs may be:

- activity-oriented, for example to stage major sporting events
- improvement-oriented, for example to find better way/s of doing something
- outcome-oriented, for example to fulfil needs
- product-oriented, for example to acquire new computer systems or buildings

Project authorisation recommendations may include:

- broad details of required project outcomes and objectives
- major projects phases, activities and milestones that will require timing coordination across the program (particularly as new approved projects enter the program)
- project managers' terms of reference, authorisations and limitations directed by the program manager
- relationship between multiple project objectives and the programs and strategic objectives of the organisation

Scope management may include:

- controlling program scope creep, that is incremental increases to scope, to accommodate wishes rather than needs
- determining that a scope change has occurred or is about to occur
- managing factors which influence changes to scope
- managing scope changes when they occur
- managing the effect of scope changes on other areas and on the achievement of multiple project objectives
- progressive refinement of scope throughout multiple project life cycles

Project performance may include:

- time and resources spent on the projects, as compared to baseline data
- projects' progress in terms of time and

RANGE STATEMENT	
	resources
<i>Change management system</i> may include:	• change to control boards/committees • configuration management • documentation • impact analysis • risk analysis
<i>Reviews of scope changes</i> may include:	• formal agreements, that is contracts, sub-contracts and memoranda of understanding • major elements of the program liable to change, for example deletion of a line of business endeavour, new projects prioritising program and deletion of poorly performing projects • potential, perceived and actual changes • program documentation, including plans, integrated schedules, integrated budgets and integrated (program) risk analysis

Unit Sector(s)

Unit sector	

Competency field

Competency field	Management and Leadership - Project Management

Co-requisite units

Co-requisite units	

BSBPMG603A Direct time management of a project program

Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to direct time management across projects so that key deliverables meet project and program schedules. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement.

Application of the Unit

Application of the unit	A program is defined as a set of interrelated projects, each of which has a project manager. Multiple projects (sometimes called a portfolio of projects) refers to a number of projects related in some way and managed by the same person as a program to achieve a common organisational objective/s. For the purposes of this unit someone who manages a suite of projects (a program) will be referred to as a program manager. The functions performed by a project manager to manage time and scheduling within individual projects are addressed in BSBPMG503A Manage project time.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisite units	

Prerequisite units		

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. Direct project schedule development	1.1.Determine from individual project plans the duration, effort, sequence and interdependencies of major activities and milestones to form the basis of the program schedule 1.2.Direct project managers by the use of <i>time management</i> methods, <i>techniques and tools</i>, preferred schedules, <i>time management plans</i>, resource allocation and financial requirements to enable continuous updating and refining of the program schedule 1.3.Formalise and communicate project schedules, with agreement, to stakeholders as the basis for planning, implementation and review of progress
2. Manage program schedules	2.1.Develop, implement and modify mechanisms to monitor, control, record and report actual progress in relation to the agreed schedule and plans

ELEMENT	PERFORMANCE CRITERIA
	2.2. Conduct ongoing analysis to identify and forecast variances and trends, and to develop responses so that projects meet their schedules 2.3. Manage durations of key activities and interdependencies between projects to enable financial and resource rationalisation across the program, to meet strategic expectations within the management/reporting period of the program 2.4. Review progress and refine the schedule throughout the program life cycle to ensure consistency with changing scope, objectives and constraints related to time and resource availability 2.5. Ensure responses to perceived, potential or actual project schedule changes are authorised to achieve program objectives
3. Analyse time management outcomes	3.1. Review and analyse multiple project and program outcomes from available records and information to determine the effectiveness of the schedule and time management processes 3.2. Pass on lessons learned to higher project authority and provide feedback for application, planning and implementation of later projects within the program

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- high level leadership skills to inspire trust and confidence in all stakeholder groups
- literacy skills to communicate decisions and to write quality reports
- communication and interpersonal skills to convey expectations, negotiate, resolve conflict and motivate performance
- planning and organising skills to ensure that time lines are met across projects
- time management skills (of self and others)
- problem-solving skills to address time management issues.

Required knowledge

- relationship between time, cost and resources to the project management framework

REQUIRED SKILLS AND KNOWLEDGE

- time management and estimating
- methodologies, techniques and tools, their capabilities, limitations, applicability and outcomes.

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

Evidence of the following is essential:

- demonstrated experience in directing project work so that timelines are met across a range of concurrent projects
- knowledge of the relationship between time, cost and resources to the project management framework.

Context of and specific resources for assessment

Assessment must ensure:

- access to workplace documentation
- consideration of feedback from project team and stakeholders as to how time was managed.

Method of assessment

A range of assessment methods should be used to assess practical skill and knowledge. The following examples are appropriate for this unit:

- direct questioning combined with review of portfolios of evidence and third party workplace reports of on-the-job performance of program time management by the candidate
- analysis of responses addressing different project time management case studies and scenarios
- oral or written questioning to assess knowledge of strategies for managing project time and their application to different situations
- review of how project schedules were formalised and communicated
- evaluation of ongoing analysis to identify and forecast variances and trends

EVIDENCE GUIDE	
	review of progress and refinement of the schedule throughout the program life cycle.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: other units from the Advanced Diploma of Project Management.

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.	
<i>Time management</i> may:	- be conducted non-routinely to meet complex, changing circumstances - be done by taking the lead in a team environment - involve consultation with project managers and selective involvement of stakeholders - involve the direction of the use of appropriate time management methods, processes, procedures, tools and techniques - take into account the impact of organisational and environmental change on the program's projects and vice versa
<i>Techniques and tools</i> may include:	- assessing and reporting the potential impact of multiple project timings and their potential for change on the program, and therefore the organisation - collating and using the products of specialist time analysis to make program-wide time management decisions - directing qualitative and/or quantitative time analysis, such as schedule simulation, decision analysis, contingency planning and alternative strategy development

RANGE STATEMENT	
	• using personal experience and/or subject matter experts
<i>Time management plans</i> may include:	• alternative schedule management strategies and actions • assigned schedule management responsibilities • contingency plans • formal arrangements • important milestones and critical interdependencies between projects • program consolidated schedule • responsibility assignment • sub-schedules
<i>Records</i> may take the form of:	• diaries, incident logs, occurrence reports and other such documentation • gantt, PERT and other scheduling charts • lists of variances, trends and forecasts of potential schedule events • program and/or organisation files and records • records of analysis, evaluation of options and selection processes • records of responses, results and lessons learned

Unit Sector(s)

Unit sector	

Competency field

Competency field	Management and Leadership - Project Management

Co-requisite units

Co-requisite units	

Co-requisite units		

BSBPMG604A Direct cost management of a project program

Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to analyse, coordinate, and refine the budgets of multiple projects that contribute to an overall program budget. It covers directing project budget development, managing program costs and directing the financial completion of projects. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement.

Application of the Unit

Application of the unit	A program is defined as a set of interrelated projects, each of which has a project manager. Multiple projects (sometimes called a portfolio of projects) refers to a number of projects related in some way and managed by the same person as a program to achieve a common organisational objective/s. For the purposes of this unit someone who manages a suite of projects (a program) will be referred to as a program manager. The functions performed by a project manager to manage costs within individual projects are addressed in BSBPMG504A Manage project costs.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisite units		

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. Direct project budget development	1.1. Direct project managers to determine resource requirements for individual tasks, in consultation with appropriate stakeholders, to develop a project budget which contributes to the program budget 1.2. Direct project <i>cost estimation</i> to enable budgets and cost management processes to be developed for the project life cycles 1.3. Direct and authorise cost strategies and <i>cost management plans</i> to ensure clarity of understanding and ongoing <i>management of project finances</i> and the program budget overall
2. Manage program costs	2.1. Develop and maintain <i>cost management systems</i> to direct monitoring of actual expenditure and to control costs throughout multiple project life cycles

ELEMENT	PERFORMANCE CRITERIA
	and for the program overall 2.2. Conduct analysis, evaluate options and implement responses to project cost variations to maintain control over changing financial and overall program objectives 2.3. Monitor internal and external influences on program costs and, where necessary, seek approval from business management for changes to the approved program budget
3. Direct financial completion	3.1. Provide direction for project finalisation activities to achieve integrated financial and physical project completion within program and therefore client and organisational expectations 3.2. Review project outcomes from available records at the finalisation of each project, and analyse information to determine the effectiveness of cost management systems 3.3. File program lessons learned as a resource for future reference and, where necessary, refer to higher project authority for application in planning strategic direction changes and business outcomes for future projects

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- technology skills to oversee project financial performance
- numeracy skills to develop and interpret project budgets and to provide financial information
- literacy skills to communicate decisions and to write quality reports
- leadership skills to inspire trust and confidence in teams, managers and stakeholders
- communication and interpersonal skills to convey expectations, resolve conflict and motivate performance
- planning skills to review project resource requirements and to cost estimates
- problem-solving skills to resolve costing issues.

REQUIRED SKILLS AND KNOWLEDGE**Required knowledge**

- regulatory and legislative financial reporting requirements
- methods for costing and estimating project resources
- methods for monitoring and controlling project expenditure.

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

Evidence of the following is essential:

- demonstrated experience in directing cost management approaches across a range of concurrent projects
- knowledge of regulatory and legislative financial reporting requirements.

Context of and specific resources for assessment

Assessment must ensure:

- access to financial documentation and files
- consideration of feedback from project team and other stakeholders as to how program costs were managed.

Method of assessment

A range of assessment methods should be used to assess practical skill and knowledge. The following examples are appropriate for this unit:

- direct questioning combined with review of portfolios of evidence and third party workplace reports of on-the-job performance of scope management techniques by the candidate
- analysis of responses addressing different project cost management case studies and scenarios
- oral or written questioning to assess knowledge of strategies for managing project costs and their application to different situations
- review of written reports on financial outcomes of

EVIDENCE GUIDE	
	projects review of how cost management systems were developed and maintained.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: other units in the Advanced Diploma of Project Management.

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.	
<i>Cost estimation</i> may take account of:	- availability of information at the time - contingencies to allow for identified risks and uncertainty - government regulations, industry codes of practice and organisational influences - overhead and profit margin - stage in each project's life cycle
<i>Cost management plans</i> and activities throughout program management may:	- be conducted non-routinely to meet complex and changing circumstances - be done independently or by taking the lead in a team environment - involve consultation with, and selective involvement of, appropriate project stakeholders - involve the selection, modification and supervision of the use of appropriate cost management methods, processes, procedures, tools and techniques - take into account the impact of organisational and environmental change on the project/program and vice versa

RANGE STATEMENT	
<i>Management of project finances</i> may include:	• approval processes • audit and review • communication, reports and briefs • financial authorisations/delegations • invoice procedures
Development of <i>cost management systems</i> may involve:	• application of personal judgement • authorising and revising financial delegations • cost modelling and estimating • financial analysis, for example benefit-cost analysis, cash flow analysis, earned value analysis • modification of program methodologies and procedures • program obligation, expenditure forecasting and long-term planning • progress and financial change management
<i>Finalisation activities</i> may include:	• comparison of one project's cost management outcomes with success rates of other projects and with overall (organisation) budgetary expectations • direction of project team managers in their: • final audit/reconciliation • close-out of account codes and other financial documentation • settling of financial liabilities • transfer of assets to the client or originating owner • transition of responsibility/ownership of project deliverables/products • warranty requirements resolution
<i>Records</i> may take the form of:	• budgets, commitment and expenditure • cost management lessons learned • cost management plans • financial charts and graphs • financial summaries • program and/or organisation files and records • records of potential and actual costs • reports to higher authority

Unit Sector(s)

Unit sector	

Competency field

Competency field	Management and Leadership - Project Management

Co-requisite units

Co-requisite units		

BSBPMG605A Direct quality management of a project program

Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to direct quality management across multiple projects and within the overall program. It covers directing the development of quality requirements, directing quality assurance management, and reviewing and improving the quality of projects and the program. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement.

Application of the Unit

Application of the unit	A program is defined as a set of interrelated projects, each of which has a project manager. Multiple projects (sometimes called a portfolio of projects) refers to a number of projects related in some way and managed by the same person as a program to achieve a common organisational objective/s. For the purposes of this unit someone who manages a suite of projects (a program) will be referred to as a program manager. The functions performed by a project manager to manage quality within individual projects are addressed in BSBPMG505A Manage project quality.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisite units		

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. Direct quality requirements development	1.1. Direct reviews and consultation to ensure that the organisation's quality objectives, standards, levels and criteria are applied at the project level, in consultation with stakeholders 1.2. Modify quality management methods, techniques and tools to the requirements of the program, as necessary 1.3. Identify and communicate program quality criteria to project managers for implementation 1.4. Direct project managers to develop and implement quality plans that will be used as the basis for performance measurement
2. Direct project quality assurance	2.1. Analyse results of project activities and product performance to determine compliance with agreed

ELEMENT	PERFORMANCE CRITERIA
management	quality standards throughout the project life cycles within the program 2.2. Identify causes of unsatisfactory results in consultation with project managers, clients and stakeholders, and initiate appropriate actions to enable continuous improvement in quality outcomes 2.3. Direct inspections of quality processes and analyse results to determine compliance with quality standards set for the overall program and the organisation 2.4. Develop and maintain a quality management system to enable effective management and communication of quality issues and outcomes
3. Improve program and project quality	3.1. Continually review and modify the quality management system throughout project activities to ensure project team commitment to continuous improvement of quality processes and outcomes 3.2. Direct project outcomes review and analysis against performance criteria to determine the effectiveness of the quality management system 3.3. Aggregate and use quality improvements and lessons learned to benefit the business and, where appropriate, pass on program initiatives/projects to organisational management for consideration in support of strategic planning and (re)direction

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- leadership, communication and interpersonal skills to foster compliance with quality benchmarks
- literacy skills to communicate decisions and to write quality reports
- skills in analysing, interpreting and reviewing data to assess performance against quality benchmarks
- problem-solving skills to address gaps in quality assurance.

Required knowledge

REQUIRED SKILLS AND KNOWLEDGE

- range of quality management methods, techniques, tools and systems and their various applications
- relevant Australian and international standards.

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

Evidence of the following is essential:

- demonstrated experience in directing the successful application of quality management across a range of concurrent projects
- knowledge of relevant Australian and international standards.

Context of and specific resources for assessment

Assessment must ensure:

- access to workplace quality documentation
- consideration of feedback from project team/s and stakeholders as to how quality was managed.

Method of assessment

A range of assessment methods should be used to assess practical skill and knowledge. The following examples are appropriate for this unit:

- direct questioning combined with review of portfolios of evidence and third party workplace reports of on-the-job performance of scope management techniques by the candidate
- analysis of responses addressing different project quality management case studies and scenarios
- oral or written questioning to assess knowledge of strategies for managing project quality and their application to different situations
- assessment how program quality criteria were identified and communicated
- review of actions initiated to enable continuous improvement.

EVIDENCE GUIDE**Guidance information for assessment**

Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example:

- other units in the Advanced Diploma of Project Management.

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.

Quality management may:

- be conducted non-routinely to meet complex and changing circumstances
- be done independently or by taking the lead in a team environment
- involve consultation with and direction to, project managers regarding their selective involvement of appropriate project stakeholders
- involve the overall direction to project managers for the selection, modification and supervision of the use of appropriate quality management methods, processes, procedures, tools and techniques
- take into account the impact of organisational and environmental change on the program and vice versa

Quality management system may include:

- ISO 9000 series or as designed to meet the specific needs of the project

Quality improvements may include:

- formal practices, such as total quality management or continuous improvement
- less formal processes which improve both the product quality and processes of the project, for example client surveys to determine client satisfaction with project performance

Unit Sector(s)

Unit sector	

Competency field

Competency field	Management and Leadership - Project Management

Co-requisite units

Co-requisite units		

BSBPMG606A Direct human resources management of a project program

Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to direct human resource organisation and staffing across the program, to direct project managers in relation to staff performance and to provide leadership within the program. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement.

Application of the Unit

Application of the unit	A program is defined as a set of interrelated projects, each of which has a project manager. Multiple projects (sometimes called a portfolio of projects) refers to a number of projects related in some way and managed by the same person as a program to achieve a common organisational objective/s. For the purposes of this unit someone who manages a suite of projects (a program) will be referred to as a program manager. The functions performed by a project manager to manage human resources within individual projects are addressed in BSBPMG506A Manage project human resources.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisite units		

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. Direct human resources management planning	1.1. Direct human resource requirement analysis for projects to determine numbers and skill levels required for the overall program 1.2. Direct stakeholder assessment to establish a basis for stakeholder management within projects and the overall program 1.3. Direct responsibility assignment for project activities and tasks, and establish authorisation protocols
2. Manage program organisation and staffing	2.1. Determine resource requirements for projects in consultation with project managers and appropriate stakeholders, to establish program staffing levels, allocation to projects and required competencies 2.2. Direct <i>project organisation and structure</i> to optimise alignment of individual and group

ELEMENT	PERFORMANCE CRITERIA
	competencies within projects 2.3. Direct recruitment of staff for allocation to projects or reallocation within the organisation, within agreed delegated authority, to meet competency requirements throughout the program 2.4. Direct project managers' use of human resources management (HRM) methods, techniques and tools, and modify for program requirements 2.5. Utilise organisational HRM system and HRM processes across projects
3. Direct project staff performance management	3.1. Obtain agreement of performance measurement criteria for clarity of roles and responsibilities and ongoing assessment 3.2. Ensure systems for ongoing development and training of personnel across the program are established and implemented by project managers 3.3. Measure individuals' performance against agreed criteria and authorise actions to overcome shortfalls in performance and encourage career progression
4. Provide overall leadership to project teams	4.1. Manage a system of continuous improvement of staff to enhance program effectiveness 4.2. Analyse individual and team performance and morale levels and take action where necessary 4.3. Direct procedures for interpersonal communication, counselling and conflict resolution by project managers, and review results to maintain and promote a positive working environment 4.4. Identify and positively manage intra-organisational and intra-project conflict to maximise achievement of program objectives 4.5. Aggregate HRM lessons learned for application in planning and, where appropriate, pass on information to others for consideration in strategic planning and direction

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

REQUIRED SKILLS AND KNOWLEDGE**Required skills**

- planning skills to identify human resource requirements across the program
- literacy skills to communicate decisions and to write quality reports
- high level leadership skills to inspire trust and confidence in teams, managers and stakeholders
- communication and interpersonal skills to convey expectations, negotiate, resolve conflict and motivate performance
- problem-solving skills to address HRM issues across the program
- coaching and mentoring skills.

Required knowledge

- human resource management methods, techniques and tools
- relevant legislation
- models of performance management and performance development.

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

Evidence of the following is essential:

- demonstrated experience in directing human resources across a range of concurrent projects so that project objectives are achieved
- knowledge of relevant legislation .

Context of and specific resources for assessment

Assessment must ensure:

- access to workplace HRM documentation
- consideration of feedback from project teams and stakeholders as to how human resource management was handled.

Method of assessment

A range of assessment methods should be used to assess practical skill and knowledge. The following examples are appropriate for this unit:

- direct questioning combined with review of

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	portfolios of evidence and third party workplace reports of on-the-job performance of scope management techniques by the candidate • analysis of responses addressing different project scope management case studies and scenarios • oral or written questioning to assess knowledge of strategies for managing project human resources and their application to different situations • observation of demonstrated techniques in performance feedback and/or conflict resolution • observation of performance in role plays • review of the measurement of individuals' performance against agreed criteria • evaluation of how the staff continuous improvement system was managed • assessment of analysis of individual and team performance and morale levels.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • other units in the Advanced Diploma of Project Management.

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.

<i>Project organisation and structure</i> may be affected by external influences such as:	• accepted work practices • legislation, including anti-discrimination, equal employment opportunity, affirmative action and occupational health and safety • workplace bargaining
<i>Staff</i> may:	• be external to the organisation, such as consultants, collaborative or alliance agencies

RANGE STATEMENT	
	and external authorities • come from within the organisation, such as staff on loan from other programs/projects
<i>Human resources management methods, techniques and tools</i> may include:	• conflict resolution • HRM forecasts, staffing plans and job descriptions • individual and group competency identification and development • performance monitoring, assessment and reporting • staff recruitment and reallocation
<i>Development and training</i> may be formal or informal, and may include:	• general management • interpersonal communications • project administration, for example computer applications, filing systems • project management • specialist/professional skills and career progression • team building and group activities

Unit Sector(s)

Unit sector	

Competency field

Competency field	Management and Leadership - Project Management

Co-requisite units

Co-requisite units		

BSBPMG607A Direct communications management of a project program

Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to provide the critical link between people, ideas and information at all stages in the life cycles of multiple projects across a program. It covers directing project communications and information management, managing program communications and analysing communications management outcomes for projects and programs. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement.

Application of the Unit

Application of the unit	A program is defined as a set of interrelated projects, each of which has a project manager. Multiple projects (sometimes called a portfolio of projects) refers to a number of projects related in some way and managed by the same person as a program to achieve a common organisational objective/s. For the purposes of this unit someone who manages a suite of projects (a program) will be referred to as a program manager. The functions performed by a project manager to manage communications within individual projects are addressed in BSBPMG507A Manage project communications.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisite units		

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. Direct planning of project communications	1.1. Direct project information requirements in consultation with appropriate stakeholders as the basis for projects and program communications planning 1.2. Direct <i>communications management plans and activities</i> to ensure clarity of understanding and achievement of multiple project objectives at all <i>levels</i> 1.3. Develop <i>project management information system</i> (PMIS), structure and procedures to maintain the quality, validity, timeliness and integrity of information and communication across the program and in regard to organisational strategic management
2. Direct management of	2.1. Direct the generation, gathering, storage, retrieval,

ELEMENT	PERFORMANCE CRITERIA
project information	analysis and dissemination of information by project staff and stakeholders to improve decision making processes and communications across the program and between the projects 2.2. Direct information validation processes for development, management and modification to ensure consistent quality and accuracy of data across the program
3. Manage program communications	3.1. Develop and manage formal and informal communication networks between the organisation's management structure, program, projects and key stakeholders to ensure effectiveness throughout the multiple life cycles of projects within the program 3.2. Address potential, perceived and actual problems with communication and management information systems through project managers, and ensure remedial actions are authorised to ensure project, program and organisational objectives are met 3.3. Manage customer relationships beyond the delegated responsibility of project managers to ensure clarity of understanding of objectives and to minimise conflict across the program
4. Analyse communications management outcomes	4.1. Direct project finalisation activities to ensure ownership of, and responsibility for, information outcomes 4.2. Review and analyse project outcomes to determine the effectiveness of management information and communications systems 4.3. Aggregate and use lessons learned across multiple projects for other applications in the program and the organisation

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- technology skills to direct the management and flow of project information and communications

REQUIRED SKILLS AND KNOWLEDGE

- planning skills to identify project and program information requirements
- literacy skills to communicate decisions and to write quality reports
- problem-solving skills to address communication management problems
- interpersonal skills to communicate with customers and to manage customer relationships and networks
- analytical skills to review and analyse project outcomes.

Required knowledge

- PMIS structures and options
- information validation processes and their application to various contexts
- new technologies for communications and their relative strengths and weaknesses.

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

Evidence of the following is essential:

- demonstrated experience in directing communications and information across a range of concurrent projects
- knowledge of PMIS structures and options.

Context of and specific resources for assessment

Assessment must ensure:

- access to examples of relevant workplace documentation (including electronic media)
- consideration of feedback from project teams and stakeholders as to how communications were managed.

Method of assessment

A range of assessment methods should be used to assess practical skill and knowledge. The following examples are appropriate for this unit:

- direct questioning combined with review of portfolios of evidence and third party workplace reports of on-the-job performance of scope management techniques by the candidate

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	- analysis of responses addressing different project communications management case studies and scenarios - oral or written questioning to assess knowledge of strategies for managing project communications and their application to different situations - review of the project management information system developed - review of how communication and management information systems were used to address potential, perceived and actual problems - evaluation of how project outcomes were reviewed and analysed to determine the effectiveness of management information and communications systems.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: other units in the Advanced Diploma of Project Management.

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.

Communications management plans and activities may:

- be conducted non-routinely to meet complex, changing circumstances
- be done independently or by taking the lead in a multiple teams environment
- involve consultation with project managers and selective involvement of appropriate project stakeholders
- involve the selection, modification and supervision of appropriate communications management methods, processes, procedures

RANGE STATEMENT	
	and tools • take into account the impact of organisational and environmental change on the program and vice versa
Levels may include:	• organisation • operations • program • projects
Project management information system may include:	• hierarchy of decision making responsibility/authority • individual and group authority and responsibilities • limitations and restrictions on subject matter and methods of communication • network structures, processes and procedures for storage and communication of information • types, responsibilities, distribution and regularity of reports, as well as follow-up procedures
Information validation processes may be influenced by:	• age of the information • changes to standards, regulations or limits since information was compiled • cost of the validation process • degree of exposure to mis-information and dis-information • language (translated or converted data may need special attention) • level of detail of information (too much or too little) • potential impact of the information on the program outcome

Unit Sector(s)

Unit sector	

Competency field

Competency field	Management and Leadership - Project Management

Co-requisite units

Co-requisite units		

BSBPMG608A Direct risk management of a project program

Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to manage factors that might adversely affect the project program and organisational outcomes. It covers directing the planning and management of project risks, managing risks to the overall program and assessing risk management outcomes for the program and the organisation. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement.

Application of the Unit

Application of the unit	A program is defined as a set of interrelated projects, each of which has a project manager. Multiple projects (sometimes called a portfolio of projects) refers to a number of projects related in some way and managed by the same person as a program to achieve a common organisational objective/s. For the purposes of this unit someone who manages a suite of projects (a program) will be referred to as a program manager. The functions performed by a project manager to manage risk within individual projects are addressed in BSBPMG508A Manage project risk.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisite units		

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. Direct planning of project risk management	1.1. Direct potential, perceived and actual risk events for identification, documentation and analysis, in consultation with project managers and appropriate stakeholders, as the basis for project <i>risk management planning</i> 1.2. Select and modify project <i>risk management methods, techniques and tools</i> for project managers to analyse information, evaluate options and determine preferred risk approaches within the overall program environment 1.3. Direct development, communication and implementation of project <i>risk management plans</i> and strategies to ensure clarity of understanding and achievement of project objectives across the program

ELEMENT	PERFORMANCE CRITERIA
	1.4. Develop and maintain a project risk management system to enable effective management and communication of risk events, responses and results to stakeholders across projects within the program
2. Direct management of project risk and manage program risk	2.1. Manage the program in accordance with agreed project risk management plans 2.2. Review progress, analyse variance and initiate risk responses to achieve program and multiple project objectives in changing environments 2.3. Direct risks to multiple project outcomes for monitoring, and ensure remedial actions are authorised to achieve project objectives
3. Assess project and program risk management outcomes	3.1. Review and analyse project outcomes to assess the effectiveness of the project risk management system for projects, program and organisational outcomes 3.2. Aggregate, analyse and structure lessons learned, for project managers and senior management to undertake strategic review and planning

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- analytical skills to plan and review risk management approaches
- literacy skills to communicate decisions and to write quality reports
- initiative to identify and address risks leading to negative consequences for projects
- problem-solving skills to initiate risk responses in changing environments.

Required knowledge

- risk management tools, frameworks, systems, methodologies and standards.

Evidence Guide

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	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: • demonstrated experience in successfully directing risk management efforts across a range of concurrent projects • knowledge of risk management tools, frameworks, systems, methodologies and standards.
Context of and specific resources for assessment	Assessment must ensure: • access to workplace risk management documentation • consideration of feedback from project teams and stakeholders as to how risks were managed.
Method of assessment	A range of assessment methods should be used to assess practical skill and knowledge. The following examples are appropriate for this unit: • direct questioning combined with review of portfolios of evidence and third party workplace reports of on-the-job performance of scope management techniques by the candidate • analysis of responses addressing different project risk management case studies and scenarios • oral or written questioning to assess knowledge of strategies for managing project risks and their application to different situations • review of the development, communication and implementation of project risk management plans.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • other units in the Advanced Diploma of Project Management.

Range Statement

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.

<i>Risk management planning</i> may:	• be conducted substantially non-routinely to meet complex and changing circumstances • be done independently or by taking the lead in a multiple projects team environment • involve consultation with project managers and with selective involvement of stakeholders within and external to the organisation • involve the selection, modification and direction of the use of appropriate risk management methods processes, procedures, tools and techniques • take into account the impact of organisational and environmental change on the program and vice versa
<i>Risk management methods, techniques and tools</i> may involve:	• assessing and reporting the potential impact of multiple projects' risk on the organisation • calling upon personal experience and/or subject matter experts • collating and using the products of specialist risk analysis to make program-wide risk management decisions • conducting or directing qualitative and/or quantitative risk analysis, such as schedule simulation, decision analysis, contingency planning and alternative strategy development
<i>Risk management plans</i> may include:	• assigned risk responsibilities • contingency plans • formal arrangements • occupational health and safety (OHS) risks • potential risk events • preferred and alternative risk management strategies and actions • responsibility assignment

Unit Sector(s)

Unit sector	

Competency field

Competency field	Management and Leadership - Project Management

Co-requisite units

Co-requisite units		

BSBPMG609A Direct procurement and contracting for a project program

Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to direct the management of contracting and procurement activities across projects and programs. It covers setting up the contracting process, directing the management of contract and procurement processes and finalising contracts for projects across the program. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement.

Application of the Unit

Application of the unit	A program is defined as a set of interrelated projects, each of which has a project manager. Multiple projects (sometimes called a portfolio of projects) refers to a number of projects related in some way and managed by the same person as a program to achieve a common organisational objective/s. For the purposes of this unit someone who manages a suite of projects (a program) will be referred to as a program manager. The functions performed by a project manager to manage procurement within individual projects are addressed in BSBPMG509A Manage project procurement. It should be noted that conflicting priorities between projects are managed with higher project authority support, in this case project governance committees or senior management.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisite units		

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. Direct planning for project contracting and procurement	1.1. Direct product specifications and procurement requirements for procurement and contract planning, in consultation with appropriate stakeholders 1.2. Direct development of <i>procurement strategies, methods and management plans</i> in line with project objectives across the program
2. Direct set up of contract and procurement process	2.1. Direct project managers to source organisations that meet procurement requirements 2.2. Establish selection processes and selection criteria, in consultation with stakeholders, and arrange for

ELEMENT	PERFORMANCE CRITERIA
	communication to prospective contractors 2.3. Ensure contract and procurement actions accord with organisation and program objectives
3. Direct management of contract and procurement process	3.1. Provide direction for requirements of proposals and arrange communication to prospective contractors 3.2. Ensure responses are evaluated and preferred contractors are selected in accordance with agreed selection processes 3.3. Direct negotiation of contract terms and conditions between client and preferred contractor
4. Direct management of contracts	4.1. Direct management of contract and procurement activities in accordance with program contract and procurement management guidelines 4.2. Provide direction for regular reviews from available records and information, and ensure variances are analysed and changes are agreed for implementation 4.3. Ensure project managers work within the legal and organisational framework for contracts 4.4. Identify potential, perceived and actual contractual conflicts and approve remedial actions to minimise disruption
5. Direct finalisation of contracts	5.1. Direct finalisation activities for management of contract deliverables in accordance with contractual project and program requirements 5.2. Direct review and analysis of project outcomes to determine the effectiveness of contract and procurement processes and procedures 5.3. Aggregate and use lessons learned for application in planning and implementation of later projects within the program and, where appropriate, pass on to organisational management for use in strategic planning

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

REQUIRED SKILLS AND KNOWLEDGE

- literacy skills to communicate decisions, to comprehend complex contractual provisions and to write quality reports
- negotiation skills to set up contracts, to agree prices and terms, and to resolve disputes
- planning and organising skills to ensure procurement processes are properly established and sequenced
- analytical skills to review program performance and to recommend improvements.

Required knowledge

- contract management and legal obligations of both parties
- procurement processes and options.

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

Evidence of the following is essential:

- demonstrated experience in successfully directing procurement and contract management processes across a range of concurrent projects
- knowledge of contract management and legal obligations.

Context of and specific resources for assessment

Assessment must ensure:

- access to workplace contractual and procurement documentation
- consideration of feedback from project team and stakeholders as to how procurement and contractual processes were handled.

Method of assessment

A range of assessment methods should be used to assess practical skill and knowledge. The following examples are appropriate for this unit:

- direct questioning combined with review of portfolios of evidence and third party workplace reports of on-the-job performance of scope

EVIDENCE GUIDE

	management techniques by the candidate • analysis of responses addressing different project scope management case studies and scenarios • oral or written questioning to assess knowledge of strategies for managing project procurement and contracts, and their application to different situations • review of established selection processes and selection criteria and how they were communicated to prospective contractors • assessment of identified potential, perceived and actual contractual conflicts and remedial actions taken to minimise disruption.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • other units in the Advanced Diploma of Project Management.

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.

<i>Procurement strategies, methods and management plans</i> may include:	• conflict resolution processes • contract performance plans and an associated performance monitoring processes • contractor and sub-contractor responsibilities, controls and reporting relationships • explanatory information (for example background, restrictions or expectations) relating to special terms and conditions, planning for long lead-time items and critical program components, and transition plans • procurement, test and acceptance procedures and payment schedules

RANGE STATEMENT	
Proposals may take the form of:	• expressions of interest • quotations • submissions • tenders
Records may take the form of:	• contract analysis, evaluation of options and strategy development • contract discharge procedures and outcomes • contract negotiation documentation, for example contract negotiation strategies, plans, team and individual directives • contractor identification, evaluation and selection records • development and management of contract change procedures • procurement management lessons learned • procurement management plans • product specifications • progress measurement and conflict resolution process records • test and acceptance procedures

Unit Sector(s)

Unit sector	

Competency field

Competency field	Management and Leadership - Project Management

Co-requisite units

Co-requisite units		

Co-requisite units		

BSBRKG608B Plan management of records over time

Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to determine the breadth and depth of a collection of records, and to develop strategic and implementation plans for the management of records over time. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement.

Application of the Unit

Application of the unit	This unit applies to individuals with understanding and specialist knowledge, with depth in some areas of business or records systems. The application is in relation to individuals who require specialist knowledge in business or records systems. These people will generally be senior staff in a specialist recordkeeping environment with responsibility for a team, though they may also be individuals with sole responsibility for recordkeeping systems within larger enterprises. The unit can be applied equally to all types of collections of records, although historically it has been understood to relate only to traditional archival work.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisite units		

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. Determine policies and strategies for management of records over time	1.1. Develop strategies to manage storage and access records, in accordance with industry standards and taking into account <i>available resources</i> 1.2. Develop strategies in the context of organisational culture, build on this, and include migration and preservation strategies 1.3. Determine boundaries of the collection from identified recordkeeping requirements for the jurisdiction 1.4. Determine records storage and use requirements from available documentation and observe <i>organisational behaviour</i> to enable monitoring against the strategic plan 1.5. Identify other parties who create or use records

ELEMENT	PERFORMANCE CRITERIA
	which require storage and factor these into estimates 1.6. Develop a vital records strategy that includes the <i>criteria for vital records</i> and the allocation of responsibility in case of a disaster 1.7. Incorporate vital records strategy into the wider organisational disaster management strategy after approval by <i>appropriate authority</i>
2. Develop strategy and implementation plan for managing records over time	2.1. Review existing <i>internal and external documents</i> which may impact on the transfer of custody and responsibility for records 2.2. Confirm that recordkeeping jurisdictions of the organisation include boundaries of accountabilities from <i>documentation relevant to the transfer of ownership or custody of records</i> 2.3. Specify and document <i>requirements for the transfer of custody, ownership and responsibility</i> 2.4. Specify nature of agreements with receiving bodies or individuals, including rules for negotiation, minimum requirements of legal custody, and signatories to the agreements 2.5. Clearly and logically document rules for the transfer of custody, ownership, and responsibility of records in accordance with organisational requirements
3. Manage preservation of records over time	3.1. Develop records collection strategies and policies which reflect the collecting institution's strategies and directions, and potential <i>changes in operating environments</i> 3.2. Ensure collections strategies reflect evaluation of collection use and availability of alternative formats for resource sharing and in-house collection, as well as access to records from remote sources 3.3. Determine <i>boundaries for the collection</i>, and negotiate commonalities or overlaps of jurisdiction and common boundaries between collecting institutions 3.4. Manage selection, acquisition and disposal of collection material to make best use of staff knowledge, expertise and resources 3.5. Establish processes for the receipt of donations and bequests under legal deposits, policy or other directives, and review the collection in light of collection strategies, policies and disposal 3.6. Initiate and respond to cooperative collection

ELEMENT	PERFORMANCE CRITERIA
	projects where <i>mutual benefits</i> can be gained

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- communication and negotiation skills to explain complex relationships and processes effectively to users and management, and to consult with relevant stakeholders
- information management skills to analyse and synthesise documentation, verbally delivered information, and observed behaviours
- literacy skills to prepare, compile and write complex documents and reports, and to document complex relationships and processes
- problem-solving skills to solve recordkeeping problems
- research and evaluation skills to identify organisational current and historical practices, and to discern the values of information, documents and manuscripts.

Required knowledge

- key provisions of relevant legislation from all forms of government, regulations, standards and documentation that may affect relevant aspects of business operations, such as:
 - anti-discrimination legislation
 - AS 1203:1996 Microfilming of engineering documents
 - AS 2840:1986 Microfilming newspapers for archival purposes
 - AS 3674:1989 Storage of microfilm
 - AS 4003:1996 Permanent paper
 - AS 5044.1:2002 AGLS Metadata element set
 - AS ISO 15489:2004 Records management
 - AS/NZS 4360:2004 Risk management
 - AS ISO 23081.1:2006 Information and documentation - Records management processes - Metadata for records - Principles
 - AS 5090:2003 Work process analysis for recordkeeping
 - Australian Stock Exchange(ASX) Principles of Good Corporate Governance
 - codes of practice
 - ethical principles
 - archives and records legislation

REQUIRED SKILLS AND KNOWLEDGE

- occupational health and safety
- privacy and freedom of information
- general principles and processes of records management and records management systems, such as:
 - systems of control
 - records continuum theory
 - mandate and ownership of business process
- organisational functions, structure and culture
- organisational policies, strategies and procedures, particularly those relating to records access and security
- recordkeeping policies, strategies, functions and structures in the jurisdiction
- social and cultural trends which impact on recordkeeping.

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

Evidence of the following is essential:

- developing and documenting records management policies, procedures and strategies
- documenting a recordkeeping plan
- developing strategies that ensure records are preserved
- knowledge of organisational functions, structure and culture.

Context of and specific resources for assessment

Assessment must ensure:

- access to an actual workplace or simulated environment
- access to office equipment and resources.

Method of assessment

A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:

- assessment of documented recordkeeping policies,

EVIDENCE GUIDE	
	procedures and plans • direct questioning combined with review of portfolios of evidence and third party workplace reports of on-the-job performance by the candidate • observation of presentations of reports on recordkeeping plans • observation of techniques used to preserve records • oral or written questioning to assess knowledge and understanding • review of authenticated documents from the workplace or training environment • review of testimony from team members, colleagues, supervisors or managers.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • administration units • other knowledge management units.

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.	
<i>Available resources</i> may include:	• financial resources • human resources • physical resources • technological resources
<i>Organisational behaviour</i> may include:	• access arrangements • level of recordkeeping use • organisation growth • rules and monitoring of accumulation and retrieval rates
<i>Criteria for vital records</i> may	• industry standards

RANGE STATEMENT	
include:	• organisational facilities • organisational policies • organisational priorities
<i>Appropriate authority</i> may include:	• management team • reference body appointed by management • senior manager for each business function
<i>Internal and external documents</i> may include:	• functional analyses • legislation and regulation • organisational and recordkeeping strategic plans • recordkeeping and information management system requirements • risk analyses
<i>Documentation relevant to the transfer of ownership or custody of records</i> may include:	• jurisdictional documentation • legislative framework • regulatory framework
<i>Requirements for the transfer of custody, ownership and responsibility</i> may include:	• agreement on price movement • completion of documentation about the transfer • physical custody arrangements • requirements of the records prior to, and post, transfer • storage and access agreements
<i>Changes in operating environments</i> may include:	• industry developments • legislative/regulatory developments • operating environments
<i>Boundaries for the collection</i> may include:	• appropriate match between collection policies and changing needs • mechanisms to improve and maintain data on collection use and user demand
<i>Mutual benefits</i> may include:	• benefits to the institution's users • incorporation of awareness of local, national and international issues, standards and protocols

Unit Sector(s)

Unit sector	

Competency field

Competency field	Knowledge Management - Recordkeeping

Co-requisite units

Co-requisite units		

BSBWOR502A Ensure team effectiveness

Modification History

Not Applicable

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to facilitate all aspects of teamwork within the organisation. It involves taking a leadership role in the development of team plans, leading and facilitating teamwork and actively engaging with the management of the organisation.

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

Application of the Unit

This unit applies to managers and addresses the need for managers to facilitate work teams and to build a positive culture within work teams. The unit takes a systematic and planned approach to developing teams. It includes the soft skills as well as more structured approaches to the management of teams.

At this level, work will normally be carried out within complex and diverse methods and procedures which require the exercise of considerable discretion and judgement, using a range of problem solving and decision making strategies.

Licensing/Regulatory Information

Not Applicable

Pre-Requisites

Not Applicable

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

ELEMENT	PERFORMANCE CRITERIA
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 1.2. Develop performance plans to establish expected outcomes, outputs, key performance indicators and goals for work team 1.3. Support team members in meeting expected performance 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 2.2. Develop policies and procedures to ensure team members take responsibility for own work and assist others to undertake required roles and responsibilities 2.3. Provide feedback to team members to encourage, value and reward individual and team efforts and contributions 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 3.2. Support the team in identifying and resolving work performance problems 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 4.2. Communicate information from line manager/management to the team 4.3. Communicate unresolved issues, concerns and problems raised by team members and follow-up with line manager/management and other relevant stakeholders 4.4. Evaluate and take necessary corrective action regarding unresolved issues, concerns and problems raised by internal or external stakeholders

Required Skills and Knowledge

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

Required skills

- training skills to mentor and coach team members
- communication skills to explain team goals, to address team conflict and to build an environment of trust
- planning and organisational skills to keep team on track and focussed on work outcomes.

Required knowledge

- group behaviour
- models for conflict resolution.

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 of the following is essential:

- range of techniques that can be used to build work teams, strengthen communications in the

	team and resolve conflict • methods for engaging with stakeholders and obtaining advice from outside the work team, to ensure team is focussed and on track • knowledge of group behaviour.
Context of and specific resources for assessment	Assessment must ensure: • access to appropriate documentation and resources normally used in the workplace.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • analysis of responses to case studies and scenarios • assessment of written reports • demonstration of team building techniques • direct questioning combined with review of portfolios of evidence and third party workplace reports of on-the-job performance by the candidate • observation of performance in role plays • review of performance plans developed for work team • review of policies and procedures developed to ensure team members take responsibility for own work.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • other units from the Diploma of Management.

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.

<i>Consultation</i> may refer to:	• conducting meetings, interviews, brainstorming sessions, email/intranet communications, newsletters or other

	processes and devices which ensure that all employees have the opportunity to contribute to team and individual performance plans mechanisms used to provide feedback to the work team in relation to outcomes of consultation
Accountabilities may refer to:	- responsibilities as defined in position descriptions, codes of conduct/behaviour, duty statements or similar - statement of conduct outlining responsibilities/actions/performance
Performance plans may refer to:	- individual performance plans linked to team goals - team plans based on work assignments and responsibilities
Outcomes, outputs, key performance indicators may refer to agreed:	- changes in work roles and responsibilities - improved individual and team, performance and participation - improvements to systems, operations - measures for monitoring and evaluating the efficiency or effectiveness of systems or services - quality standards and expectations - targets for productivity improvements such as reduced downtime, higher production levels, decreases in absenteeism - targets for training and development
Strategies may refer to:	- clarification of roles and expectations - electronic communication devices and processes, such as intranet and email communication systems, to facilitate input - long-term or short-term plans factoring in opportunities for team input - mentoring and 'buddy' systems to support team members in providing input - newsletters and briefings - training and development activities
Policies and procedures may refer to:	- organisational guidelines and systems that govern operational functions - procedures that detail the activities that must be carried out for the completion of actions and tasks - Standard Operating Procedures

<i>Processes</i> may refer to:	• brainstorming options with the team for addressing concerns • creating a matrix of issues and concerns and distributing for comment • discussions with individuals regarding their concerns • distributing drafts for comment with a range of options for resolution of concerns • training and development sessions
<i>Stakeholders</i> may include:	• Board members • business or government contacts • funding bodies • union/employee groups and representatives • work team
<i>Line manager/management</i> may refer to:	• chief executive officer • direct superior • other management representatives

Unit Sector(s)

Management and Leadership - Management

CUFANM01A Develop and implement designs for animation

Modification History

Not applicable.

Unit Descriptor

This unit describes the skills and knowledge required to interpret the creative brief, develop and implement animation designs for productions within the cultural industries.

This unit describes the skills and knowledge required to interpret the creative brief, develop and implement animation designs for productions within the cultural industries

Application of the Unit

Not applicable.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Not applicable.

Elements and Performance Criteria Pre-Content

Not applicable.

Elements and Performance Criteria

Elements and Performance Criteria

Element

Performance Criteria

1 Receive and interpret the brief for animation design	1.1 Liaise with the relevant personnel and interpret and confirm the animation requirements so that technical, production or script (programming)

- requirements are met
- 1.2 Participate in preliminary concept meetings to discuss the animation requirements of the production
 - 1.3 Identify the available budget for the production
 - 1.4 Identify the deadline for production and implementation of the animation design
- 2 Breakdown scripts to produce animation plan
 - 2.1 Produce and maintain master script (text) breakdown/production schedule breakdown
 - 2.2 Determine and document the required number and types of animated elements for the use of all relevant personnel during the design development
- 3 Generate and assess ideas
 - 3.1 Generate a range of ideas for the animation design which respond sympathetically to the brief and provide creative solutions to the design issues
 - 3.2 Assess ideas and collaborate, as required, with relevant personnel to ensure contribution of ideas to the initial concept
 - 3.3 Continuously reflect on and appraise ideas for implications on cost, technical feasibility, and suitability to meet the brief
- 4 Conduct research and experimentation
 - 4.1 Research the period, style and genre of the production
 - 4.2 Identify the historical and cultural factors that might influence animation styles and production techniques
 - 4.3 Undertake research into the style and location of the production, materials and human resources necessary to fulfil the production requirements and their cost
 - 4.4 Trial various techniques to test the suitability of their use in the final production of the animation elements, including: colour mixes; textures; materials
 - 4.5 Organise research and experimentation material for ease of use of all relevant personnel during the

design development process

- 4.6 Analyse and document research and experimentation findings for use during the development of the animation design
- 4.7 Evaluate the initial concepts generated, against the research and experimentation findings
- 5 Develop and document the animation design
 - 5.1 Establish or maintain an accessible recording system for the use of all relevant personnel, to include: ; specialist services available for production of the animation; reference/research materials; draft and final animation designs; production details and specifications
 - 5.2 Hold ongoing discussions with relevant personnel so that additional or changed production requirements and new ideas are considered and incorporated during the development of the design
 - 5.3 Ensure that agreement is reached with relevant personnel on a consistent interpretation of characters, style and graphic or visual details
 - 5.4 Evaluate initial concepts and select the most appropriate idea, giving consideration to:
 - 5.5 the budget
 - 5.6 ongoing discussions
 - 5.7 research findings
 - 5.8 ongoing reflection on the design brief
 - 5.9 Develop the animation designs from the initial concepts ensuring:
 - 5.1 consistency with the style requirements of the script/production
 - 5.1 that research findings are incorporated
 - 5.1 that ideas are technically feasible and demonstrate awareness of parameters and resource constraints
 - 5.1 that ideas demonstrate effective use of materials

- 5.1 Choose and incorporate the use of colour, texture and other materials
 - 5.1 Prepare working technical production drawings, production specifications and samples
 - 5.1 Label all designs accurately with scene/production sequence numbers
- 6 Communicate design ideas and make amendments
 - 6.1 Present the animation design using a range of visual materials including coloured design illustrations, technical production drawings, material samples, production requirements and specifications to the relevant personnel for acceptance
 - 6.2 Participate in the initial and ongoing evaluation of the presented designs
 - 6.3 Negotiate and agree to additional requirements or modifications to the design and undertake any necessary amendments
 - 6.4 Agree to the final designs and present final production specifications for the animation to all relevant personnel to ensure that the animation meets design and other production requirements
- 7 Liaise with others to implement production of the animation
 - 7.1 Discuss with relevant personnel to agree upon the future role of the designer in the realisation of the animation design
 - 7.2 Liaise with relevant personnel to ensure that all animation production requirements are met, quality standards are adhered to and work is undertaken within item, budget and technical constraints
 - 7.3 Participate in ongoing production meetings and participate in the evaluation of the animation elements produced
 - 7.4 Ensure that any animation design modifications are agreed, noted and acted upon
 - 7.5 Inform relevant personnel of animation design changes
 - 7.6 Update any required documentation and record and file according to enterprise requirements

Required Skills and Knowledge

Not applicable.

Evidence Guide

Underpinning skills and knowledge

Assessment must include evidence of essential knowledge of, and skills in, the following areas:

collecting and interpreting creative information, scripts and images
production scheduling
resource management including human resources
team leading skills
budget management
project management
report writing
principles of negotiation
information management
costing, budgeting, liaison
principles and techniques of design and script (text) breakdown
research
visualisation and interpretation of creative concepts
preparation of design briefs
communication and presentation techniques
copyright legislation and regulations
understanding the capabilities of other collaborative designers or contractors
understanding the artistic elements of a production
exercising a high level of creativity and ingenuity
maintaining design integrity
colour theory, line, dimension, depth and their application on the screen
the behaviour of various materials, finishes, painting techniques and colours under lighting
principles and techniques of animation, layout and composition
ability to create style or look consistent with direction of director
ability to select and style colours

ability to select colours for characters and match to background colours

perspective and technical drawing

Linkages to other units

This unit has linkages to the following units and combined training delivery and/or assessment is recommended:

CUFANM02A - Coordinate the production of animation

CUEFIN2A - Manage a budget

CUSGEN04A - Participate in negotiations

CUFGEN05A - Make presentations

Critical aspects of evidence

The following evidence is critical to the judgement of competence in this unit:

the development of creative animation design concepts which meet practical requirements including type of production and resource constraints, in particular budgetary constraints

effective verbal and written communication with a range of individuals/organisations

knowledge and application of research techniques

presentation skills

Method and context of assessment

Assessment may take place on the job, off the job or a mix of both of these. However, assessment of this unit would most effectively be undertaken on the job due to the specific workplace environment requirements. Off the job assessment must be undertaken in a closely simulated workplace environment.

Assessment may incorporate a range of methods to assess performance and the application of essential underpinning knowledge, and might include:

work samples or simulated workplace activities

oral questioning/interview aimed at evaluating the processes used in developing and realising the creative concept

projects/reports/logbooks

third party reports and authenticated prior achievements

portfolios of evidence which demonstrate the processes used in developing and realising the creative concept

Resource requirements

Assessment requires access to a range of equipment currently used by the cultural industries.

Underpinning skills and knowledge

Assessment must include evidence of essential knowledge of, and skills in, the following areas:

collecting and interpreting creative information, scripts and images

production scheduling
resource management including human resources
team leading skills
budget management
project management
report writing
principles of negotiation
information management
costing, budgeting, liaison
principles and techniques of design and script (text) breakdown
research
visualisation and interpretation of creative concepts
preparation of design briefs
communication and presentation techniques
copyright legislation and regulations
understanding the capabilities of other collaborative designers or contractors
understanding the artistic elements of a production
exercising a high level of creativity and ingenuity
maintaining design integrity
colour theory, line, dimension, depth and their application on the screen
the behaviour of various materials, finishes, painting techniques and colours under lighting
principles and techniques of animation, layout and composition
ability to create style or look consistent with direction of director
ability to select and style colours
ability to select colours for characters and match to background colours
perspective and technical drawing

Linkages to other units

This unit has linkages to the following units and combined training delivery and/or assessment is recommended:

CUFANM02A - Coordinate the production of animation

CUEFIN2A - Manage a budget

CUSGEN04A - Participate in negotiations

CUFGEN05A - Make presentations

Critical aspects of evidence

The following evidence is critical to the judgement of competence in this unit:

the development of creative animation design concepts which meet practical requirements including type of production and resource constraints, in particular budgetary constraints

effective verbal and written communication with a range of individuals/organisations

knowledge and application of research techniques

presentation skills

Method and context of assessment

Assessment may take place on the job, off the job or a mix of both of these. However, assessment of this unit would most effectively be undertaken on the job due to the specific workplace environment requirements. Off the job assessment must be undertaken in a closely simulated workplace environment.

Assessment may incorporate a range of methods to assess performance and the application of essential underpinning knowledge, and might include:

work samples or simulated workplace activities

oral questioning/interview aimed at evaluating the processes used in developing and realising the creative concept

projects/reports/logbooks

third party reports and authenticated prior achievements

portfolios of evidence which demonstrate the processes used in developing and realising the creative concept

Resource requirements

Assessment requires access to a range of equipment currently used by the cultural industries.

Range Statement

Organisation of research findings and recording of designs may include the use of:

computer database

manual files

library

Presentation medium for design ideas include:

models

material swatches

sketches

sample animation elements

technical drawings

colour illustrations

Research may include:

talking and listening to experts
watching documentary films and videos
reading newspapers books and other references
use of the internet
contact with historical associations

Documentation may be:

computer generated
manually written

Types of production may include:

feature films
short films
commercials
music video
television productions

Relevant personnel may include:

production designer
supervisor
head of department
director of photography
director
producer
technical director
other technical staff
other specialist staff
designer
floor manager

Animated elements may include:

characters
backgrounds
props eg furniture
models
sets

Organisation of research findings and recording of designs may include the use of:

computer database

manual files

library

Presentation medium for design ideas include:

models

material swatches

sketches

sample animation elements

technical drawings

colour illustrations

Research may include:

talking and listening to experts

watching documentary films and videos

reading newspapers books and other references

use of the internet

contact with historical associations

Documentation may be:

computer generated

manually written

Types of production may include:

feature films

short films

commercials

music video

television productions

Relevant personnel may include:

production designer

supervisor

head of department

director of photography

director

producer

technical director

other technical staff

other specialist staff

designer

floor manager

Animated elements may include:

characters

backgrounds

props eg furniture

models

sets

Unit Sector(s)

Not applicable.

CUFANM301A Create 2D digital animations

Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to use industry-current software to create 2D animations. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement.

Application of the Unit

Application of the unit	This unit addresses basic 2D animation skills directed at developing animations for inclusion in interactive media products, short stand-alone animated sequences and basic games. A person in this role works closely with other members of a production team and reports to a senior animator, designer, director or producer. The short dynamic animations they produce may include audio components. Skills associated with 3D digital animation are covered in: - CUFANM302A Create 3D digital animations. More complex skills associated with 3D character animation, including animating facial expressions and lip syncing, are covered in: - CUFANM501A Create 3D digital character animation.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisite units		

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
Identify animation requirements	1. Clarify 2D animation requirements, including design specifications and storyboard in consultation with relevant personnel 2. Clarify target users/audience and requirements with regard to output formats and delivery platforms
Generate and assess ideas	3. Review animations, artworks and other creative sources that may inspire design ideas 4. Obtain other relevant information that may influence design ideas

ELEMENT	PERFORMANCE CRITERIA
	5. Generate a range of animation ideas that are technically feasible, respond to specifications and provide creative solutions to all design issues 6. Present animation ideas to relevant personnel using appropriate design techniques
Plan approach	7. Assess the range of industry-current 2D animation software available to determine compatibility with design specifications 8. In consultation with relevant personnel, select the most appropriate 2D animation software for a given purpose 9. Evaluate initial design ideas and specifications against findings and discuss with relevant personnel to select final design concept
Produce animations	10. Apply basic screen principles, visual design principles, communication principles, animation techniques and animation principles to produce animated sequences 11. Source and import, or generate sufficient quantity of key drawings to establish required actions 12. Combine animated objects to produce single sequences according to creative requirements and specifications 13. Integrate audio assets where necessary 14. Save and store animations using appropriate output file formats and standard naming conventions
Finalise animations	15. Review animations to assess creative solutions to design specifications, appropriateness to users/audience and technical feasibility 16. Discuss and confirm with relevant personnel additional requirements or modifications to overall designs or animations and undertake necessary amendments

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- communication, teamwork and literacy skills sufficient to:
 - interpret and clarify written or verbal instructions

REQUIRED SKILLS AND KNOWLEDGE

- interpret information in software user manuals and help features
- work as a member of a project team, both independently on assignment and under direction
- respond constructively to feedback received from other team members
- initiative and enterprise in the context of:
 - generating a range of feasible ideas for 2D animated sequences
 - visualising creative concepts
- technical skills sufficient to:
 - use appropriate software to develop 2D animations
 - produce hand-drawn sketches
 - apply the basic principles of screen, visual design and communication to produce 2D animations
 - create 2D animations in appropriate formats for a range of delivery platforms
 - manage files and directories using standard naming conventions and version control protocols
- self-management and planning skills sufficient to:
 - prioritise work tasks
 - meet deadlines
 - seek expert assistance when problems arise

Required knowledge

- industry knowledge, including:
 - roles and responsibilities of project team members
 - basic understanding of the relationship between the technical and creative aspects and requirements of media projects
- basic animation techniques and principles
- basic screen principles
- principles of visual design and communication
- copyright clearance procedures
- OHS standards as they apply to use of computer and keyboard for periods of time

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.

EVIDENCE GUIDE	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: • creation of a range of 2D digital animations that: • meet specifications • demonstrate the basic principles of screen, visual design and communication • meet the technical requirements of at least two delivery platforms listed in the range statement • satisfy client requirements • collaborative approach to work.
Context of and specific resources for assessment	Assessment must ensure: • access to a selection of resources, equipment and current industry-current software as listed in the range statement • where sound is integrated in the animated sequence, access to a range of suitable software to support the integration of sound and visual elements • access to appropriate learning and assessment support when required • use of culturally appropriate processes and techniques appropriate to the language and literacy capacity of learners and the work being performed.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct questioning combined with review of portfolios of evidence and third-party workplace reports of on-the-job performance • evaluation of a range of 2D digital animations created by the candidate in response to specifications • written or oral questioning to test knowledge of visual design principles, communication principles, animation techniques and responsibilities of different members of a project team.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • CUFANM302A Create 3D digital animations • CUFDIG301A Prepare video assets

EVIDENCE GUIDE

- CUFDIG304A Create visual design components.

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.

2D animations may include:

- basic games
- buttons
- characters
- illustrations
- logos
- morphs
- objects
- puzzles
- simulated sequences
- text
- titles and credits.

Design specifications may include:

- characters and objects
- key frames
- objects
- references
- samples
- script
- storyboard
- technical specifications, including:
 - output file format
 - output file size
 - operating system
 - hardware specifications, including memory size, RAM
 - delivery platform
 - bandwidth
 - media form.

RANGE STATEMENT	
<i>Relevant personnel</i> may include:	• art director • audio asset creator • designer • director • graphic artist • instructional designer • navigation designer • producer • project manager • system support personnel • other technical and specialist personnel.
<i>Output formats</i> may include:	• DIR/DCR • FLA/SWF • GIF • HTML.
<i>Delivery platforms</i> may include:	• CD • DVD • film • games console • internet • kiosk • mobile phone • PDA (personal digital assistant) • video • other mobile devices.
<i>Design techniques</i> may include:	• digital illustrations of objects and characters • freehand sketches • storyboards • story trees.
<i>Animation software</i> may include:	• Director • Flash • Toon Boon Studio.
<i>Screen principles</i> may include:	• editing, including basic transitions • framing • lighting • montage • narrative • story-telling • style/genre.

RANGE STATEMENT	
<i>Visual design principles</i> may include:	• balance • composition • emphasis • focal point • movement • perspective • proportion • scale • unity.
<i>Communication principles</i> may include:	• communicating the message • conveying meaning • meeting audience requirements • using functional components.
<i>Animation techniques</i> may include:	• acceleration/deceleration • audio integration • hinges and pivots • key frames and tweens • looping backgrounds • morphing/object exaggeration • motion paths • registration points • rotation • speed/motion blur.
<i>Animation principles</i> may include:	• key frames • motion • pacing/timing • point of view.
<i>Audio assets</i> may include:	• music • narration • sound effects.

Unit Sector(s)

Unit sector	

Competency field

Competency field	Visual communication - animation and digital effects

Co-requisite units

Co-requisite units		

CUFANM302A Create 3D digital animations

Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to animate simple 3D models and create 3D animations. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement.

Application of the Unit

Application of the unit	This unit requires the application of basic 3D animation skills to create animations for inclusion in interactive media products, short stand-alone animated sequences and basic games. At this level, animators are working with 3D digital models that have already been created. Animated sequences may include audio components. Animations are created using a range of industry-current software that is constantly evolving, so it is essential that people working in this area keep up to date with the latest software. This unit does not include techniques for stop-motion, cell-analogue and real time animation. Nor does it cover more sophisticated animation techniques used in film, television and high-end games. These are addressed in: • CUFANM501A Create 3D digital character animation • CUFANM502A Create 3D digital environments.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisite units		

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
Clarify animation requirements	1. With reference to <i>production documentation</i>, clarify <i>3D animation</i> requirements and <i>design specifications</i> in consultation with <i>relevant personnel</i> 2. Examine the models to be animated to determine the most appropriate <i>animation techniques</i> 3. Identify the <i>file format</i> and <i>delivery platform</i> for animated sequences 4. Identify <i>factors</i> that may influence animation design approach 5. In consultation with relevant personnel, clarify work

ELEMENT	PERFORMANCE CRITERIA
	flow sequences to ensure that production schedule deadlines are met
Plan approach	6. Research animations, artworks and other creative sources that may inspire visual design ideas 7. Generate a range of animation ideas that are technically feasible, respond to briefs and provide creative solutions to all design issues 8. Present animation ideas to relevant personnel using appropriate design techniques . 9. Adjust approach to incorporate feedback and agree on final design concepts 10. Discuss and select 3D animation software with relevant personnel to ensure that animated sequences meet specified outcomes 11. Analyse audio assets supplied for animations as required
Produce animated sequences for review	12. Create 3D animations using animation techniques to suit design requirements 13. Apply basic animation principles, screen principles, visual design principles and communication principles 14. Apply real world camera techniques to virtual cameras used in 3D animation 15. Render completed animated sequences 16. Save and store animated sequences using appropriate output file formats, standard naming conventions and version control protocols 17. Present 3D animated sequences to relevant personnel for evaluation by agreed deadlines
Finalise animated sequences	18. Review animated sequences to assess creative solutions to design briefs, appropriateness to users/audience and technical feasibility 19. Discuss and confirm with relevant personnel additional requirements or modifications and complete changes as required

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- communication, teamwork and literacy skills sufficient to:
 - interpret and clarify written or verbal instructions
 - work as a member of a production team, both independently on assignment and under direction
 - respond constructively to feedback received from other team members
 - complete workplace documentation
- conceptual and creative skills in the context of:
 - generating feasible ideas for animated sequences
 - having a feel for movement and timing in order to produce convincing animations
 - maintaining design integrity
- technical skills sufficient to:
 - use industry-current animation software to develop digitally animated sequences
 - apply the principles of basic screen, visual design and communication to produce 3D animated sequences
 - output 3D animated sequences in appropriate file formats for a range of delivery platforms
 - manage files and directories using standard naming conventions and version control protocols
- self-management and planning skills sufficient to:
 - prioritise work tasks
 - meet deadlines
 - seek expert assistance when problems arise

Required knowledge

- roles and responsibilities of project team members in the relevant industry sector
- basic understanding of the stages in the production process from initial design through to finished product
- issues and challenges that arise in the context of creating 3D digital animations
- basic 3D digital animation techniques
- basic screen principles
- principles of animation
- principles of visual design and communication
- features of a range of delivery platforms
- OHS standards as they relate to working for periods of time on computers

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

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

Evidence of the following is essential:

- creation of 3D digital animated sequences that:
 - demonstrate the principles of basic screen, visual design and communication
 - meet the technical requirements of specific platforms
 - satisfy the design brief and client requirements
- collaborative approach to work
- attention to detail
- ability to meet production deadlines.

Context of and specific resources for assessment

Assessment must ensure:

- access to a range of resources, equipment and current industry-current software as listed in the range statement
- where sound is integrated in animated sequences, access to a range of suitable software to support the integration of sound and visual elements
- access to appropriate learning and assessment support when required
- use of culturally appropriate processes and techniques appropriate to the language and literacy capacity of learners and the work being performed.

Method of assessment

A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:

- direct questioning combined with review of portfolios of evidence, authenticated show reels and third-party workplace reports of on-the-job performance
- critical analysis of a range of 3D digital animated sequences created by the candidate to determine

EVIDENCE GUIDE	
	ability to meet design requirements - written or verbal questioning to test knowledge as listed in the required skills and knowledge section of this unit - informal questioning and discussion, including response to feedback and diagnostics.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: - CUFANM303A Create 3D digital models - CUFDIG303A Produce and prepare photo images - CUFDIG304A Create visual design components - CUFSOU301A Prepare audio assets.

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.	
<i>Production documentation</i> may include	- animatics - brief - storyboard - technical specifications.
<i>3D animations</i> may include:	3D elements 3D panoramas - basic games - buttons - characters - illustrations - logos - models - morphs/blend shapes - puzzles - simulated sequences

RANGE STATEMENT	
	• text • titles and credits.
<i>Design specifications</i> may include:	• characters and objects • key frames • objects • references • samples • script • storyboard • technical specifications, including: • output file format • version control protocols • output file size • operating system • hardware specifications, including memory size, RAM • delivery platform • media form.
<i>Relevant personnel</i> may include:	• 3D modeller • 3D producer • animation director • audio asset creator • director • graphic artist/designer • instructional designer • lead animator • matte painter • system support personnel • other technical and specialist personnel.
<i>Animation techniques</i> may include:	• acceleration/deceleration • audio integration • dynamic simulation • hierarchies • hinges and pivot points • hybrid method • key frames • layered animation • looping backgrounds • morphing/object exaggeration

RANGE STATEMENT	
	• motion capture • motion paths • pose to pose animation • registration points • rotation • scripted animation • speed/motion blur • straight-ahead animation.
<i>File formats</i> may include:	• AAS • ACT • ANI • ANM • ANS • AVI • AWA • AWM • CEL • CFT • CMV • DIR/DCR • FLA/SWF • FLC • FLI • FLX • GIF • HTML • IFF • JPEG • LWOB • M3D • MMM • MOV • MPEG • MWF • PNG • QTVR • SEC • TIFF • VAN • VUE.

RANGE STATEMENT	
<i>Delivery platforms</i> may include:	• CD • DVD • film • games console • internet • kiosk • mobile phone or device • PDA (personal digital assistant) • video.
<i>Factors</i> may include:	• budget • purpose of animation • resources • target audience • timelines.
<i>Design techniques</i> may include:	• digitally generated illustrations of objects and/or characters • freehand sketches • fully rendered hand-drawn illustrations • story trees • storyboards.
<i>Animation software</i> may include:	• 3D Studio Max • Cinema 4D • Houdini • Lightwave • Maya • Motionbuilder • Soft Image - XSI.
<i>Audio assets</i> may include:	• music • narration • sound effects.
<i>Animation principles</i> may include:	• anticipation • asymmetry in body and facial poses • balanced poses • exaggeration • movement in arcs • overlapping actions and follow-through • pacing/timing • secondary actions • singularity of message

RANGE STATEMENT	
	• squash and stretch • staging • strong silhouette in poses • weight.
Screen principles may include:	• camera techniques • editing, including basic transitions • framing • lighting • montage • narrative • story-telling • style/genre.
Visual design principles may include:	• balance • composition • emphasis • movement • perspective • proportion • scale • unity.
Communication principles may include:	• communicating the message • conveying meaning • meeting audience requirements • using functional components.

Unit Sector(s)

Unit sector	

Competency field

Competency field	Visual communication - animation and digital effects

Co-requisite units

Co-requisite units		

CUFANM403A Create titles for screen productions

Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to create digital titles for screen productions. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement.

Application of the Unit

Application of the unit	Titles designers or graphic artists working in the screen and media industries apply the skills and knowledge described in this unit. They are responsible for designing the opening titles and captions that appear in film and television productions and in digital media products, such as games and e-learning resources. They work closely with directors and post-production personnel to ensure that screen titles reflect the theme and mood of the overall production or product. A collaborative approach to work is therefore essential, as is an ability to meet deadlines.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisite units		

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
Clarify work requirements	1. With reference to <i>production documentation</i>, clarify requirements for screen <i>titles</i> 2. In consultation with <i>relevant personnel</i>, clarify work flow sequences to ensure that production schedule deadlines are met 3. Identify the available budget for the production of titles as required
Identify items to be included in titles	4. Produce and maintain a schedule of <i>items</i> to be included in titles 5. Determine if graphic items need to be imported from other sources and source these items as required 6. Obtain copyright clearances to use imported items as required

ELEMENT	PERFORMANCE CRITERIA
	7. Select appropriate fonts and/or create fonts as required
Generate and assess ideas	8. Generate a range of ideas for the design of screen titles that respond sympathetically to briefs and provide creative solutions to all design issues 9. Discuss ideas and collaborate, as required, with relevant personnel to ensure contribution of ideas to initial concepts 10. Continuously reflect on and appraise ideas for implications on cost, technical feasibility and suitability to meet specifications
Create titles	11. Incorporate and manipulate moving or static graphic items to be included in titles 12. Modify titles and source items to ensure that the required visual effect is achieved 13. Trial various techniques and styles and produce initial compilation of titles ensuring that style, content and creative intentions are met 14. Decide upon the appropriate parameters of display to meet with creative requirements and technical specifications 15. Review initial titles to ensure that they meet technical and creative requirements 16. Ensure that the movement of titles and other graphic items maximises the visual impact required for productions 17. Ensure that titles incorporate captions with required images and sound, and are correctly synchronised with sound 18. Ensure that titles are legible and appropriately spaced 19. Record and store titles and other graphic images according to enterprise procedures
Finalise titles	20. Present initial title compilations to relevant personnel for feedback 21. Participate in initial and ongoing evaluation of titles 22. Confirm accuracy of text, spelling, punctuation and content 23. Negotiate and agree to additional requirements and modify titles as required 24. Ensure that agreement is reached with, and approval granted by, relevant personnel before proceeding with the final production of titles

ELEMENT	PERFORMANCE CRITERIA
	25. Review process of creating titles and note areas for future improvement

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- communication, teamwork and literacy skills sufficient to:
 - interpret and clarify written or verbal instructions
 - collect and interpret creative information, scripts and images
 - use correct grammar and spelling in screen titles
 - work collaboratively in a team environment, both independently and under direction
 - respond constructively to feedback received from other team members
 - complete workplace documentation
- technical skills sufficient to:
 - use common features of industry-current visual effects software to create screen titles
 - produce screen titles for a range of output formats
 - manage files and directories using standard naming conventions and version control protocols
- initiative and creativity in the context of:
 - visualising and interpreting creative concepts
 - maintaining design integrity
 - creatively integrating media assets to achieve the required digital visual effects
 - troubleshooting and solving problems as they arise during the process of creating titles for screen productions
- self-management, learning and planning skills sufficient to:
 - prioritise work tasks
 - continuously improve skills and knowledge by keeping up to date with industry developments and new software features
 - meet deadlines
 - seek expert assistance as required

Required knowledge

REQUIRED SKILLS AND KNOWLEDGE

- industry knowledge, including:
 - roles and responsibilities of project team members in the relevant industry sector
 - sound understanding of the technical and creative elements of productions in which screen titles are used
 - issues and challenges that arise in the context of creating titles for screen productions
- principles of typographic design
- the effects of caption movement in one plane
- the effects of caption movement in multiple planes and axes
- copyright requirements with regard to importing items into screen titles
- OHS standards as they relate to working for periods of time on computers

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

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

Evidence of the following is essential:

- creation of a range of screen titles that:
 - meet the requirements of a brief
 - demonstrate attention to detail and an ability to achieve the required creative effect
- collaborative approach to work
- ability to meet deadlines.

Context of and specific resources for assessment

Assessment must ensure:

- access to industry-current software used to create screen titles
- access to simulated or real production situations that require the creation of screen titles
- access to appropriate learning and assessment support when required
- use of culturally appropriate processes and techniques appropriate to the language and literacy

EVIDENCE GUIDE	
	capacity of learners and the work being performed.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct questioning combined with review of portfolios of evidence and third-party workplace reports of on-the-job performance • evaluation of a range of digital screen titles created by the candidate to determine ability to create different types of titles • written or verbal questioning to test knowledge as listed in the required skills and knowledge section of this unit.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • BSBCRT402A Collaborate in a creative process • CUFANM402A Create digital visual effects • CUFDIG304A Create visual design components.

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.	
<i>Production documentation</i> may include:	• animatics • brief • script • shot list • storyboard • technical specifications.
<i>Titles</i> may be:	• animated • crawling • dissolved

RANGE STATEMENT	
	• effect • faded • layered • reveal • rolling • static • zip.
Relevant personnel may include:	• designers • director • director of photography • editor • head of department • post-production manager • producer • SFX (sound effects) supervisor • sound personnel • storyboard artist • supervisor • technical director • other technical/specialist personnel.
Items to be included in the titles may include:	• background • captured frames • fonts • images, e.g.: • static • moving • graphic • photographic • cinematographic • logos • objects • text.
Parameters of display may include:	• colour • duration • punctuation • shading • spacing • spelling • style

RANGE STATEMENT	
	• thickness • typeface.
Technical and creative requirements include:	• choreography of movement • colour frequency • focus • signal requirements • speed • type.
Movement of titles and other graphic images may include:	• bounce • compression • expansion • rotation.
Productions may include:	• animated productions • commercials • documentaries • feature films • filmed events or performances • interactive digital media products, e.g.: • e-learning resources • games • promotional/informational products • music videos • short films • television productions • training or promotional videos/DVDs.

Unit Sector(s)

Unit sector	

Competency field

Competency field	Visual communication - animation and digital effects

Co-requisite units

Co-requisite units		

CUFCAM01A Set up and operate a basic video camera

Modification History

Not applicable.

Unit Descriptor

This unit describes the skills and knowledge required to set up and operate a basic video camera and equipment for use in small media productions which may not be intended for commercial sale.

This unit describes the skills and knowledge required to set up and operate a basic video camera and equipment for use in small media productions which may not be intended for commercial sale

Application of the Unit

Not applicable.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Not applicable.

Elements and Performance Criteria Pre-Content

Not applicable.

Elements and Performance Criteria

Elements and Performance Criteria

Element

Performance Criteria

1	Select and prepare camera	1.1	Confirm equipment and stock requirements for the

equipment and materials	shoot
	1.2 Obtain and clean equipment and ensure that it is operational
	1.3 Recognise faults and defects and refer these to specialist technicians
	1.4 Obtain all required stock and consumables and ensure that it is present in sufficient quantity to meet the filming requirements and is available at the correct location and time of the filming
2 Charge and maintain batteries throughout shoot	2.1 Ensure power supply is appropriate and available
	2.2 Ensure the charger is suitable for the batteries used
	2.3 Safely charge the batteries according to manufacturer's recommendations
	2.4 Maintain charged batteries to meet the requirements of filming duration
3 Install or check camera support equipment	3.1 Determine the support requirements and position of camera
	3.2 Install supports in the appropriate position and at the appropriate height to achieve the camera shot required
	3.3 Ensure that support is secure, avoids damage to any equipment and provides satisfactory camera support
4 Install camera, lenses and other accessories	4.1 Select and securely fit the correct camera lens and filters according to the identified creative requirements
	4.2 Install other camera accessories and special requirements correctly
	4.3 Lift camera, using safe lifting and handling techniques and secure to support, if required
	4.4 Secure camera safely to avoid damage
5 Test all operational aspects of the camera	5.1 Check the recording functions of the video camera to achieve accurate technical output
	5.2 Check the exposure, colour and focus aspects of

- the camera to achieve the desired artistic and technical results
- 5.3 Check the chosen filters to ensure that they achieve the desired artistic and technical results
 - 5.4 Check pan and tilt movements, if required
- 6 Prepare and load videotapes
 - 6.1 Label all cassettes accurately
 - 6.2 Load and check videotape into camera for recording
 - 6.3 Confirm readiness for shooting with the relevant personnel
- 7 Operate the camera
 - 7.1 Operate camera in accordance with manufacturer's instructions and guidelines
 - 7.2 Consider camera shots and angles to ensure filming produces the desired result
 - 7.3 Employ photographic and composition techniques to achieve the creative requirements
 - 7.4 Ensure that any camera movement is steady and smooth throughout the duration of filming
 - 7.5 Adjust and move equipment, as required, during the filming
- 8 Disassemble camera, accessories and support equipment
 - 8.1 Break down and carry video camera, accessories and supports employing safe lifting techniques
 - 8.2 Clean and safely pack all equipment into cases to avoid damage and prepare for transport
 - 8.3 Report and document any equipment that is damaged and requires maintenance to the relevant personnel
 - 8.4 Leave the filming site in the original or improved condition, ensuring that there has been no adverse impact on the site

Required Skills and Knowledge

Not applicable.

Evidence Guide

Underpinning skills and knowledge

Assessment must include evidence of essential knowledge of, and skills in, the following areas:

basic concepts of camera maintenance and appropriate cleaning techniques and cleaning materials

domestic type video cameras and operational functions

framing techniques and methods of composition

lens theory and application including range

camera to subject practice, ie lens to eyeline, crossing the line, matching shots

video types and differences and compatibility of stock to equipment

management of video stocks, storage and handling

interpretation of creative requirements to technical operation

relevant photographic principles such as exposure, tonal relationships, light sources, sensitivity and balancing, camera's interpretation of colour, and how this determines the selection of filters

different types of light measuring devices and their use

use of light meters

the effect of different light sources, diffusion materials, filters and reflectors on the lighting environment which includes both performers and set

duty of care to colleagues and the general public

Linkages to other units

This unit has linkages to the following unit and combined training delivery and/or assessment is recommended:

CUFPOP01A - Prepare and participate in an electronic media activity

Critical aspects of evidence

The following evidence is critical to the judgement of competence in this unit:

knowledge and application of photographic principles

technical knowledge of a domestic type of video camera

Method and context of assessment

Assessment may take place on the job, off the job or a mix of both of these.

Off the job assessment must be undertaken in a closely simulated workplace environment.

Assessment methods must include observation of performance during a practical demonstration. Direct observation may need to occur on more than one occasion to establish consistency of performance. A range of methods to assess the application of essential underpinning knowledge must support this and might include:

- work samples or simulated workplace activities
- oral questioning/interview
- projects/reports/logbooks
- third party reports and authenticated prior achievements
- portfolios of evidence

Resource requirements

Assessment requires access to a range of equipment listed in the range of variables statement, currently in use.

Underpinning skills and knowledge

Assessment must include evidence of essential knowledge of, and skills in, the following areas:

- basic concepts of camera maintenance and appropriate cleaning techniques and cleaning materials
- domestic type video cameras and operational functions
- framing techniques and methods of composition
- lens theory and application including range
- camera to subject practice, ie lens to eyeline, crossing the line, matching shots
- video types and differences and compatibility of stock to equipment
- management of video stocks, storage and handling
- interpretation of creative requirements to technical operation
- relevant photographic principles such as exposure, tonal relationships, light sources, sensitivity and balancing, camera's interpretation of colour, and how this determines the selection of filters
- different types of light measuring devices and their use
- use of light meters
- the effect of different light sources, diffusion materials, filters and reflectors on the lighting environment which includes both performers and set
- duty of care to colleagues and the general public

Linkages to other units

This unit has linkages to the following unit and combined training delivery and/or assessment is recommended:

CUFPOP01A - Prepare and participate in an electronic media activity

Critical aspects of evidence

The following evidence is critical to the judgement of competence in this unit:

knowledge and application of photographic principles

technical knowledge of a domestic type of video camera

Method and context of assessment

Assessment may take place on the job, off the job or a mix of both of these.

Off the job assessment must be undertaken in a closely simulated workplace environment.

Assessment methods must include observation of performance during a practical demonstration. Direct observation may need to occur on more than one occasion to establish consistency of performance. A range of methods to assess the application of essential underpinning knowledge must support this and might include:

work samples or simulated workplace activities

oral questioning/interview

projects/reports/logbooks

third party reports and authenticated prior achievements

portfolios of evidence

Resource requirements

Assessment requires access to a range of equipment listed in the range of variables statement, currently in use.

Range Statement

Environments where cameras may be set up and maintained include:

in a studio

on location - interior

on location - exterior

outside broadcast

day

night

Shoots may include:

single camera

Types of production may include:

short documentaries

short films

animated productions

filmed events or performances

Equipment and accessories may include:

any domestic type video camera
lighting kit, eg lighting bulbs, lights
mounts
filters
wide angle adaptor

Supports may include:

tripods
fixed mounts

Operation of camera may include:

hand held operation
fixed camera
zoom lens

Lenses may include:

zoom
fixed
macro
micro

Power sources may include:

batteries
AC

Requirements for the shoot may include:

specific lighting conditions
technical
creative

Relevant personnel may include:

director
lighting personnel
technical director
other technical staff
other specialist staff

Reports may be:

computer generated
manually written

Documentation may include:

stock order forms

fault reports

film and battery labels

shotlists

script

production schedule

running sheet

Environments where cameras may be set up and maintained include:

in a studio

on location - interior

on location - exterior

outside broadcast

day

night

Shoots may include:

single camera

Types of production may include:

short documentaries

short films

animated productions

filmed events or performances

Equipment and accessories may include:

any domestic type video camera

lighting kit, eg lighting bulbs, lights

mounts

filters

wide angle adaptor

Supports may include:

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Operation of camera may include:

hand held operation

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Lenses may include:

zoom
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micro

Power sources may include:

batteries
AC

Requirements for the shoot may include:

specific lighting conditions
technical
creative

Relevant personnel may include:

director
lighting personnel
technical director
other technical staff
other specialist staff

Reports may be:

computer generated
manually written

Documentation may include:

stock order forms
fault reports
film and battery labels
shotlists
script
production schedule
running sheet

Unit Sector(s)

Not applicable.

CUFCAM03A Compose camera shots and operate a camera

Modification History

Not applicable.

Unit Descriptor

This unit describes the skills and knowledge required to compose shots, position the camera, select the appropriate lens and lighting equipment, and operate a camera to achieve the required moving image in any environment, for single or multicam film or television productions.

This unit describes the skills and knowledge required to compose shots, position the camera, select the appropriate lens and lighting equipment, and operate a camera to achieve the required moving image in any environment, for single or multicam film or television productions

Application of the Unit

Not applicable.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Not applicable.

Elements and Performance Criteria Pre-Content

Not applicable.

Elements and Performance Criteria

Elements and Performance Criteria

Element	Performance Criteria

- 1 Compose shots
 - 1.1 Liaise with the relevant personnel and interpret and confirm the shot requirements so that aesthetic and technical production and script/production requirements are met
 - 1.2 Generate a range of ideas for the composition of shots which provide creative solutions to the production issues
 - 1.3 Discuss ideas and collaborate, as required, with relevant personnel to ensure contribution of ideas to the initial concept
 - 1.4 Reflect on and appraise ideas for implications on cost and time, technical feasibility, and suitability to meet the production requirements
 - 1.5 Devise shots to ensure that correct visual interpretation of the script/production requirements is met through close liaison with relevant personnel
 - 1.6 Ensure that composition of shots meets the aesthetic requirements and provides the correct visual interpretation of the script/production requirements
- 2 Address lighting conditions
 - 2.1 Assess the quality and quantity of available light and determine the amount of correction required, if necessary
 - 2.2 Confirm that the available light is sufficient for the production requirements by utilising appropriate meters
 - 2.3 Correct mixed light sources to achieve a uniform colour balance
 - 2.4 Ensure corrective actions are taken to address changing or inadequate lighting conditions
 - 2.5 Liaise closely with lighting personnel to achieve the required image and agree to the use of artificial light sources
- 3 Select and use corrective filters
 - 3.1 Make use of corrective filters to: ; meet the creative/and or technical requirements of the production ; change the effects of available light to the quality required to suit film in use ; ensure that correct colour balance and light conditions are

- attained
- 4 Select and use lens
 - 4.1 Determine the required focal length, depth of field and select lens according to technical and creative requirements and available light
 - 4.2 Select focal length according to the type and stability of the camera mounting and degree of intended camera movement during the shot
 - 4.3 Control exposure by use of correct aperture
 - 5 Coordinate crew to position camera
 - 5.1 Communicate the start and end of the moving shot clearly to all relevant personnel, as required
 - 5.2 Identify and clearly communicate the route and timing of camera movements
 - 5.3 Identify and discuss problems with relevant personnel and modify movements accordingly
 - 6 Position and operate camera to capture shots
 - 6.1 Liaise with relevant personnel regarding the shots required and ensure that their sequence is clear and coherent
 - 6.2 Position camera for shots to ensure the safety of all personnel, performers and the general public
 - 6.3 Select camera positions to meet aesthetic and technical requirements and in consultation with the appropriate personnel
 - 6.4 Consider all camera shots and angles to ensure cuts between shots produce the desired result
 - 6.5 Consider editing and other post-production requirements whilst filming
 - 6.6 Adjust and move equipment, as required, during the shoot with consideration to the timelines and deadlines of the production schedule
 - 6.7 Move camera to capture planned or rehearsed shots, according to direction received from relevant personnel
 - 7 Monitor the quality of the moving image during filming
 - 7.1 Employ photographic and composition techniques to achieve the aesthetic requirements and to capture well composed and focused shots

- 7.2 Maintain the desired composition by ensuring that any camera movement is steady and smooth throughout the duration of the shot
- 7.3 Maintain focus throughout the filming
- 7.4 Execute zoom movements and focus changes to achieve the required image, and in accordance with any instructions from relevant personnel
- 7.5 Maintain camera and lighting conditions throughout filming to ensure that image and light quality meet the stylistic effect required
- 7.6 Coordinate the efforts of other personnel to achieve the desired image

Required Skills and Knowledge

Not applicable.

Evidence Guide

Underpinning skills and knowledge

Assessment must include evidence of essential knowledge of, and skills in, the following areas:

interpretation of creative requirements to technical operation

a range of cameras and operational functions

cinematographic language

framing techniques and methods of composition

lens theory and application including range

camera to subject practice, ie lens to eyeline, crossing the line, matching shots

film and video types and differences, and compatibility of stock to equipment

a range of film types and their characteristics - black and white/colour, light sensitivity, speed and latitude, temperature requirements

different film and video formats and their uses

shutter speeds

relevant photographic principles such as exposure, tonal relationships, light sources, sensitivity and balancing, camera's interpretation of colour, colour correction techniques, colour temperature and compensation and how this determines the selection of gels and filters

operation and interpretation of information readout of colour temperature meter

different types of light measuring devices and their uses

use of light meters

the effect of different light sources, diffusion materials, filters and reflectors on the lighting environment which includes both performers and set

properties and behaviour of light and effects on film making - absorption, refraction, reflection, visible light waves, division by wavelength into colours

types of artificial/introduced light sources available to a camera operator

performance characteristics of lenses

types of lenses available to the camera operator and their structure, physical composition and mechanical operation

use of exposure meters

exposure control exercised by aperture and effects of increase and decrease in f/stop

use of printed table to determine aperture

use of depth of field tables and methods of calculation involved in determining correct f/stop

focal length and relationship to depth of field

basic concepts and techniques of cable handling and compatibility with other equipment

basic concepts and techniques for maintaining battery power and loading film stocks

communication and conflict resolution techniques

basic understanding of ethics for the capture of news reports, where applicable

duty of care to colleagues and the general public

occupational and public health and safety procedures in relation to lifting, climbing rigs, using electrical equipment

detailed knowledge of the Australian film industry recommended safety code

Linkages to other units

This unit has linkages to the following units and combined training delivery and/or assessment may be appropriate:

CUFCAM04A - Operate a camera under special conditions

CUFCAM11A - Set up a camera

Critical aspects of evidence

The following evidence is critical to the judgement of competence in this unit:

the interpretation of creative and/or technical requirements and provision of additional ideas in order to produce the desired style of the moving image captured

knowledge and application of photographic principles

technical knowledge of a range of cameras

Method and context of assessment

Assessment of this unit would most effectively be undertaken on the job due to the specific workplace environment requirements. However, assessment of this unit can be undertaken in a closely simulated workplace environment which reproduces all the elements of a production situation including operating to a production schedule. The assessment event in the simulated workplace environment should involve all the team members that would normally participate in a film or television production and the use of current industry standard equipment.

Assessment methods must include observation of performance during a practical demonstration. Direct observation may need to occur on more than one occasion to establish consistency of performance. A range of methods to assess the application of essential underpinning knowledge must support this and might include:

practical demonstration, direct observation may need to occur on more than one occasion to establish consistency of performance

role play

case studies

work samples or simulated workplace activities

oral questioning/interview aimed at evaluating the processes used in developing and realising the creative concept

projects/reports/logbooks

third party reports and authenticated prior achievements

portfolios of evidence which demonstrate the processes used in developing and realising the creative concept

Resource requirements

Assessment requires access to a range of equipment listed in the range of variables statement, currently used by the cultural industries.

Underpinning skills and knowledge

Assessment must include evidence of essential knowledge of, and skills in, the following areas:

interpretation of creative requirements to technical operation

a range of cameras and operational functions

cinematographic language

framing techniques and methods of composition

lens theory and application including range

camera to subject practice, ie lens to eyeline, crossing the line, matching shots

film and video types and differences, and compatibility of stock to equipment

a range of film types and their characteristics - black and white/colour, light sensitivity, speed and latitude, temperature requirements

different film and video formats and their uses

shutter speeds

relevant photographic principles such as exposure, tonal relationships, light sources, sensitivity and balancing, camera's interpretation of colour, colour correction techniques, colour temperature and compensation and how this determines the selection of gels and filters

operation and interpretation of information readout of colour temperature meter

different types of light measuring devices and their uses

use of light meters

the effect of different light sources, diffusion materials, filters and reflectors on the lighting environment which includes both performers and set

properties and behaviour of light and effects on film making - absorption, refraction, reflection, visible light waves, division by wavelength into colours

types of artificial/introduced light sources available to a camera operator

performance characteristics of lenses

types of lenses available to the camera operator and their structure, physical composition and mechanical operation

use of exposure meters

exposure control exercised by aperture and effects of increase and decrease in f/stop

use of printed table to determine aperture

use of depth of field tables and methods of calculation involved in determining correct f/stop focal length and relationship to depth of field

basic concepts and techniques of cable handling and compatibility with other equipment

basic concepts and techniques for maintaining battery power and loading film stocks

communication and conflict resolution techniques

basic understanding of ethics for the capture of news reports, where applicable

duty of care to colleagues and the general public

occupational and public health and safety procedures in relation to lifting, climbing rigs, using electrical equipment

detailed knowledge of the Australian film industry recommended safety code

Linkages to other units

This unit has linkages to the following units and combined training delivery and/or assessment may be appropriate:

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practical demonstration, direct observation may need to occur on more than one occasion to establish consistency of performance

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work samples or simulated workplace activities

oral questioning/interview aimed at evaluating the processes used in developing and realising the creative concept

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third party reports and authenticated prior achievements

portfolios of evidence which demonstrate the processes used in developing and realising the creative concept

Resource requirements

Assessment requires access to a range of equipment listed in the range of variables statement, currently used by the cultural industries.

Range Statement

Environments where cameras may be operated include:

in a studio

on location - interior

on location - exterior

day

night

Shoots may include:

single

multi camera

Types of production include:

electronic field production (EFP)

electronic news gathering (ENG)

feature films

documentaries

short films

animated productions

commercials

filmed events or performances

music video

television productions of any type, eg music, drama, comedy, variety, sport, current affairs

live or prerecorded television productions

Shots may include:

extreme close up

close up

mid shot

long shot

wide shot

high angle

eye level shot

low angle

establishing or master shot

point of view shot

cutaway shot

Camera movement may be:

static

pan

tilt

track in

track out

crab

crane

Film gauges may include:

super 16mm

16mm

35mm

65mm

Equipment and accessories may include:

Arriflex

Bolex

Aaton

IMAX

Panavision

rostrum camera

platten glass

video split monitor

cables

mounts

filters

lenses:

lens hood

lens filters

matte box

lens support

wide angle adaptor

Betacam

Betacam SP

Digital betacam

Digital DVC pro

DV Cam

Mini DV

1 inch tube

2/3 inch tube

2/3 inch CCD in both large format and portable configuration

video split monitor

lighting kit

lighting bulbs

lights

filter wheel

viewfinders

diopter

zoom demands

focus demands

shot boxes

cue card holders

headphones

autocue monitor

talkback

tallies and return video

Video camera may:

be manually controlled

be computer controlled

combine camera and recorder function

separate the camera function from record function

Operation of camera may include:

hand held operation

fixed/supported camera

Meters used to determine lighting conditions and requirements may include:

light meter

exposure meter

colour temperature meter

Lenses may include:

normal

long

zoom

fixed

macro

micro

Performance characteristics of lenses may include:

resolution
contrast
image shift
sharpness
zoom
mechanical operation

Filters may include:

colour correction
colour
graduated: hard edge, soft edge, attenuated coloured, neutral density
correction filters
ultraviolet
polarising
chromatic
starburst
non specific colour
enhancers

Introduced light sources may include:

key light
fill light
back light
bounced light
effect light, eg on backgrounds

Artificial light sources may include:

interior lights
spot light
flood light
HMI
tungsten

Power sources may include:

mains power
generators
batteries

Battery types may include:

Ni-Cad

lead/acid

lithium ION

Requirements for the shoot may include:

specific lighting conditions

technical

creative

Relevant personnel may include:

supervisor

head of department

director of photography

director

camera operator

focus puller

grips

camera assistants

gaffer

lighting personnel

technical director

other technical staff

other specialist staff

floor manager

safety officer

Reports may be:

computer generated

manually written

Documentation may include:

stock order forms

fault reports

film and battery labels

shotlists

script

production schedule

running sheet

Environments where cameras may be operated include:

in a studio

on location - interior

on location - exterior

day

night

Shoots may include:

single

multi camera

Types of production include:

electronic field production (EFP)

electronic news gathering (ENG)

feature films

documentaries

short films

animated productions

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filmed events or performances

music video

television productions of any type, eg music, drama, comedy, variety, sport, current affairs

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low angle

establishing or master shot

point of view shot

cutaway shot

Camera movement may be:

static

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track in

track out

crab

crane

Film gauges may include:

super 16mm

16mm

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Equipment and accessories may include:

Arriflex

Bolex

Aaton

IMAX

Panavision

rostrum camera

platten glass

video split monitor

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lenses:

lens hood

lens filters

matte box

lens support

wide angle adaptor

Betacam

Betacam SP

Digital betacam

Digital DVC pro

DV Cam

Mini DV

1 inch tube

2/3 inch tube

2/3 inch CCD in both large format and portable configuration

video split monitor

lighting kit

lighting bulbs

lights

filter wheel

viewfinders

dioptr

zoom demands

focus demands

shot boxes

cue card holders

headphones

autocue monitor

talkback

tallies and return video

Video camera may:

be manually controlled

be computer controlled

combine camera and recorder function

separate the camera function from record function

Operation of camera may include:

hand held operation

fixed/supported camera

Meters used to determine lighting conditions and requirements may include:

light meter

exposure meter

colour temperature meter

Lenses may include:

normal

long

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fixed

macro

micro

Performance characteristics of lenses may include:

resolution

contrast

image shift

sharpness

zoom

mechanical operation

Filters may include:

colour correction

colour

graduated: hard edge, soft edge, attenuated coloured, neutral density

correction filters

ultraviolet

polarising

chromatic

starburst

non specific colour

enhancers

Introduced light sources may include:

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bounced light

effect light, eg on backgrounds

Artificial light sources may include:

interior lights

spot light

flood light

HMI

tungsten

Power sources may include:

mains power

generators

batteries

Battery types may include:

Ni-Cad

lead/acid

lithium ION

Requirements for the shoot may include:

specific lighting conditions

technical

creative

Relevant personnel may include:

supervisor

head of department

director of photography

director

camera operator

focus puller

grips

camera assistants

gaffer

lighting personnel

technical director

other technical staff

other specialist staff

floor manager

safety officer

Reports may be:

computer generated

manually written

Documentation may include:

stock order forms

fault reports

film and battery labels

shotlists

script

production schedule

running sheet

Unit Sector(s)

Not applicable.

CUFCAM501A Shoot material for screen productions under special conditions

Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to operate cameras under special conditions for film or television productions. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement.

Application of the Unit

Application of the unit	Shooting material under special conditions is undertaken by experienced camera operators. They could be working on productions that require capturing shots from moving vehicles, aircraft, trains or underwater using digital or film cameras. Shoots may involve risk situations requiring the application of safe work practices and close collaboration with production team members. Generally speaking, a director of photography or director supervises such shoots but there are circumstances where camera operators may carry responsibility for most if not all of the filming, e.g. deep underwater shoots. This unit builds on the skills acquired in: • CUFCAM401A Shoot a wide range of television content • CUFCAM402A Shoot television content in a

	multi-camera environment.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisite units		

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
Plan shoot	1. Liaise with relevant <i>production personnel</i> to interpret and confirm overall <i>production requirements</i> 2. Collaborate with relevant production personnel to devise creative solutions for <i>shoots</i> to meet aims and needs of <i>productions</i> 3. Interpret camera plans, identify required <i>special effects</i>

ELEMENT	PERFORMANCE CRITERIA
	and create appropriate shot lists for use during rehearsals and actual shoots 4. Brief relevant production personnel assisting with shoot and determine an execution plan for specific shoots 5. Participate in pre-shoot safety briefings to ensure risks of shooting under special conditions are understood 6. Identify potential hazards and risks that may affect decisions to proceed with shoots and arrange to reduce problems where feasible
Select and set up equipment	7. Assess nature of special conditions and discuss issues with relevant production personnel 8. Select required equipment and accessories for shoots and install correctly and safely 9. Ensure equipment and accessories do not impede operations of other production personnel involved in shoot 10. Participate in rehearsals where feasible and agree to final camera shots and camera movements 11. Adjust shot lists as required
Capture shots	12. Communicate with relevant production personnel throughout shoot and operate camera according to instructions and cues received 13. Re-create and capture shots established during rehearsals and advise relevant production personnel of unavoidable variations from predetermined plans 14. Endeavour to minimise negative effects of movement of equipment and accessories on filming activity 15. Operate camera and special equipment to ensure safety of relevant production personnel and other participants involved in shoot 16. Work in cooperation with other personnel to achieve the desired camera movements and visual effects 17. Complete operations without damage to equipment and without interference to operators of moving equipment 18. Participate in debriefing sessions to evaluate effectiveness of shoots and to identify areas for future improvement

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- communication, teamwork and literacy skills sufficient to:
 - interpret creative information, scripts and images
 - provide creative input to production planning
 - work collaboratively with production staff and others during shoots
 - complete workplace documentation, e.g. shot lists
 - respond appropriately to feedback about shoots from others
- high levels of initiative, enterprise and creativity in the context of:
 - demonstrating originality and innovative approaches to filming under special conditions
 - being able to balance creative and technical requirements
 - being flexible enough to make last-minute adjustments to planned shots if unforeseen circumstances arise during shoots
- self-management and problem solving skills sufficient to:
 - solve problems and challenges during shoots in a timely and collaborative manner
 - evaluate own contribution to creative solutions
 - work under pressure to tight deadlines
- planning and organising skills in the context of planning shots to achieve required outcomes in the most efficient way, including taking account of budgetary and resource constraints
- technical skills sufficient to operate a range of professional camera equipment in a single-camera or multi-camera environment under a range of special conditions

Required knowledge

- industry knowledge, including:
 - roles and responsibilities of personnel in the relevant industry sector
 - sound understanding of artistic and technical elements associated with productions, e.g. staging, lighting, sound
 - issues and challenges that arise in the context of filming under special conditions
 - features of a range of cameras and accessories
 - cinematographic language
 - preparation of shot cards and shot descriptions
 - production scheduling process
- techniques for handling cables, including their compatibility with other equipment

REQUIRED SKILLS AND KNOWLEDGE

- well-developed understanding of photographic principles, such as:
 - exposure
 - tonal relationships
 - focus
 - light sources
 - sensitivity and balancing
 - camera interpretation of colour
 - characteristics of lenses
 - colour correction techniques
 - colour temperature and compensation
- camera-to-subject practice/framing and composition:
 - lens to eyeline
 - jump cuts
 - crossing the line
 - matching shots
 - general continuity
- features of and techniques for using light-measuring devices
- duty of care to colleagues and general public, especially on location
- OHS procedures, particularly as they relate to lifting, climbing rigs and use of electrical equipment
- detailed knowledge of the Recommended Safety Code for Film and Television

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

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

Evidence of the following is essential:

- ability to make creative contributions to the planning and execution of filming under a range of special conditions
- strong teamwork ethic and ability to work under direction and to deadlines
- ability to operate cameras and ancillary equipment in

EVIDENCE GUIDE	
	a multi-camera environment and under special conditions • knowledge and application of photographic principles • application of safe work practices when filming under special conditions.
Context of and specific resources for assessment	Assessment must ensure: • practical demonstration of skills through filming sequences under a range of special conditions • access to a range of professional equipment currently used in the film and television industry • opportunities to work on single-camera and multi-camera shoots that require filming under special conditions • access to appropriate learning and assessment support when required • use of culturally appropriate processes and techniques appropriate to the language and literacy capacity of learners and the work being performed.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct questioning combined with review of portfolios of evidence and third-party workplace reports of on-the-job performance • observation of the candidate filming under special conditions to assess candidate's ability to capture shots safely • evaluation of sequences filmed by the candidate to determine candidate's ability to meet creative production requirements • written or verbal questioning to test knowledge as listed in the required skills and knowledge section of this unit.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • CUFCAM403A Plan and implement installation of camera supports.

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.

Production personnel may include:

- director
- director of photography
- gaffer
- grip
- head of department
- lighting personnel
- news producer/director/chief of staff
- other specialist staff
- other technical staff
- supervisor
- technical director.

Production requirements may include:

- artistic and style requirements
- creative
- lighting conditions
- location of assignment
- mood
- news stories to be covered
- script
- special effects
- technical.

Shoots may include:

- digital
- film
- multi-camera
- single-camera.

Productions may include:

- animated productions
- commercials
- documentaries
- EFP (electronic field production)
- ENG (electronic news gathering)
- feature films
- filmed events or performances
- live or prerecorded television productions

RANGE STATEMENT	
	• music video • short films.
<i>Special effects</i> may include:	• explosions • flash pots • floods • gunshots • mechanical • pyrotechnic effects • rain • snow • storm effects, e.g. thunder, lightning • wind.
<i>Execution plan</i> may include:	• chain of communication for execution of the filming • cues and signals to be used • emergency action to be taken in the event of accidents • route and timing of camera shots.
<i>Special conditions</i> may include:	• filming of special effects • mounted to a crane • mounted to a dolly • mounted to, or filmed from a moving aircraft • mounted to, or filmed from a moving train • mounted to, or filmed from a moving vehicle, e.g. car, truck, bus • mounted to, or filmed from a moving vessel, e.g. ship, boat • underwater • use of a jib • use of a remote-control camera • use of a robotic camera.
<i>Equipment and accessories</i> may include:	• autocue monitor • cables • cranes • cue card holders • digital cameras • diopter • film cameras • filter wheel • filters

RANGE STATEMENT

	• fluid heads • headphones • lenses • lighting bulbs • lighting equipment • lights • mounts • pedestals • rigs and scaffolding • shot boxes • special camera housings • spreaders • talkback • tallies and return video • tracks and dollies • tripods • underwater camera • video split monitor • viewfinders.
<i>Shots</i> may include:	• close-up • cutaway shot • establishing or master shot • extreme close-up • eye-level shot • high-angle • long shot • low-angle • mid shot • point-of-view shot • wide shot.
<i>Camera movements</i> may include:	• crab • crane • dolly • pan • physical relocation • static • tilt • track in/out • zoom in/out.

RANGE STATEMENT	
<i>Special equipment</i> may include:	• camera housings, e.g. underwater housing • communication equipment • diving equipment • harness equipment • protective clothing, e.g.: • helmet • wetsuit • identifying colour and/or signage on clothing • insulated clothing • fire-resistant clothing • special camera housings • rig, track and mount equipment • sealed cabling or battery equipment.
<i>Other participants</i> may include:	• actors • ambulance and medical staff • boat crew • council staff • divers • driver of vehicle • fire brigade • general public, e.g. studio audiences, spectators • interviewees • interviewers • journalists/reporters • performers, e.g. stunt performers, actors • pilot • police • presenters • safety officer • train driver.
<i>Operators of moving equipment</i> may include:	• boat crew • crane operator • dolly operator • drivers of vehicles • pilots • train drivers.

Unit Sector(s)

Unit sector	

Competency field

Competency field	Media and entertainment production - Camera/cinematography

Co-requisite units

Co-requisite units		

CUFDIG201A Maintain interactive content

Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to maintain interactive content. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement.

Application of the Unit

Application of the unit	People responsible for updating the content of websites apply the skills and knowledge described in this unit. Under direction, they upload a range of media assets and change text content, using a content management system that may be a proprietary system designed for a static or dynamic website. Changes to the interface and structure of the site are made by people in more senior positions.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisite units	

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
Check website information for relevance and currency	1. Confirm with relevant personnel frequency of upgrades 2. Obtain revised and additional electronic content and ensure correct versions 3. Confirm with relevant personnel the age limit of links that should be retained or deleted 4. Confirm with relevant personnel other revisions as required
Check links and navigation	5. Select appropriate link-checking software, run software to test links and check currency of existing links 6. Save report document according to technical and organisational requirements 7. Check broken or failed links to determine site closures or new site addresses
Update information	8. Access content management system and load appropriate files 9. Delete closed links and re-establish new site links if available 10. Check internal page links and rectify or delete as required 11. Import and/or change content material as required and

ELEMENT	PERFORMANCE CRITERIA
	specify appropriate <i>metadata</i> if required 12. Make heading, typographical and image revisions applying appropriate style sheets and alt tags if required 13. Insert additional pages or screens as required, applying appropriate templates or themes 14. Upload edited files to server using file transfer protocols (FTP). 15. Advise relevant personnel if new buttons, interface or navigation design are required to incorporate additional materials
Test and confirm changes	16. Check all links are valid 17. Confirm with relevant personnel that all changes have been made

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- communication and literacy skills sufficient to:
 - interpret and clarify written or verbal instructions
 - interpret and apply information in user manuals for software applications
- ability to work as a member of a production team - both independently on assignment and under direction
- technical skills sufficient to:
 - proficiently use a content management system
 - use link-checking software
 - manage files using standard naming conventions
 - apply appropriate metadata to describe documents
 - apply style sheets, templates and themes
- self-management and planning skills sufficient to:
 - prioritise work tasks
 - meet deadlines
 - seek expert assistance when problems arise

Required knowledge

REQUIRED SKILLS AND KNOWLEDGE

- W3C Accessibility standards relevant to text and images
- internet protocols and data types
- OHS standards as they relate to working on computers for periods of time

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

Evidence of the following is essential:

- accurate creation of interactive media information and links
- proficient use of content management systems
- attention to detail.

Context of and specific resources for assessment

Assessment must ensure:

- access to industry-standard authoring software, the internet and an FTP client for uploading content
- access to appropriate learning and assessment support when required
- use of culturally appropriate processes and techniques appropriate to the language and literacy capacity of learners and the work being performed.

Method of assessment

A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:

- direct questioning combined with review of portfolios of evidence and third-party workplace reports of on-the-job performance
- evaluation of websites where content has been updated by the candidate on a regular basis
- written or oral questioning to test knowledge of internet protocols, data types and W3C Accessibility standards relevant to text and images.

Guidance information for

Holistic assessment with other units relevant to the

EVIDENCE GUIDE	
assessment	industry sector, workplace and job role is recommended, for example: • CUFIND201A Develop and apply creative arts industry knowledge • CUFRES201A Collect and organise content for broadcast or publication.

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.	
<i>Relevant personnel</i> may include:	• client • programmer and technical support people • supervisor • web manager • other specialist creative and administrative staff as appropriate.
<i>Electronic content</i> may include:	• audio • HTML • images (photographs and illustrations) • PDF documents • text • video • Word documents.
<i>Link-checking software</i> may include:	• Xenu • Linkbot • software internal to content management systems.
<i>Content management systems</i> may include:	• authoring tools, such as: • Dreamweaver • Contribute • learning management systems, such as: • WebCT

RANGE STATEMENT	
	• Blackboard • Janeson • Moodle • Sharepoint • open source database systems • other proprietary database systems.
Metadata may include:	• author • copyright • date • description • subject • title • other metadata based on Dublin Core or other standards.

Unit Sector(s)

Unit sector	

Competency field

Competency field	Visual communication - digital content and imaging

Co-requisite units

Co-requisite units		

CUFDIG302A Author interactive sequences

Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to use an authoring tool to produce discrete interactive sequences. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement.

Application of the Unit

Application of the unit	People responsible for developing small components to be integrated into a larger project apply the skills and knowledge described in this unit. They could be working under the direction of an interactive author or programmer to produce several web pages, or a sequence of screens for other forms of delivery. They need to draw on technical assistance from a programmer or other technical support personnel to produce sequences for server side technologies. In all cases, they are collaborating with other members of a team and need a sound understanding of the project on which they are working. More complex skills associated with authoring are covered in: • CUFDIG401A Author interactive media • CUFDIG404A Apply scripting language in authoring.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisite units		

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
Plan use of authoring tool	1. Identify a range of appropriate <i>authoring software</i> 2. Discuss with <i>relevant personnel</i> the range of authoring software and their application to various <i>delivery platforms</i> 3. Discuss with relevant personnel <i>design specifications</i> of the <i>project</i> 4. Discuss with relevant personnel technical requirements

ELEMENT	PERFORMANCE CRITERIA
	of the project in order to select authoring software
Prepare to use authoring tool	5. Load selected authoring software 6. Create a new file for the specified task and name file using standard naming conventions 7. Display and use tools and features of authoring software relevant to the authoring process
Produce interactive sequences	8. Produce screens and layout according to design specifications applying basic <i>visual design principles</i> 9. Create <i>interactive media components</i> as required 10. Source text content and apply style sheets to format text 11. Source relevant <i>media assets</i> , optimise if required and integrate using appropriate <i>file formats</i> 12. Produce and link all components according to storyboard and apply templates or themes 13. Manipulate markup code where errors are occurring or to finetune functionality 14. Save in appropriate file format to directory
Check functionality of interactive sequence	15. Check that interactive elements function with minimal error on a variety of systems 16. Present sequence to relevant personnel 17. Incorporate changes as required

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- communication and literacy skills sufficient to:
 - interpret and clarify written or verbal instructions and design specifications
 - interpret and apply information in user manuals for software applications
- ability to work as a member of a production team - both independently on assignment and under direction
- technical skills sufficient to:
 - use appropriate authoring software to proficiently author the sequences applying style sheets, templates or themes
 - integrate media assets for specific bandwidths

REQUIRED SKILLS AND KNOWLEDGE

- manage files and create appropriate directories
- efficiently use a computer, including keyboard shortcuts
- self-management and planning skills sufficient to:
 - prioritise work tasks
 - meet deadlines
 - seek expert assistance when problems arise

Required knowledge

- industry knowledge, including:
 - roles and responsibilities of project team members, e.g. designers, content creators, information architects, programmers and coders
 - basic understanding of the relationship between technical and creative aspects and requirements of interactive media projects
 - basic knowledge of the features of a range of delivery platforms
 - file formats of digital media assets and basic optimisation techniques
 - HTML
 - W3C Accessibility standards relevant to text and images
- basic visual design principles as listed in the range statement
- OHS standards as they relate to working for periods of time on computers

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

Evidence of the following is essential:

- development of several discrete interactive media sequences that function as planned and demonstrate an understanding of basic visual design principles
- accuracy and attention to detail in the process of developing interactive media sequences.

Context of and specific resources for assessment

Assessment must ensure:

- access to a range of resources, equipment and current industry-standard software, as listed in the range

EVIDENCE GUIDE	
	statement • access to appropriate learning and assessment support when required • use of culturally appropriate processes and techniques appropriate to the language and literacy capacity of learners and the work being performed.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct questioning combined with review of portfolios of evidence and third-party workplace reports of on-the-job performance • evaluation of interactive sequences authored by the candidate • written or oral questioning to test knowledge of file formats and delivery platforms.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • CUFDIG304A Create visual design components.

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.	
<i>Authoring software</i> may include:	• Director • Dreamweaver • Flash • FrontPage • PageMill.
<i>Relevant personnel</i> may include:	• designer • graphic designer • information architect

RANGE STATEMENT	
	• interaction designer • programmer • supervisor • trainer • user interface designer • other specialist staff.
<i>Delivery platforms</i> may include:	• CD • DVD • internet • kiosk • mobile phone • personal digital assistant (PDA) • other wireless/mobile devices.
<i>Design specifications</i> may include:	• content inventory • interactive script • personas • storyboard • target audience • technical requirements, such as: • delivery platform • screen resolution and size • templates, style sheets and themes • bandwidth information • user interface design.
<i>Projects</i> may include:	• production of interactive sequences to be incorporated in a: • game • educational product • promotional product • information product • training product • e-commerce.
<i>Visual design principles</i> may include:	• balance • emphasis • focal point • movement • perspective • proportion • scale

RANGE STATEMENT	
	• unity.
<i>Interactive media components</i> may include:	• backgrounds • banners • icons • interactive buttons • interactive controls • logos • text • titles • user interfaces.
<i>Media assets</i> may include:	• animation • audio • documents, such as PDF, Word, PowerPoint and Excel • graphics • photo images • text • video.
<i>File formats</i> may include:	• DIR/DCR • FLA/SWF • GIF • HTML • JPEG • MOV • MPEG • PDF • PICT • RTF • TIFF • WMV.

Unit Sector(s)

Unit sector	

Competency field

Competency field	Visual communication - digital content and imaging

Co-requisite units

Co-requisite units		

CUFDIG303A Produce and prepare photo images

Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to prepare photo images for integration into an interactive media sequence or product. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement.

Application of the Unit

Application of the unit	This role may be assigned to a graphic artist or, in a larger project, to a photographer who works closely with a programmer or interactive media author to publish required images. The photography ranges from digital still composition to panoramas for the production of virtual worlds. Photo images can include landscapes, objects and portraits. Specialist skills associated with photography are covered in: • CUVPHI06A Plan and carry out image capture in response to a brief.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisite units		

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
Use scanner to capture photo images	1. Source and select appropriate photographic images according to requirements of photographic <i>project</i> brief 2. Discuss selection of images with <i>relevant personnel</i> 3. Assess <i>scanner features</i> to ensure that outcomes will meet the requirements of brief 4. Operate scanner according to manufacturer specifications 5. Select <i>scanner settings</i> to ensure image capture meets production requirements 6. Transfer and store photographic image files to a computer using standard naming conventions
Use digital camera to create photo images	7. Discuss photographic project brief with relevant personnel

ELEMENT	PERFORMANCE CRITERIA
	8. Assess digital camera features to ensure that outcomes will meet the requirements of brief 9. Plan camera shots taking into account lighting, framing, composition and other photographic techniques 10. Load and operate digital camera according to manufacturer specifications 11. Consider digital camera focus, exposure and shutter speed to ensure image capture meets production requirements 12. Check photographic images for fitness of purpose to comply with brief 13. Transfer and store photographic image files to a computer using standard naming conventions
Edit photo images	14. Load digital imaging software and import photo image source files 15. Manipulate and save digital images using designated digital imaging software 16. Create photo images that incorporate visual design and communication principles using designated digital imaging software 17. Evaluate the outcome for visual impact, effectiveness and fitness for purpose 18. Confirm outcome with relevant personnel
Prepare photo image assets	19. Save files in appropriate output format to meet platform requirements 20. Assign metadata tags if required 21. Group files logically in a folder system using standard naming conventions 22. Store files in share drive or repository for production team access

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- communication skills sufficient to:

REQUIRED SKILLS AND KNOWLEDGE

- interpret and clarify written or verbal instructions
- consult equipment operation manuals
- ability to work as a member of a production team - both independently on assignment and under direction
- technical skills sufficient to:
 - proficiently use a scanner to reproduce photo images to specification
 - proficiently use a digital camera to create well-composed photo images
 - proficiently use digital imaging software to manipulate and prepare photo images
 - manage files using standard naming conventions
- self-management skills sufficient to:
 - work under pressure
 - meet deadlines
 - seek expert assistance when problems arise
- problem-solving skills sufficient to anticipate and resolve minor equipment set-up problems

Required knowledge

- basic photographic techniques
- basic principles of visual design and communication
- appropriate file formats for various platforms
- industry knowledge, including:
 - roles and responsibilities of project team members, e.g. designers, content creators, information architects, programmers and coders
 - basic understanding of the relationship between technical and creative aspects and requirements of interactive media projects
 - basic knowledge of the features of a range of delivery platforms
- OHS regarding the use of scanners, cameras and computers, and handling and disposing of lithium batteries

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

EVIDENCE GUIDE	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: - ability to use digital imaging software to prepare high quality photo images that satisfy the requirements of a range of briefs - efficient operation of a scanner and digital camera to capture images.
Context of and specific resources for assessment	Assessment must ensure: - access to a range of resources and equipment currently used by industry, including: - flatbed scanner - digital camera - industry-standard graphics software - access to appropriate learning and assessment support when required - use of culturally appropriate processes and techniques appropriate to the language and literacy capacity of learners and the work being performed.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: - direct questioning combined with review of portfolios of evidence and third-party workplace reports of on-the-job performance - evaluation of photo images prepared by the candidate on a number of occasions - practical demonstration by the candidate of scanner and digital camera operation - written or oral questioning to test knowledge of file formats and OHS issues.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: CUFDIG304A Create visual design components.

Range Statement

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.

Projects may include:

- e-commerce
- educational product
- game
- information product
- promotional product
- training product
- website.

Relevant personnel may include:

- client
- designer
- graphic artist
- interactive media author
- programmer, coder and technical support people
- supervisor
- web manager
- other specialist creative and administrative staff.

Scanner features may include:

- bit depth
- dynamic range
- optical resolution
- output format (e.g. RGB, greyscale or CMYK)
- platen size
- reflective or transmissive (film)
- range of film holders.

Scanner settings may include:

- bit depth
- colour or greyscale
- colour/target/working space
- crop
- destination
- dust and scratch handling (e.g. ICE, FARE)
- grain management (e.g. GEM)
- multi-sampling
- orientation
- output dimension and resolution or file size

RANGE STATEMENT	
	• preferences/options • restoration of colour (e.g. ROC) • scaling • sharpening • source image type • tones, contrast, colour cast, saturation.
Digital camera features may include:	• aperture • automatic, program or manual settings • batteries • colour, target, working space • compatibility with hardware and digital imaging software • exposure compensation • file format • flash, fill flash • lens focal lengths, such as wide angle, close-up and telephoto • menu functions • resolution - megapixels • shutter speed • size and type of memory card(s) • subject modes • white balance.
Photographic techniques may include:	• composition • depth of field • dynamic range • field of view • framing • lighting.
Digital imaging software may include:	• a wide range of programs, e.g.: • Adobe Photoshop • Adobe Photoshop Elements • Adobe Photoshop Lightroom • Apple Aperture • Corel Paint Shop Pro • Corel PhotoPaint • GNU Image Manipulation Program (GIMP and GIMPshop).
Manipulating digital images may	• appending text/type for files and captions

RANGE STATEMENT	
include:	• brushing • creating artistic effects • cropping • editing • eliminating red eye • emulating photographic effects • image enhancement including tones, contrast, colour cast/tint, saturation • masking layers • retouching (i.e. cloning, rubber stamping, healing, patching) • sharpening • stitching (panoramic scenes) • using layers for composites • using pre-sets.
Visual design principles may include:	• balance • emphasis • movement • perspective • proportion • scale • unity.
Communication principles may include:	• communicates message • conveys meaning • meets audience requirements • uses functional components.
Output formats may include:	• GIF • JPEG • PDF • PICT • PNG • PSD • TIFF.
Platforms may include:	• CD • DVD • games console • internet • kiosk • mobile phone • other video playback devices

RANGE STATEMENT	
	• personal digital assistant (PDA) • video player (iPods).
Metadata tags may include:	• author • copyright notice • date of capture/date created • description • EXIF and IPTC standards • file size • format • headline/caption • keywords/subject • location/GPS coordinates • resolution • rights usage terms • roll/identifier # • subject • time • title • version.

Unit Sector(s)

Unit sector	

Competency field

Competency field	Visual communication - digital content and imaging

Co-requisite units

Co-requisite units		

Co-requisite units		

CUFDIG401A Author interactive media

Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to author a complete interactive media product, for example, a whole website. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement.

Application of the Unit

Application of the unit	People in this role need a sound understanding of mark-up languages (HTML and XML). In addition, they need to be familiar enough with scripting languages to use script libraries in authoring software to provide interactive features. Authors work primarily on client-side technologies. In the construction of dynamic websites, for example, they develop the templates, themes and style sheets for the programmers and technical support team to integrate into the database and install on a web server. Authors also develop forms and form objects, but the scripting for form processing is provided by programmers. Authors may also use a variety of authoring software to produce complex interactions such as digital simulations, games and puzzles. In interactive media development, authors are working with a team, including user interface designers, interactive

	designers, asset creators and server-side programmers. Skills associated with scripting are covered in: CUFDIG404A Apply scripting language in authoring.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisite units		

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
Identify multimedia	1. Obtain <i>design specifications</i>

ELEMENT	PERFORMANCE CRITERIA
elements	2. Locate content required for productions 3. Discuss issues of integration and formats of media assets with relevant personnel 4. Determine with relevant personnel an interactive sequence to become the prototype
Identify scope of authoring software	5. Identify range of industry-standard authoring software 6. Assess the authoring software in relation to specified delivery platform 7. Discuss selection of authoring software with relevant personnel to ensure selection will meet specified outcomes 8. Select authoring software best suited to job requirements
Use authoring software	9. Load authoring software 10. Create a new file for the specified task and name using standard naming conventions 11. Display and use tools and features of authoring software relevant to the authoring process
Create interactive sequence	12. Slice and reassemble the user interface appropriate to the authoring software 13. Import and assemble components in appropriate sequence according to creative requirements 14. Create interactive features according to creative and technical requirements, sourcing and writing appropriate markup and scripting languages as required 15. Check that interactive sequence conforms to navigation design 16. Integrate media assets to ensure highest levels of technical performance 17. Check that interactive sequence conforms to loading specifications 18. Test for interoperability, eliminate all bugs and validate scripting 19. Present interactive sequence as a prototype ensuring that sequence meets creative, production and technical requirements 20. Save output file formats and identify for specified purpose
Evaluate interactive prototype	21. Present prototype to relevant personnel 22. Evaluate prototype against design specifications, including achievement of a creative and user-centred

ELEMENT	PERFORMANCE CRITERIA
	product 23. Discuss and agree on required changes 24. Assist in user trials as required 25. Evaluate feedback from user trials 26. Seek confirmation from relevant personnel to transform prototype into final product
Seek confirmation from relevant personnel to transform prototype into final product	27. Make necessary changes as indicated by user trials 28. Replicate prototype functionality to complete the interactive product 29. Make final checks to ensure sequences conform to design specifications 30. Test for interoperability, eliminate bugs and validate scripting 31. Save to specified storage system accessible to production team 32. Assist in loading product to specified platform as required

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- communication and literacy skills sufficient to interpret and clarify written or verbal instructions
- ability to work as a member of a production team - both independently on assignment and under direction
- technical skills sufficient to:
 - correctly interpret design briefs, and design and technical specifications
 - proficiently use appropriate authoring and graphics software
 - seamlessly integrate and optimise a range of media assets to highest levels of technical performance
 - create and apply style sheets, templates or themes to conform with W3CAccessibility standards as they apply to client-side technology
 - manage files and directories using standard naming conventions and version control protocols
- initiative and flexibility in the context of troubleshooting and solving problems as

REQUIRED SKILLS AND KNOWLEDGE

- they arise during the authoring process
- self-management and planning skills sufficient to:
 - prioritise work tasks
 - meet deadlines
 - seek expert assistance as required

Required knowledge

- scope and applicability of industry-standard authoring software
- technical requirements for integrating digital content for use on a range of delivery platforms, including:
 - animation
 - graphics
 - text
 - video
 - audio
- user-centred design principles
- design principles of layout and composition
- industry knowledge, including:
 - roles and responsibilities of project team members, e.g. designers, content creators, information architects, programmers and coders
 - sound understanding of the relationship between technical and creative aspects and requirements of interactive media projects
 - sound knowledge of the features of a range of delivery platforms
 - markup and scripting languages as they apply to relevant authoring software
 - W3C Accessibility standards
 - purpose and process of validation and the role of interoperability standards
 - issues and challenges that arise in developing interactive media products
- OHS standards as they relate to working on computers for periods of time

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

EVIDENCE GUIDE	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: - development of an integrated and fully functional interactive media product that: - conforms to design specifications - meets W3C Accessibility standards - demonstrates creativity in design solutions - collaborative approach to work.
Context of and specific resources for assessment	Assessment must ensure: - access to a range of resources, equipment and current industry-standard software as listed in the range statement - access to appropriate learning and assessment support when required - use of culturally appropriate processes and techniques appropriate to the language and literacy capacity of learners and the work being performed.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: - direct questioning combined with review of portfolios of evidence and third-party workplace reports of on-the-job performance - evaluation of at least two interactive products authored by the candidate - written or oral questioning to test knowledge of the processes followed to develop an interactive product and the respective roles and responsibilities of team members.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: - CUFDIG404A Apply scripting language in authoring - ICAU4207B Apply web authoring tool to convert client data for websites.

Range Statement

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.

Design specifications may include:

- creative requirements
- navigation design
- priority levels of W3C Accessibility standards
- storyboards
- technical specifications, including:
 - disk space
 - delivery platform
 - file format for final product
- time
- user interface design.

Productions may include:

- e-commerce
- educational product
- game
- information product
- interactive application
- promotional product
- training product
- website.

Media assets may include:

- animation
- audio
- graphics
- images
- text
- video.

Relevant personnel may include:

- animator
- artist
- asset creator
- graphic designer
- graphic interface designer
- instructional designer
- navigation designer
- programmer
- project manager

RANGE STATEMENT	
	• sound engineer • video producer • other specialist staff.
Industry-standard authoring software may include:	• Authorware • Breeze • Captivate • Contribute • Director • Dreamweaver • Flash • GoLive • PageMill • RoboDemo • graphics software, including: • Photoshop • Fireworks • Illustrator • simulation software, such as LabView.
Delivery platform may include:	• CD • DVD • internet • kiosk • mobile phone • personal digital assistant (PDA) • other wireless/mobile devices.
Markup and scripting languages may include:	• ActionScript • HTML • JavaScript • Lingo • XML • other proprietary scripting languages.
Output file formats may include:	• DIR/DCR • FLA/SWF • HTML • PDB • PDF • PRC • TXT • WAP

RANGE STATEMENT

	• XML • other proprietary formats.

Unit Sector(s)

Unit sector	

Competency field

Competency field	Visual communication - digital content and imaging

Co-requisite units

Co-requisite units		

CUFDIG501A Coordinate the testing of interactive media products

Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to manage the testing of interactive media products. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement.

Application of the Unit

Application of the unit	This is a central team role, working with the whole production team, including designers, authors, programmers and graphic artists. In larger projects and particularly in games, testing is a continuous process and may have a quality assurance unit devoted to testing. A person in this position plans and coordinates the testing process and is also responsible for analysing testing results, writing reports and communicating the results to appropriate members of the production team.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisite units		

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
Determine the criteria for testing	1. Define <i>testing criteria</i> that ensure products meet technical and quality requirements 2. Identify with <i>relevant personnel</i> the <i>production points</i> at which development will be measured 3. Document and communicate testing criteria to relevant personnel
Plan an approach for product testing	4. Identify the various <i>testing methods</i> relevant for <i>interactive media products</i> 5. Determine characteristics and appropriateness of testing methods to be used during development and on completion 6. Consider testing methods in relation to appropriate <i>testing strategy</i> 7. Develop a plan for testing products at specified points

ELEMENT	PERFORMANCE CRITERIA
	during development and on completion 8. Establish records system to document testing results, including problems and faults
Test interactive media at specified production points	9. Determine progress towards completion of identified production points 10. Coordinate testing of products at identified production points 11. Apply testing methods to ensure that products meet creative, production and technical requirements 12. Record problems and faults detected by testing and remedial steps taken in records system 13. Resolve problems and faults detected during testing in accordance with agreed project or industry practice 14. Evaluate final products against the previously determined criteria 15. Document the testing process 16. Convey summarised evaluation report to relevant production personnel
Evaluate the testing process	17. Identify testing methods that were successful and those that led to difficulties 18. Evaluate the testing process and records system 19. Document findings to inform subsequent projects

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- communication, teamwork and literacy skills sufficient to:
 - interpret and clarify project specifications
 - interpret and analyse information and statistics, and write summary reports
 - convey information to others in the production team
 - work as a member of a production team, including providing leadership in relation to product testing
- organisational skills sufficient to:
 - plan testing processes

REQUIRED SKILLS AND KNOWLEDGE

- coordinate testing staff
- establish records systems
- ability to address and solve problems and challenges in a timely and collaborative manner
- self-management skills sufficient to:
 - prioritise work tasks
 - work under pressure and meet deadlines
 - seek expert assistance as required

Required knowledge

- industry knowledge, including:
 - roles and responsibilities of project team members, e.g. designers, content creators, information architects, programmers and coders
 - sound understanding of the relationship between technical and creative aspects and requirements of interactive media projects
 - issues and challenges that arise in testing interactive media products
 - testing criteria
 - range of methods for testing interactive media products
- OHS standards as they apply to computers and environments in which testing may be conducted

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

Evidence of the following is essential:

- documented plans for testing interactive media products
- ability to identify appropriate testing methods for specific interactive media products
- analysis of test results
- summary reports containing test results
- effective coordination of the testing process, including ability to work collaboratively with team

EVIDENCE GUIDE	
	members.
Context of and specific resources for assessment	Assessment must ensure: • development of more than one test plan to ensure that skills can be adapted to different circumstances • development of a test plan within commercially-realistic time constraints • involvement of and interaction with others to reflect the collaborative nature of the testing process • access to interactive media products under development • access to equipment used for testing • access to appropriate learning and assessment support when required • use of culturally appropriate processes and techniques appropriate to the language and literacy capacity of learners and the work being performed.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct questioning combined with review of portfolios of evidence and third-party workplace reports of on-the-job performance • evaluation of at least two test plans developed by the candidate • evaluation of at least two test reports written by the candidate • written or oral questioning to test knowledge of the process followed to test an interactive media product, testing methods, testing criteria and the respective roles and responsibilities of team members.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • BSBPMG510A Manage projects.

Range Statement

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.

Testing criteria may include:

- accessibility
- bug detection
- controls
- ease of learning
- effectiveness
- efficiency
- functionality, including flow
- interoperability
- learning outcomes
- levels of difficulty
- performance
- reliability
- satisfaction
- security
- usability.

Relevant personnel may include:

- author
- game designer
- game level designer
- information architect
- instructional designer
- interaction designer
- producer
- programmer
- user interface designer
- visual artist
- other specialist staff.

Production points may include:

- alpha
- beta
- completion
- continuous
- milestone
- prototype
- staged.

RANGE STATEMENT	
Testing methods may be:	• aggressive • automated • black box • card sorting • concept • debugging • focus group • heuristic analysis • inspection • platform testing • prototyping • regression • survey • user trial • visual impact • white box.
Interactive media products may include:	• e-commerce • e-learning resource • game • information product • promotional product • training product • web environments.
Testing strategy may be determined by:	• complexity of the project • money available • project specifications • time available.
Records system may include:	• metadata that includes: • description of fault • identification of code • user responses • written or verbal comments • quantitative data • remedial action taken • retest result • date • tester's details • questionnaire • survey.

Unit Sector(s)

Unit sector	

Competency field

Competency field	Visual communication - digital content and imaging

Co-requisite units

Co-requisite units		

CUFDIG502A Design web environments

Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to design web environments. A web environment may consist of one or many web applications and technologies integrated in various combinations. The design is focused on how these applications and technologies are combined and used, and the way in which interactive content is accessed by users. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement.

Application of the Unit

Application of the unit	A person in this role works with clients to develop design specifications for web environments. Other specialised designers, graphic artists and programmers working as a team undertake the development of design specifications. Higher order skills associated with developing and documenting concepts that could be used as the basis for design specifications are covered in: • BSBCRT501A Originate and develop concepts.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisite units		

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
Determine project requirements	1. Analyse project brief to identify <i>purpose</i> of, and target audience for, web environments 2. Consult with clients to clarify <i>project requirements</i> 3. Identify target <i>audience characteristics</i> and determine how these influence all aspects of design 4. Identify content to be incorporated and generated and how this content is to be accessed, searched or delivered
Research and select web	5. Research <i>web environments</i> and analyse their potential

ELEMENT	PERFORMANCE CRITERIA
environments	6. Analyse how these web environments meet audience and content requirements 7. Identify issues relating to delivery platform and standards, and determine how these may affect web environment options 8. Consult relevant personnel to ensure that all possible web environment options are considered 9. Select web environments that will meet creative, production and technical requirements
Draft design specifications	10. Design the architecture of web environments to show interrelationship between environment components 11. Identify each web environment and specify its individual interactive features, functionality and navigation and its relationship to design as a whole 12. Identify content components and specify how these will be logically structured and integrated into and/or generated by web environments 13. Specify levels of access permissions to web environments as required 14. Specify media assets as required 15. Specify user interfaces of web environments 16. Specify production requirements, including appropriate testing strategies 17. Write draft design specifications to include all relevant advice to design and development teams 18. Discuss draft design specifications with client to ensure designs are consistent with project briefs
Review and confirm design specifications	19. Review designs against required project outcomes, as well as client and audience needs 20. Review designs to ensure they meet creative and technical requirements 21. Adjust designs as necessary after discussions with relevant personnel 22. Clarify legislative or ownership issues to comply with production and organisational requirements 23. Confirm with client acceptance of design specifications, including deliverables, milestones and timelines

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- communication, teamwork and literacy skills sufficient to:
 - interpret and clarify written proposals and creative briefs
 - work collaboratively in a team environment
 - present ideas for the design of web environments for discussion and feedback from team members
 - clearly and concisely document specifications for the design of web environments
- initiative, enterprise and creativity in the context of:
 - generating ideas for the design of web environments
 - thinking laterally when developing concepts
 - undertaking background research into web environments
 - maintaining design integrity
 - finding solutions to problems encountered when designing web environments
 - finding ways to minimise the effect of technical constraints
 - ensuring there is an intuitive and logical flow to the navigation of web environments
- technical skills sufficient to create storyboards, maps and other diagrams to specify the architecture and navigation of web environments
- self-management skills sufficient to:
 - meet deadlines
 - provide appropriate and timely documentation

Required knowledge

- industry knowledge, including:
 - roles and responsibilities of project team members, e.g. designers, content creators, information architects, programmers and coders
 - sequence and interrelationship of stages in the process of developing web environments
 - broad range of web applications and technologies
 - web design and its relationship to web optimisation strategies
 - web standards, including SCORM, usability, W3C Accessibility and interoperability
 - issues and challenges that arise in designing and developing web environments
- typical formats and techniques for documenting the design of web environments
- OHS standards as they relate to working for periods of time on computers

REQUIRED SKILLS AND KNOWLEDGE

- intellectual property rights and copyright clearance 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.

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

Evidence of the following is essential:

- design specifications for web environments that:
 - are well documented and clearly presented
 - meet client and audience requirements
 - are technically feasible
- ability to work effectively as a member of a production team.

Context of and specific resources for assessment

Assessment must ensure:

- practical demonstration of skills through the design of web environments for at least two projects
- access to project briefs on which designs can be based
- access to appropriate learning and assessment support when required
- use of culturally appropriate processes and techniques appropriate to the language and literacy capacity of learners and the work being performed.

Method of assessment

A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:

- direct questioning combined with review of portfolios of evidence and third-party workplace reports of on-the-job performance
- evaluation of designs for web environments documented by the candidate and of their effectiveness in terms of meeting project requirements
- observation of a candidate presenting his/her design

EVIDENCE GUIDE	
	for web environments to team members and explaining how it meets requirements written or oral questioning to test knowledge as listed in the required skills and knowledge section of this unit.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: - CUFDIG505A Design information architecture - CUFPPM404A Create storyboards.

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.	
<i>Purpose</i> may include:	- business and corporate - community - education - entertainment - government - information and news - knowledge management - personal - promotion - training.
<i>Project requirements</i> may include:	- access to facilities and resources - budget - deliverables - milestones - personnel, including: - number - availability - expertise prototyping

RANGE STATEMENT	
	• technical issues, including: • delivery platform • disk space • bandwidth • testing plan • timelines.
Audience characteristics may include:	• computer literacy • demographics, such as: • age • gender • education • occupation • location • cultural background • hobbies • interests • internet literacy • language, literacy and numeracy • personas • specific needs - physical or psychological.
Web environments may include one or combinations of:	• audio streaming • blog • chat • conferencing tool • content learning management system (CLMS) • content management system (CMS) • database repository • discussion forum • dynamic website • electronic newsletter • interactive calendar • interactive form • learning management system (LMS) • podcast • RSS feed • static website • TiVo • video streaming • other online collaboration and social network

RANGE STATEMENT	
	tools.
<i>Delivery platform</i> may include:	• digital television set • internet • mobile phone • other wireless/mobile devices • personal digital assistant (PDA).
<i>Standards</i> may include:	• interoperability • SCORM • usability • W3C Accessibility.
<i>Relevant personnel</i> may include:	• art director • client • educator • graphic designer • head of department • information architect • instructional designer • programmer • technical director • technical staff • other specialist creative and administrative staff.
<i>Media assets</i> may include:	• animation • audio • audio/visual files, such as PowerPoint • graphics • images • text • text documents, such as PDF and Word • video.
<i>Production requirements</i> may include:	• levels of expertise • production deadlines • production schedules • production team • production values • testing strategies.
<i>Testing strategies</i> may include:	• alpha • beta • completion

RANGE STATEMENT	
	• continuous • milestone • prototype • staged.
<i>Design specifications</i> may include:	• content inventory • diagrams • flow charts • maps • navigation charts • plans • storyboards • technical specifications • user interface mock-ups • wire frames.
<i>Legislative or ownership issues</i> may be:	• access and equity • clearances • confidentiality • copyright • intellectual property rights • non-disclosure agreements • open source licensing • ownership of assets • product licensing.

Unit Sector(s)

Unit sector	

Competency field

Competency field	Visual communication - digital content and imaging

Co-requisite units

Co-requisite units		

CUFDIG504A Design games

Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to design games and document the process for developing them. Game design requires a high degree of collaboration between script writers, programmers and graphic designers. Low-end games can be constructed using interactive authoring tools, but for video game productions, designers need to work with high level programmers to ensure that designs are technically feasible. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement.

Application of the Unit

Application of the unit	A lead designer typically applies the skills and knowledge described in this unit, which relate to generating and then working on a game idea until the mechanics and design of the game are fully documented. A lead designer communicates the vision for a game to the rest of the team, takes ideas submitted during design meetings and analyses them to ensure they fit the game's intended objectives. This vision is captured in the game design document. Depending on the size of an enterprise, a lead designer may supervise assistant or level designers and would

	typically report to a design or creative director. Skills associated with story-telling are covered in: CUFWRT402A Write extended stories.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisite units		

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
Identify project	1. Confirm the objective and desired outcomes of a game proposal or brief in consultation with <i>relevant personnel</i>

ELEMENT	PERFORMANCE CRITERIA
requirements	- Identify factors that may have an impact on how a game is designed - Clarify target audience to determine format and delivery platform of the game through discussion with relevant personnel
Research games and generate ideas	- Select state of the art games from different genres to play as a source of inspiration - Search game literature for each game and identify the games' objectives - Generate range of ideas for game designs that are technically feasible, respond to the proposal or brief, and provide creative solutions to design issues - Discuss ideas and collaborate, as required, with relevant personnel to ensure contribution of a range of ideas and creative solutions to initial concepts
Select a game genre	- Identify and present a range of game genres to relevant personnel for consideration in terms of their characteristics, differences and ability to meet requirements of proposal or brief - Consult with relevant personnel to ensure that a full range of genres has been identified and sourced - Select the game genre that best meets the creative, technical and production requirements of proposal or brief
Draft game design document	- Establish the game strategy outcomes - Use design techniques to develop the structure of a game ensuring that all elements, including style and game mechanics, are fully documented - Use a range of criteria to determine the scope of a prototype to be used in the development phase - Ensure that the prototype selected is capable of testing the effectiveness of the proposed game - Include a register of game assets in consultation with relevant personnel - Present draft game design document for discussion with and feedback from other team members
Finalise game design document	- Re-evaluate game design objectives on the basis of feedback on the prototype and draft game design document - Discuss and confirm additional requirements or modifications to the game design with relevant

ELEMENT	PERFORMANCE CRITERIA
	personnel 19. Specify the game <i>production specifications</i>, including appropriate <i>testing strategies</i> 20. Write final game design document to reflect all additional requirements or modifications

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- communication, teamwork and literacy skills sufficient to:
 - interpret and clarify written proposals and creative briefs
 - work collaboratively in a team environment
 - present game design ideas for discussion and feedback from team members
 - document game design specifications clearly and concisely
- initiative, enterprise and creativity in the context of:
 - generating innovative ideas for game designs
 - thinking laterally when developing concepts
 - undertaking background research into game ideas
 - maintaining design integrity
- technical skills sufficient to create complex designs using storyboards, maps and other diagrams to specify the architecture and navigation of game mechanics
- self-management skills sufficient to:
 - meet deadlines
 - provide appropriate and timely documentation

Required knowledge

- industry knowledge, including:
 - roles and responsibilities of project team members, e.g. designers, content creators, information architects, programmers and coders
 - sound understanding of game theory, including traditional games
 - broad range of game genres and styles
 - technical parameters of various games platforms
 - issues and challenges that arise in designing games
- research methods for staying abreast of the latest changes and design enhancements

REQUIRED SKILLS AND KNOWLEDGE

- requirements of game play design documents
- typical formats and techniques for documenting game designs
- intellectual property rights and copyright clearance procedures
- OHS standards as they relate to working for periods of time on computers

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

Evidence of the following is essential:

- development of original and innovative concepts for games
- design of game play methods that are compelling for the user and technically feasible
- production of clear and well-presented game design documentation
- ability to work effectively as a member of a design team.

Context of and specific resources for assessment

Assessment must ensure:

- practical demonstration of skills through the design of a variety of games for at least two platforms
- access to game proposals or briefs on which designs can be based
- access to a range of games for viewing
- access to appropriate learning and assessment support when required
- use of culturally appropriate processes and techniques appropriate to the language and literacy capacity of learners and the work being performed.

Method of assessment

A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:

- direct questioning combined with review of portfolios of evidence and third-party workplace

EVIDENCE GUIDE	
	reports of on-the-job performance • evaluation of game designs documented by the candidate and of their quality in terms of meeting creative briefs • written or oral questioning to test knowledge as listed in the required skills and knowledge section of this unit • case studies to assess ability to develop designs for different types of games.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • CUFPPM404A Create storyboards • BSBCRT501A Originate and develop concepts.

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.	
<i>Relevant personnel</i> may include:	• art director • client • designers • director • graphic artist • head of department • producer • programmer • publisher • script writer • software engineer • other technical and creative staff.
<i>Factors</i> may include:	• availability of personnel • availability of resources

RANGE STATEMENT	
	• available budget • complexity of proposed game • intellectual property • need to attract finance • production schedule • production values • technical parameters, including: • technology constraints • console • platform • bandwidth • memory/RAM • timelines • user and audience.
<i>Delivery platforms</i> may include:	• CD/DVD • digital television set • games console • internet • mobile phone • personal digital assistant (PDA) • other wireless/mobile devices.
<i>State of the art games</i> may include:	• best selling games • games that show unique and innovative approaches.
<i>Game literature</i> may include:	• game design books • game post-mortems • magazine, newspaper and journal articles • previews and reviews • strategy guides • user manuals • walkthroughs • other online game resources.
<i>Game genres</i> may include:	• adventure • arcade • first person shooter • massively multiplayer online • mazes • platforms • puzzles

RANGE STATEMENT	
	• racing • rhythm • role playing • simulation • sport • strategy • third person shooter.
Design techniques may include:	• drawing • flow chart • scanning • storyboard • using image and background generating tools.
Game mechanics may include:	• environment and object interactions • environment dynamics • game objects • game play elements that may include: • skill levels • judgements • choices • decisions • codes • rules • levels of progression • goals • actions • events • levels of difficulty • scoring • calculation of scoring • user control • user interaction • options for single player or multiplayer • customisation • key systems • object actions • object to object interactions.
Criteria may include whether the prototype:	• can be demonstrated to a specialist target group • can be used for promotional purposes • can demonstrate the full potential of the game

RANGE STATEMENT	
	• can sell a concept to potential investors • is appropriate for the chosen genre and style.
Testing the effectiveness of the prototype may include:	• comparing game design with original objectives • group discussion techniques • identifying any logical inconsistencies in: • design • game timing • story-lines • measuring the levels of user satisfaction • paper and pencil techniques (dry running).
Game assets may include:	• animations • audio, including: • sound effects • dialogue • narration • music • cut scenes • titles • video sequences.
Game design document may include:	• agent architectures • artificial intelligence • asset register • background story • comprehensive designs for each mission and level • decision-making systems • game mechanics • game tools • graphics • inventories • overview • production specifications • scripts • spatial design • storyboard and flow chart • synopsis • title • user interface

RANGE STATEMENT	
	walkthroughs.
<i>Production specifications</i> may include:	- budget - intellectual property - levels of staff expertise - production schedule - production values - size and composition of the development team - technology constraints - testing strategies - timelines.
<i>Testing strategies</i> may include:	- alpha - beta - completion - continuous - milestone - prototype - staged.

Unit Sector(s)

Unit sector	

Competency field

Competency field	Visual communication - digital content and imaging

Co-requisite units

Co-requisite units		

CUFDIG505A Design information architecture

Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to design the information architecture of an interactive media product. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement.

Application of the Unit

Application of the unit	Depending on the size and type of organisation, information architects or senior web designers apply the skills and knowledge outlined in this unit. They work collaboratively with senior personnel, such as creative directors and other members of a development team, to develop the content, structure and navigation of interactive media products. Liaison with clients and team members is a key feature of this role, as is prototype testing (wire framing), which is undertaken as part of the design process. Attention to detail is also required to ensure that all aspects of content are effectively addressed. Skills associated with testing interactive media products are covered in: • CUFDIG501A Coordinate the testing of interactive media products.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisite units		

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
Identify project requirements	1. Discuss concepts with <i>relevant personnel</i> to ensure that design briefs are fully understood 2. Identify technical parameters of interactive media products, including <i>delivery platform</i> 3. Identify target <i>audience characteristics</i> 4. Identify <i>content</i> to be integrated into or generated by interactive media products
Classify and organise content	5. Research and select appropriate thesaurus and <i>metadata standards</i> if relevant

ELEMENT	PERFORMANCE CRITERIA
	6. Organise content and construct a content inventory detailing levels of hierarchy using classification techniques 7. Assign labels to content that are appropriate and meaningful for target audiences 8. Identify content search requirements 9. Discuss proposed content classification with relevant personnel to ensure that it meets project requirements
Draft information architecture design specifications	10. Sketch overall architecture showing the relationship between interactive content 11. Design forms that detail content input process if required 12. Specify search functionality and search return displays 13. Construct wire frame of the content architecture and navigation pathways 14. Write draft design specifications to include all relevant advice to development teams 15. Present draft design specifications for discussion with and feedback from other team members 16. Amend draft design specifications to accommodate feedback as required 17. Discuss final draft design specifications with clients to ensure designs are consistent with project requirements
Finalise information architecture designs	18. Conduct usability test using appropriate testing techniques 19. Incorporate design changes to information architecture in design specifications 20. Obtain final agreement from relevant personnel for finished design

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- communication, teamwork and literacy skills sufficient to:
 - interpret and clarify written proposals and creative briefs

REQUIRED SKILLS AND KNOWLEDGE

- work collaboratively in a team environment
- present information architecture designs for discussion and feedback from team members and clients
- document clearly and concisely the information architecture design for an interactive media product
- initiative and flexibility in the context of:
 - analysing, processing and classifying content
 - finding solutions to content classification problems
 - finding ways to minimise the effect of technical constraints
 - ensuring there is an intuitive and logical flow to the navigation of an interactive media product
- technical skills sufficient to:
 - create complex designs using storyboards, maps and other diagrams to specify the architecture and navigation of interactive media products
 - construct wire frames
- self-management skills sufficient to:
 - meet deadlines
 - provide appropriate and timely documentation

Required knowledge

- industry knowledge, including:
 - roles and responsibilities of project team members, e.g. designers, content creators, information architects, programmers and coders
 - content classification techniques of taxonomy and folksonomy
 - metadata standards as they apply to specific products
 - technical parameters of various platforms and how these impact on information architecture
 - issues and challenges that arise in designing games
- understanding the way users scan and read or view interactive content
- typical formats and techniques for documenting information architecture designs
- OHS standards as they relate to working for periods of time on computers

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.

EVIDENCE GUIDE	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: - clearly documented and user-tested design specifications for the information architecture of an interactive media product - ability to work effectively as a member of a design team - high level of attention to detail.
Context of and specific resources for assessment	Assessment must ensure: - practical demonstration of skills through the design of information architecture for at least two interactive media products - access to interactive media proposals or briefs on which designs can be based - that information architecture designs can be tested - access to appropriate learning and assessment support when required - use of culturally appropriate processes and techniques appropriate to the language and literacy capacity of learners and the work being performed.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: - direct questioning combined with review of portfolios of evidence and third-party workplace reports of on-the-job performance - evaluation of information architecture designs documented by the candidate and of their effectiveness in terms of meeting requirements - observation of a candidate presenting his/her information architecture design to team members and explaining how it meets requirements - written or oral questioning to test knowledge as listed in the required skills and knowledge section of this unit - case studies to assess ability to develop information architecture designs for a range of interactive media products.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended,

EVIDENCE GUIDE

	for example: • CUFDIG501A Coordinate the testing of interactive media products • CUFDIG502A Design web environments • CUFDIG503A Design e-learning resources • CUFDIG504A Design games • CUFDIG506A Design interaction.

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.

Relevant personnel may include:

- art director
- client
- educator
- graphic designer
- head of department
- instructional designer
- programmer
- technical director
- technical staff
- user interface designer
- other specialist creative and administrative staff.

Delivery platform may include:

- CD/DVD
- games console
- internet
- kiosk
- mobile phone
- personal digital assistant (PDA)
- other wireless/mobile devices.

Audience characteristics may

- computer literacy
- demographics, such as:

RANGE STATEMENT	
include:	• age • gender • education • occupation • location • cultural background • hobbies • interests • internet literacy • language, literacy and numeracy • personas • specific needs - physical or psychological.
Content may include:	• animation • audio/visual files, such as PowerPoint • graphics • images • text • text documents, such as PDF and Word.
Metadata standards may include:	• Australian Government Locator Service (AGLS) • CIDOC Conceptual Reference Model (CRM) • Dublin Core • EdNa metadata standards • other standards as appropriate.
Organising content may include:	• categorisation, based on: • alphabet • numbers • location • time • continuum • subject category • random • chunking • graphical • message • metadata • metaphor.
Classification techniques may	• folksonomy • taxonomy.

RANGE STATEMENT	
include:	
<i>Search requirements</i> may include:	• advanced search • browse via menu systems • browse via quick search • metadata search • search site by text box.
<i>Project requirements</i> may include:	• access to facilities and resources • budget • deliverables • milestones • personnel, including: • number • availability • expertise • prototyping • technical issues, including: • delivery platform • disk space • bandwidth • testing plan • timelines.
<i>Wire frames</i> may include:	• digital software, such as: • PowerPoint • Dreamweaver • paper-based.
<i>Design specifications</i> may include:	• content inventory • diagrams • flow charts • maps • navigation charts • plans • search functions and search display • storyboards • technical specifications • wire frames.
<i>Testing techniques</i> may include:	• card sorting • focus group • heuristic analysis

RANGE STATEMENT

	• inspection • user trial.

Unit Sector(s)

Unit sector	

Competency field

Competency field	Visual communication - digital content and imaging

Co-requisite units

Co-requisite units		

CUFGEN01A Develop and apply industry knowledge

Modification History

Not applicable.

Unit Descriptor

This unit describes the skills and knowledge required to access, increase and update knowledge of the film, television, radio and multimedia industry, including the role of different industry sectors, and the impacts of changing technology. This knowledge underpins effective performance in all sectors.

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Application of the Unit

Not applicable.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Not applicable.

Elements and Performance Criteria Pre-Content

Not applicable.

Elements and Performance Criteria

Elements and Performance Criteria

Element	Performance Criteria

- 1 Seek information on the structure and operation of the industry
 - 1.1 Correctly identify and access sources of information on the industry
 - 1.2 Obtain information to assist effective work performance within the industry, including information on: ; different sectors of the industry, their relationships and the products and services available in each sector; major industry bodies/associations; relationships with other industries; different markets and their relevance to industry sectors; different distribution channels for industry products and services; economic and/or social significance of the industry; the role of local communities; specific features of the local/regional industry; working arrangements
 - 1.3 Access information on the specific sector of work
 - 1.4 Correctly apply industry information in day-to-day work activities
- 2 Seek information on industry employment obligations and opportunities
 - 2.1 Obtain information to assist effective work performance within the industry, including information on: ; career opportunities and career paths within the industry; the roles, responsibilities and employment rights of contracted freelance workers within the industry; the roles, responsibilities and inter-r elationships of individual personnel in an industry environment; unions and employer bodies; professional associations; industrial relations issues - awards and enterprise bargaining agreements, non award areas; cultural issues
 - 2.2 Correctly apply industry information on employment opportunities and obligations in day-to-day work activities
- 3 Seek information on new technology
 - 3.1 Obtain information to assist effective work performance within the industry, including information on: ; advances in any type of equipment or technology used within the industry; likely effects of new technology on current work practices and the structure of the organisation and industry, and the community; ways of upgrading skills to include the use of new technology; sources of technical advice and support

- 3.2 Correctly apply industry information on technological advances in day-to-day work activities
- 4 Update industry knowledge
 - 4.1 Continually apply informal and/or formal research to update general knowledge of the industry
 - 4.2 Monitor current issues of concern to the industry
 - 4.3 Share updated knowledge with customers and colleagues as appropriate, and incorporate information into day-to-day work activities

Required Skills and Knowledge

Not applicable.

Evidence Guide

Underpinning skills and knowledge

Assessment must include evidence of essential knowledge of, and skills in, the following areas:

industry information sources

technology information sources

cultural information sources

basic research skills:

identification of relevant information

techniques to obtain information

sorting and summarising information

legislation (both state and federal) which applies across the industry in the following areas:

consumer protection

duty of care

equal employment opportunity

anti-discrimination

workplace relations

the function of relevant industry organisations

Linkages to other units

This is a core unit that underpins effective performance in all other film, television, radio and multimedia units. It is recommended that this unit is delivered/assessed in conjunction with other operational and technical units.

Critical aspects of evidence

This unit of competence applies to a range of industries, ie. film, television, radio and multimedia. The focus of assessment will depend on the industry involved. Assessment must be customised to meet the needs of the particular industry and industry sector in which performance is being assessed. Assessment should only address those variable circumstances, listed in the range of variables statements, which apply to the chosen context.

Care should be taken in developing training to meet the requirements of this unit. The specific focus of training will depend upon the industry involved, for example, the film and television, radio or multimedia industry sectors. For generic pre-vocational training, organisations should provide training which is tailored to meet the needs of the particular industry. It is intended that participants will gain a breadth of industry knowledge, encompassing the full range of industry contexts, with no bias towards individual industry specialisations.

The following evidence is critical to the judgement of competence in this unit:

ability to source industry information

general knowledge of the industry, including main roles, functions and inter-relationships of different sectors, with a more detailed knowledge of issues which relate to a specific sector or workplace

Method and context of assessment

Assessment may take place on the job, off the job or a combination of both of these. Off the job assessment must be undertaken in a closely simulated workplace environment.

Assessment may incorporate a range of methods to assess performance and the application of essential underpinning knowledge, and might include:

role play

case studies

work samples or simulated workplace activities

oral questioning/interview

projects/reports/logbooks

third party reports and authenticated prior achievements

portfolios of evidence

Resource requirements

Assessment requires access to a range of relevant and current industry information materials listed in the range of variables statement.

Workplace based assessment should use a range of materials current and relevant to that workplace environment.

Simulated workplace activities must be undertaken using a range of relevant and current material appropriate for the industry sector.

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Assessment must include evidence of essential knowledge of, and skills in, the following areas:

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technology information sources

cultural information sources

basic research skills:

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Workplace based assessment should use a range of materials current and relevant to that workplace environment.

Simulated workplace activities must be undertaken using a range of relevant and current material appropriate for the industry sector.

Range Statement

Information sources may include:

media

reference books, technical manuals

libraries

unions

industry associations and organisations

industry journals

union publications - newsletters, magazines, bulletins and letters

computer data, including internet

induction kits

organisational policies, procedures and journals

job descriptions

employment contracts
federal and state industrial awards
federal and state industrial relations departments
occupational health and safety laws, regulations, journals
personal observations and experience
discussions with current industry practitioners
discussions with community groups
discussions with manufacturers - technical and sales personnel
specialist technical publications
manufacturers' handbooks, manuals, promotional material

Other industries may include:

entertainment
arts
music
fashion
events management
sports
agriculture/horticulture/aquaculture
conservation
science and research
retail
tourism
training and education

Economic and social issues may include:

employment
awards, enterprise agreements and working conditions
effect on local amenities/facilities/community
land ownership
land access and usage
community role in industry operations
diversity of culture and language
history of the industry

Information sources may include:

media

reference books, technical manuals
libraries
unions
industry associations and organisations
industry journals
union publications - newsletters, magazines, bulletins and letters
computer data, including internet
induction kits
organisational policies, procedures and journals
job descriptions
employment contracts
federal and state industrial awards
federal and state industrial relations departments
occupational health and safety laws, regulations, journals
personal observations and experience
discussions with current industry practitioners
discussions with community groups
discussions with manufacturers - technical and sales personnel
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entertainment
arts
music
fashion
events management
sports
agriculture/horticulture/aquaculture
conservation
science and research
retail
tourism
training and education

Economic and social issues may include:

employment

awards, enterprise agreements and working conditions

effect on local amenities/facilities/community

land ownership

land access and usage

community role in industry operations

diversity of culture and language

history of the industry

Unit Sector(s)

Not applicable.

CUFIMA05A Create 3D digital models and images

Modification History

Not applicable.

Unit Descriptor

This unit describes the skills and knowledge required to create 3D digital models and images for a range of media applications within the cultural industries.

This unit describes the skills and knowledge required to create 3D digital models and images for a range of media applications within the cultural industries

Application of the Unit

Not applicable.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Not applicable.

Elements and Performance Criteria Pre-Content

Not applicable.

Elements and Performance Criteria

Elements and Performance Criteria

Element

Performance Criteria

1 Identify animation requirements

1.1 Obtain design brief and storyboard and discuss production requirements with relevant personnel

- 1.2 Identify all 3D animation requirements including production and technical specifications and discuss with relevant personnel
 - 1.3 Identify any soundtrack requirements in discussion with relevant personnel
 - 2 Identify scope of 3D animation software
 - 2.1 Identify the range of industry standard 3D animation software and computer assisted animation techniques
 - 2.2 Assess software compatibility with production and technical requirements and specifications
 - 2.3 Select the appropriate software in relation to specified multimedia delivery platform
 - 2.4 Discuss software with relevant design personnel to ensure selection will meet specified outcomes
- 3 Product key drawings for animation
 - 3.1 Product key drawings by the most appropriate method to reflect the animation requirements
 - 3.2 Product sufficient quantity of key drawings to establish the required action or design and ensure that they meet the production, creative and technical requirements
 - 3.3 Comply with any soundtrack breakdown when producing drawings
 - 3.4 Produce key drawings within the constraints of the production and scan hard-copy drawings as required
 - 3.5 Clearly label key drawings
 - 3.6 Use object motion hierarchies to achieve the required motion effect
 - 3.7 Apply appropriate output and presentation form and save 3D model according to specified file compression technology
 - 3.8 Use agreed industry practices for file naming and file management and backup procedures
- 4 Produce 3D animation
 - 4.1 Import key drawings into selected 3D animation software

- 4.2 Combine objects into a single animated stream according to creative requirements and specifications
 - 4.3 Create static or moving backgrounds as required and integrate animated objects into static or moving backgrounds
 - 4.4 Use animation techniques as required and as appropriate according to the software
 - 4.5 Incorporate sound where necessary
 - 4.6 Save and store using appropriate file formats and file management procedures
- 5 Evaluate animation
 - 5.1 Present animation sequences to relevant personnel for detailed responses and recommendations
 - 5.2 Discuss and identify and required design changes that may be needed
 - 5.3 Incorporate design changes to complete the 3D animations and meet the recommendations
 - 5.4 Obtain final agreement from relevant personnel for finished 3D animation sequences

Required Skills and Knowledge

Not applicable.

Evidence Guide

Underpinning skills and knowledge

Assessment must include evidence of essential knowledge of, and skills in, the following areas:

appropriate 3D software to create models

application of different 3D modelling and digital imaging methods and 3D modelling formats

the principles of 3D modelling sequencing

computers and computer operating systems

the limiting factors of computer hardware

strategies to test media sequences and products

interpreting creative information, scripts and images
understanding the capabilities of other collaborative personnel
understanding the creative elements of a production
design and drawing skills
maintaining design integrity
screen principles
basic editing principles, eg composition, framing, pacing, timing
information sources and management
effective communication skills
copyright laws, regulations and clearance procedures

Linkages to other units

This unit has linkages to the following units and combined training delivery and/or assessment is recommended:

CUFIMA01A - Produce and manipulate digital images

CUFIMA04A - Create 3D digital animation

CUFMEM14A - Create, manipulate and incorporate 2D graphics

CUFMEM07A - Apply principles of visual design/communication to the development of a multimedia product

Critical aspects of evidence

This unit of competence applies to a range of industry sectors. The focus of assessment will depend on the industry sector. Assessment must be customised to meet the needs of the particular sector in which performance is being assessed. Assessment should only address those variable circumstances, listed in the range of variables statements, which apply to the chosen context.

The following evidence is critical to the judgement of competence in this unit:

the development and evaluation of creative 3D models and images which meet practical requirements including type of production and resource constraints, in particular budgetary constraints

effective verbal and written communication with a range of individuals/organisations

knowledge and application of a range of 3D model and image production methods and equipment

Method and context of assessment

Assessment may take place on the job, off the job or a combination of both of these.

Off the job assessment must be undertaken in a closely simulated workplace environment.

Assessment may incorporate a range of methods to assess performance and the application of essential underpinning knowledge, and might include:

practical demonstration (direct observation may need to occur on more than one occasion to establish consistency of performance)

role play

case studies

work samples or simulated workplace activities

oral questioning/interview aimed at the evaluating the process used in developing and realising the creative concept

projects/reports/logbooks

third party reports and authenticated prior achievements

portfolios of evidence which demonstrate the processes used in developing and realising the creative concept

Resource requirements

Assessment requires access to a range of resources and equipment currently used by the multimedia industry.

Underpinning skills and knowledge

Assessment must include evidence of essential knowledge of, and skills in, the following areas:

appropriate 3D software to create models

application of different 3D modelling and digital imaging methods and 3D modelling formats

the principles of 3D modelling sequencing

computers and computer operating systems

the limiting factors of computer hardware

strategies to test media sequences and products

interpreting creative information, scripts and images

understanding the capabilities of other collaborative personnel

understanding the creative elements of a production

design and drawing skills

maintaining design integrity

screen principles

basic editing principles, eg composition, framing, pacing, timing

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projects/reports/logbooks

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portfolios of evidence which demonstrate the processes used in developing and realising the creative concept

Resource requirements

Assessment requires access to a range of resources and equipment currently used by the multimedia industry.

Range Statement

Production specifications may include:

timeline

deadline

budget

resources:

hardware

software

personnel

purpose

audience

storyboard

script

file format

file size

operating system

hardware specifications including memory size, RAM

delivery platform

media form

software tools and parameters

Relevant creative and design specifications for models may be found in:

storyboard

layout drawings

director's instructions

camera sheet

soundtrack breakdown

Software commands may include:

colour

tone

texture

Texture mapping parameters may include:

lighting

shadows

Other media may include:

digital imaging

sound

animation

video

Documentation may be:

computer generated

manually written

marked up scripts

marked up transcripts

list of sequences with relevant shot numbers

production schedules

operational/project plan

manufacturer's specifications/instructions

edit decision lists (EDLs)

fault reports

assembly order

Multimedia productions may included or be included in:

aspects or sections of film/video production:

feature

documentary

short film and/or video

animations

commercials

live or pre-recorded performances

music video

television production of any type (music, drama, comedy, variety, sport)

live or pre-recorded television productions

educational product

game

promotional product

information product

training product

e-commerce

a range of others

Relevant personnel may include:

director

producer

project manager

technical director

navigation designers

video producer

editing personnel

sound/music personnel

director of photography

3D graphic, animation and modelling production personnel

music composers

sound effects personnel

other technical staff

other specialist staff

Industry standard 3D modelling software may include:

a wide range of programs, current examples of which may be:

Autocad

3d Studio Max

Infini-D

Bryce 3D

Lightwave

NOTE: These programs are constantly being upgraded and replaced and appropriate up-to-date programs should be selected.

Delivery platforms may include:

world wide web

CD-ROM

DVD

Beta-cam

video

film

Production specifications may include:

timeline

deadline

budget

resources:

hardware

software

personnel

purpose

audience

storyboard

script

file format

file size

operating system

hardware specifications including memory size, RAM

delivery platform

media form

software tools and parameters

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Software commands may include:

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Lightwave

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Delivery platforms may include:

world wide web

CD-ROM

DVD

Beta-cam

video

film

Unit Sector(s)

Not applicable.

CUFMEM07A Apply principles of visual design and communication to the development of a multimedia product

Modification History

Not applicable.

Unit Descriptor

This unit describes the skills and knowledge required to incorporate the principles of visual design and communication into the development of multimedia products for use within the cultural industries.

This unit describes the skills and knowledge required to incorporate the principles of visual design and communication into the development of multimedia products for use within the cultural industries

Application of the Unit

Not applicable.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Not applicable.

Elements and Performance Criteria Pre-Content

Not applicable.

Elements and Performance Criteria

Elements and Performance Criteria

Element	Performance Criteria

- 1 Receive and interpret the brief
 - 1.1 Liaise with the relevant personnel to interpret and identify the objective and outcomes of the multimedia product, considering the application of visual design and communication techniques to ensure the creative, technical and production requirements can be met
 - 1.2 Identify all relevant factors which may determine and affect visual design and communication concepts and application through the breakdown and interpretation of the brief and liaison with relevant personnel
 - 1.3 Clarify target user/audience to determine the format and delivery platform of the multimedia product through discussion with relevant personnel
- 2 Generate and assess ideas
 - 2.1 Generate a range of visual design and communication ideas which are technically feasible, respond to the brief and provide creative solutions to all design issues
 - 2.2 Discuss visual design and communication ideas and collaborate, as required, with relevant personnel to ensure contribution of a range of ideas and creative solutions to the initial concept
 - 2.3 Continuously reflect on and assess the creative ideas and solutions for implications on budget, timeline, technical feasibility and suitability to meet the brief
- 3 Conduct research
 - 3.1 Research and compare techniques and tools for visual design and communication available for use in the creation of a multimedia product, exploring the characteristics and differences of digital imaging and traditional imaging
 - 3.2 Research and compare the range of delivery platforms available for multimedia products
 - 3.3 Explore the range of typographical and visual elements that are appropriate in the development of a multimedia product
 - 3.4 Identify the relationship between the visual components and the hardware required
 - 3.5 Organise research media and findings for use by all

- relevant personnel throughout the design development process, updating as required
- 3.6 Evaluate the initial discussions and design brief against the findings and discuss with relevant personnel
- 4 Select media/materials for use in visual design and communication
- 4.1 Identify the range of visual design and communication techniques available and present to the relevant personnel for the consideration of their ability to meet the creative, technical and production brief
- 4.2 Select the appropriate visual design and communication techniques which fulfil the creative, technical, and production requirements of the brief
- 4.3 Gather relevant materials and media, ensuring their compatibility to the creative and technical specifications of the multimedia product
- 4.4 Consult relevant personnel to ensure that all required media is identified and sourced and ensuring that selection is based on the understanding of the user characteristics and capabilities
- 5 Apply visual design and communication techniques
- 5.1 Using selected design techniques to develop for the structure of the product, ensuring that all elements are fully documented for future use
- 5.2 Consider the relevant multimedia elements required to achieve the desired outcome
- 5.3 Discuss technical parameters and planning with relevant personnel to achieve the most appropriate format
- 5.4 Determine the range of appropriate design parameters and employ these to fulfil the brief, ensuring the creative, technical and production resources are adequate to achieve the final outcome
- 6 Evaluate visual and communication design techniques
- 6.1 Review the visual design and communication techniques to assess creative solutions to design brief, appropriateness to the user/audience and technical feasibility

- 6.2 Discuss and confirm additional requirements or modifications to the overall design and undertake any necessary amendments

Required Skills and Knowledge

Not applicable.

Evidence Guide

Underpinning skills and knowledge

Assessment must include evidence of essential knowledge of, and skills in, the following areas:

- application of principles of graphic and visual/ communication design
- characteristics of digital and traditional graphics
- familiarity with the capability of a range of tools and techniques for producing and manipulating images
- the ability to review decisions in term of user characteristics and requirements
- principles of learning and instructional approaches
- planning and research
- effective visual communication skills
- knowledge of the scope, technology and components applicable to multimedia products
- knowledge and application of a range of computer design software
- knowledge of the limiting factors of computer hardware and software
- knowledge of strategies to test instructional products
- interpreting creative information, scripts and images
- understanding the capabilities of other collaborative personnel
- understanding the creative elements of a production
- design and drawing skills
- ability to maintain design integrity
- information sources and management
- copyright laws, regulations and copyright clearance procedures

Linkages to other units

This unit has linkages to the following units and combined training delivery and/or assessment is recommended:

CUFRAD01A - Originate and develop a concept

CUFMEM06A - Design a multimedia product

CUFMEM14A - Create, manipulate, and incorporate 2D graphics

Critical aspects of evidence

Assessment must be customised to meet the needs of the particular sector in which performance is being assessed. Assessment should only address those variable circumstances, listed in the range of variables statements, which apply to the chosen context.

The following evidence is critical to the judgement of competence in this unit:

design/produce of an effective and creative design for a multimedia product which demonstrates the application of visual design and communication principles

Method and context of assessment

Assessment may take place on the job, off the job or a combination of both of these.

Off the job assessment must be undertaken in a closely simulated workplace environment.

Assessment may incorporate a range of methods to assess performance and the application of essential underpinning knowledge, and might include:

practical demonstration (direct observation may need to occur on more than one occasion to establish consistency of performance)

role play

case studies

work samples or simulated workplace activities

oral questioning/interview aimed at evaluating the processes used in developing and realising the creative concept

projects/reports/logbooks

third party reports and authenticated prior achievements

portfolios of evidence which demonstrate the processes used in developing and realising the creative concept

Resource requirements

Assessment requires access to a range of resources and equipment listed in the range of variables statement, currently used by the multimedia industry.

Underpinning skills and knowledge

Assessment must include evidence of essential knowledge of, and skills in, the following areas:

application of principles of graphic and visual/ communication design

characteristics of digital and traditional graphics

familiarity with the capability of a range of tools and techniques for producing and manipulating images

the ability to review decisions in term of user characteristics and requirements

principles of learning and instructional approaches
planning and research
effective visual communication skills
knowledge of the scope, technology and components applicable to multimedia products
knowledge and application of a range of computer design software
knowledge of the limiting factors of computer hardware and software
knowledge of strategies to test instructional products
interpreting creative information, scripts and images
understanding the capabilities of other collaborative personnel
understanding the creative elements of a production
design and drawing skills
ability to maintain design integrity
information sources and management
copyright laws, regulations and copyright clearance procedures

Linkages to other units

This unit has linkages to the following units and combined training delivery and/or assessment is recommended:

CUFRAD01A - Originate and develop a concept

CUFMEM06A - Design a multimedia product

CUFMEM14A - Create, manipulate, and incorporate 2D graphics

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practical demonstration (direct observation may need to occur on more than one occasion to establish consistency of performance)

role play

case studies

work samples or simulated workplace activities

oral questioning/interview aimed at evaluating the processes used in developing and realising the creative concept

projects/reports/logbooks

third party reports and authenticated prior achievements

portfolios of evidence which demonstrate the processes used in developing and realising the creative concept

Resource requirements

Assessment requires access to a range of resources and equipment listed in the range of variables statement, currently used by the multimedia industry.

Range Statement

Appropriate personnel to consult may include:

art director

technical director

computer graphic designers

programmers

graphic designers

heads of department

other technical staff

user/audience

other specialist creative and technical staff

Design techniques

drawing

storyboard

drawing on a tablet

scanning drawings and photographs

using image and background generation tools

thumbnail sketches

flow charts

Visual design and communication elements may include:

composition

proportion

balance

framing

colour

line

texture

shape

form

tone

scale

movement

typography:

point

tracking

leading

kerning

typeface

alignment

Visual multimedia elements may include:

screen images:

graphics

photographs

drawings

video

film

buttons

colours

text

content

style

icons

backgrounds

flow chart

Delivery platform may include:

world wide web

CD-ROM

Multimedia productions may include or be included in:

aspects or sections of film/ video production:

feature

documentary

short film and/or video

animations

commercials

live or pre-recorded performances

music video

television production of any type (music, drama, comedy, variety, sport)

live or pre-recorded television productions

educational product

game

promotional product

information product

training product

e-commerce

a range of others

Appropriate personnel to consult may include:

art director

technical director

computer graphic designers

programmers

graphic designers

heads of department

other technical staff

user/audience

other specialist creative and technical staff

Design techniques

drawing

storyboard

drawing on a tablet

scanning drawings and photographs
using image and background generation tools
thumbnail sketches
flow charts

Visual design and communication elements may include:

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proportion
balance
framing
colour
line
texture
shape
form
tone
scale
movement
typography:
point
tracking
leading
kerning
typeface
alignment

Visual multimedia elements may include:

screen images:
graphics
photographs
drawings
video
film

buttons
colours

text

content

style

icons

backgrounds

flow chart

Delivery platform may include:

world wide web

CD-ROM

Multimedia productions may include or be included in:

aspects or sections of film/ video production:

feature

documentary

short film and/or video

animations

commercials

live or pre-recorded performances

music video

television production of any type (music, drama, comedy, variety, sport)

live or pre-recorded television productions

educational product

game

promotional product

information product

training product

e-commerce

a range of others

Unit Sector(s)

Not applicable.

CUFMEM10A Design and create a multimedia interface

Modification History

Not applicable.

Unit Descriptor

This unit describes the skills and knowledge to design and create the graphical user interface (GUI) for a multimedia product within the cultural industries.

This unit describes the skills and knowledge to design and create the graphical user interface (GUI) for a multimedia product within the cultural industries

Application of the Unit

Not applicable.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Not applicable.

Elements and Performance Criteria Pre-Content

Not applicable.

Elements and Performance Criteria

Elements and Performance Criteria

Element

Performance Criteria

1 Plan an interface design	1.1 Obtain and study the project brief, navigation plan and technical specifications for a multimedia product

- 1.2 Discuss the concept and specifications with relevant personnel to identify the design concept or metaphor
 - 1.3 Identify the budget, technical and resource constraints to ensure that all requirements are considered during the design phase
 - 1.4 Clarify the client and user/audience needs in order to identify the format of the interface to be used
- 2 Develop the interface
 - 2.1 Visualise the concept and develop preliminary sketches
 - 2.2 Develop and present a series of roughs to relevant personnel and discuss the various merits for selection
 - 2.3 Continuously evaluate new ideas and incorporate them as appropriate
 - 2.4 Develop a final detailed sketch taking into consideration all ideas generated
 - 2.5 Gain approval from relevant personnel to ensure that the interface meets all requirements
- 3 Create the interface
 - 3.1 Use appropriate industry standard software to create screen design, applying visual design principles to all screen elements
 - 3.2 Ensure all elements, screens, transitions, sequences, pages and buttons are integrated to conform to the basic design concept or metaphor
 - 3.3 Ensure all elements conform to the specified technical requirements
 - 3.4 Develop a prototype version of the interface and experiment to ensure its utility
- 4 Evaluate the interface
 - 4.1 Present, discuss and evaluate the interface design prototype to relevant personnel, obtaining and noting detailed response, comments and any required changes
 - 4.2 Incorporate design changes to complete interface design

- 4.3 Obtain final agreement from relevant personnel for finished design to ensure that the design brief has been achieved

Required Skills and Knowledge

Not applicable.

Evidence Guide

Underpinning skills and knowledge

Assessment must include evidence of essential knowledge of, and skills in, the following areas:

ability to interpret a brief

ability to follow a navigation design

drawing skills

understanding of visual design principles

knowledge of appropriate 2D and 3D software to produce interface design

understanding of cultural context of multimedia product use

effective communication skills

knowledge of strategies to test usability

Linkages to other units

This unit has linkages to the following units and combined training delivery and/or assessment is recommended:

CUSGEN01A - Use and adapt to new technology

CUFMEM06A - Design a multimedia project

CUFWRT07A - Write an interactive sequence for multimedia

CUSRAD02A - Conduct research

Critical aspects of evidence

Assessment must be customised to meet the needs of the context in which performance is being assessed. Assessment should only address those variable circumstances, listed in the range of variables statements, which apply to the chosen context.

The following evidence is critical to the judgement of competence in this unit:

the development and evaluation of a graphic interface design for a multimedia product. The GUI should be user friendly, efficient, original and creative

Method and context of assessment

Assessment may take place on the job, off the job or a combination of both of these.

Off the job assessment must be undertaken in a closely simulated workplace environment.

Assessment may incorporate a range of methods to assess performance and the application of essential underpinning knowledge, and might include:

practical demonstration (direct observation may need to occur on more than one occasion to establish consistency of performance)

role play

case studies

work samples or simulated workplace activities

oral questioning/interview aimed at evaluating the processes used in developing and realising the creative concept

projects/reports/logbooks

third party reports and authenticated prior achievements

portfolios of evidence which demonstrate the processes used in developing and realising the creative concept

Resource requirements

Assessment requires access to a range of resources, equipment and software listed in the range of variables statement, currently used by the multimedia industry.

Underpinning skills and knowledge

Assessment must include evidence of essential knowledge of, and skills in, the following areas:

ability to interpret a brief

ability to follow a navigation design

drawing skills

understanding of visual design principles

knowledge of appropriate 2D and 3D software to produce interface design

understanding of cultural context of multimedia product use

effective communication skills

knowledge of strategies to test usability

Linkages to other units

This unit has linkages to the following units and combined training delivery and/or assessment is recommended:

CUSGEN01A - Use and adapt to new technology

CUFMEM06A - Design a multimedia project

CUFWRT07A - Write an interactive sequence for multimedia

CUSRAD02A - Conduct research

Critical aspects of evidence

Assessment must be customised to meet the needs of the context in which performance is being assessed. Assessment should only address those variable circumstances, listed in the range of variables statements, which apply to the chosen context.

The following evidence is critical to the judgement of competence in this unit:

the development and evaluation of a graphic interface design for a multimedia product. The GUI should be user friendly, efficient, original and creative

Method and context of assessment

Assessment may take place on the job, off the job or a combination of both of these.

Off the job assessment must be undertaken in a closely simulated workplace environment.

Assessment may incorporate a range of methods to assess performance and the application of essential underpinning knowledge, and might include:

practical demonstration (direct observation may need to occur on more than one occasion to establish consistency of performance)

role play

case studies

work samples or simulated workplace activities

oral questioning/interview aimed at evaluating the processes used in developing and realising the creative concept

projects/reports/logbooks

third party reports and authenticated prior achievements

portfolios of evidence which demonstrate the processes used in developing and realising the creative concept

Resource requirements

Assessment requires access to a range of resources, equipment and software listed in the range of variables statement, currently used by the multimedia industry.

Range Statement

Factors to be taken into account:

budget

resources

metaphor

purpose

audience

navigation design

multimedia elements

Technical specifications may include:

file format
file size
operating system
delivery platform

Relevant personnel may include:

project manager
navigation designers
sound engineer
video producer
animators
artists
instructional designers
programmers
graphic designers
technical staff
other specialist staff

Multimedia product may include:

educational product
game
promotional product
information product
training product

Industry standard software may include:

a wide range of software, some current examples of which may be:

Photoshop
Illustrator
Coral Draw
Fireworks
Studio Max
Bryce
Freehand

NOTE: These programs are constantly being upgraded and replaced and appropriate up to date programs should be selected.

Delivery platform may include:

world wide web

CD-ROM

Multimedia productions may include or be included in:

aspects or sections of film/ video production:

feature

documentary

short film and/or video

animations

commercials

live or pre-recorded performances

music video

television production of any type (music, drama, comedy, variety, sport)

live or pre-recorded television productions

educational product

game

promotional product

information product

training product

e-commerce

a range of others

Factors to be taken into account:

budget

resources

metaphor

purpose

audience

navigation design

multimedia elements

Technical specifications may include:

file format

file size

operating system

delivery platform

Relevant personnel may include:

project manager

navigation designers

sound engineer

video producer

animators

artists

instructional designers

programmers

graphic designers

technical staff

other specialist staff

Multimedia product may include:

educational product

game

promotional product

information product

training product

Industry standard software may include:

a wide range of software, some current examples of which may be:

Photoshop

Illustrator

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Delivery platform may include:

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Multimedia productions may include or be included in:

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live or pre-recorded performances

music video

television production of any type (music, drama, comedy, variety, sport)

live or pre-recorded television productions

educational product

game

promotional product

information product

training product

e-commerce

a range of others

Unit Sector(s)

Not applicable.

CUFMEM13A Incorporate, design and edit digital video

Modification History

Not applicable.

Unit Descriptor

This unit describes the competency required to edit, combine and incorporate video into multimedia presentations within the cultural industries.

This unit describes the competency required to edit, combine and incorporate video into multimedia presentations within the cultural industries

Application of the Unit

Not applicable.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Not applicable.

Elements and Performance Criteria Pre-Content

Not applicable.

Elements and Performance Criteria

Elements and Performance Criteria

Element

Performance Criteria

1	Identify multimedia elements	1.1	Obtain all relevant plans, storyboards, navigation designs and design brief

- 1.2 Locate all multimedia elements as required to meet creative and production requirements and technical specifications
 - 1.3 Discuss issues of integration and formats of the multimedia elements with appropriate personnel
 - 1.4 Save all multimedia elements in the appropriate format for inclusion, and store for each access
 - 1.5 Determine a sequence which will become the "prototype"
 - 1.6 Analyse the formats employed to create a given computer video sequence for a specified outcome
- 2 Identify scope of authoring software
 - 2.1 Identify the range of industry standard authoring software
 - 2.2 Assess the software in relation to specified multimedia delivery platform
 - 2.3 Discuss selection of software with relevant design personnel to ensure selection will meet specified outcomes
 - 2.4 Select authoring software
 - 2.5 Save digital video using the appropriate file techniques
- 3 Use authoring software
 - 3.1 Load authoring software
 - 3.2 Create a new file for the specified task and name appropriately
 - 3.3 Display and use tools and features of software relevant to the authoring process
 - 3.4 Apply time encoding to single and multiple edited digital video tracks in accordance with specifications
 - 3.5 Insert an video track into a multimedia production sequence in accordance with specifications
- 4 Create multimedia sequence
 - 4.1 Import and assemble multimedia elements in appropriate sequence according to creative requirements

	4.2	Create interactive elements according to creative and technical requirements
	4.3	Check multimedia sequence conforms to navigation design
	4.4	Check multimedia sequence conforms to loading specifications
	4.5	Test and run multimedia sequence as a presentation to ensure the sequence meets creative, production and technical requirements
	4.6	Save file formats and identify for specified purpose
5	Evaluate multimedia prototype	
	5.1	Play back final sequence with relevant personnel
	5.2	Evaluate against criteria including achievement of a creative and user-friendly product
	5.3	Discuss and agree on required changes
	5.4	Assist if required in tests and user trials
	5.5	Evaluate feedback from user trials
	5.6	Confirm endorsement from relevant personnel to develop prototype into complete product
6	Transform prototype into final product	
	6.1	Make necessary changes as indicated by user trials
	6.2	Integrate all multimedia elements as required by specifications
	6.3	Make final checks to ensure all sequences conform to the navigation design
	6.4	Save into specified storage systems

Required Skills and Knowledge

Not applicable.

Evidence Guide

Underpinning skills and knowledge

Assessment must include evidence of essential knowledge of, and skills in, the following areas:

visualisation and interpretation of creative concepts

editing conventions:

types of cutting

action cutting

montage

continuity

persistence of vision

filmmaking conventions:

types of camera shots

angles

camera viewpoint

cinematic time

electronic - digital language and other relevant terminology

contemporary video software

principles of video production

information sources

knowledge of the principles of digital video

knowledge of contemporary digital video formats

knowledge of methods for saving and producing digital video outputs

Linkages to other units

This unit has linkages to the following units and combined training delivery and/or assessment is recommended:

CUFMEM06A Design a multimedia product

CUFWRT07A Interpret and develop script

CUSRAD01A Collect and organise information

CUFGEN01A Develop and apply industry knowledge

CUFMEM07A Apply principles of visual design and communication to the development of a multimedia product

Critical aspects of evidence

This unit of competence applies to the multimedia sector and a range of other interested areas. Assessment must be customised to meet the needs of the particular workplace in which performance is being assessed.

The following evidence is critical to the judgement of competence in this unit:

ability to design, compile, edit and test multimedia sequences incorporating video

Method and context of assessment

Assessment may incorporate a range of methods to assess performance and the application of essential underpinning knowledge, and might include:

practical demonstration (direct observation may need to occur on more than one occasion to establish consistency of performance)

role play

case studies

work samples or simulated workplace activities

oral questioning/interview aimed at evaluating the processes used in developing and realising the creative concept

projects/reports/logbooks

third party reports and authenticated prior achievements

portfolios of evidence which demonstrate the processes used in developing and realising the creative concept

Resource requirements

Assessment requires access to a range of resources, equipment and technology listed in the range of variables statement, currently used by the cultural industries.

Underpinning skills and knowledge

Assessment must include evidence of essential knowledge of, and skills in, the following areas:

visualisation and interpretation of creative concepts

editing conventions:

types of cutting

action cutting

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projects/reports/logbooks

third party reports and authenticated prior achievements

portfolios of evidence which demonstrate the processes used in developing and realising the creative concept

Resource requirements

Assessment requires access to a range of resources, equipment and technology listed in the range of variables statement, currently used by the cultural industries.

Range Statement

Multimedia products or presentations may include:

educational

game

promotional

information

training

e-commerce

a range of others

Industry standard software:

a wide range of current programs is available. Examples of these are:

Adobe Premier

Quicktime

Media 100

NOTE: These programs are constantly being upgraded and replaced and appropriate up-to-date programs should be selected.

Digital imaging may include:

titles/text

graphic images

2D and 3D animation

3D modelling

opticals

transitions such as dissolves, fade-ins, fade-outs, supers, subtitles

special effects

Sound may include:

sound effects

music

atmospherics

dialogue

additional dialogue, eg re-recorded and narration

Documentation may be:

computer generated

manually written

scripts

production schedules

manufacturer's specifications/instructions

contracts

edit decision lists (EDLs)

list of sequences with relevant shot numbers

assembly order

marked up scripts

marked up transcripts

sound sheets including timecode log sheets for location sound recordings

wild line and sound effects log sheets

Relevant personnel may include:

director

producer

production manager

editor

assistant editor

picture editing personnel

sound editing personnel

sound effects personnel

computer generated imagery (CGI) personnel

technical director

other technical staff

other specialist staff

designers

Visual effects may include:

keyers to combine

DVEs to move and distort

colour corrections to modify
texture generation to add blur
trackers to follow parts of the picture
production of titles
production of optical effects
graphic images
opticals
transitions such as dissolves, fade-ins, fade-outs, supers, subtitles
special effects

Video format may include:

VHS
SVHS
DVC
Umatic
SP
Betacam
Digital Betacam

Editing equipment may include:

computer hardware
non-linear digital editing and graphics software programs
monitors
keyboard and mouse
external hard drive
external disk drive
additional computer hardware
source and record machines
computer software programs
graphics computer program
digital video effects system (DVE)
digital disk recorder (DDR)
video transfer recorder (VTR)

Editing consumable materials may include:

computer disks
paper for hardcopy

compact discs

Memory may include:

disk

hard drive - internal, external

Multimedia productions may include or be included in:

aspects or sections of film/video production:

feature

documentary

short film and/or video

animations

commercials

live or pre-recorded performances

music video

television production of any type (music, drama, comedy, variety, sport)

live or pre-recorded television productions

educational product

game

promotional product

information product

training product

e-commerce

a range of others

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list of sequences with relevant shot numbers

assembly order

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director

producer

production manager

editor

assistant editor

picture editing personnel

sound editing personnel

sound effects personnel

computer generated imagery (CGI) personnel

technical director

other technical staff

other specialist staff

designers

Visual effects may include:

keyers to combine

DVEs to move and distort

colour corrections to modify

texture generation to add blur

trackers to follow parts of the picture

production of titles

production of optical effects

graphic images

opticals

transitions such as dissolves, fade-ins, fade-outs, supers, subtitles

special effects

Video format may include:

VHS

SVHS

DVC

Umatic

SP

Betacam

Digital Betacam

Editing equipment may include:

computer hardware

non-linear digital editing and graphics software programs

monitors

keyboard and mouse

external hard drive

external disk drive

additional computer hardware

source and record machines

computer software programs

graphics computer program

digital video effects system (DVE)

digital disk recorder (DDR)

video transfer recorder (VTR)

Editing consumable materials may include:

computer disks

paper for hardcopy

compact discs

Memory may include:

disk

hard drive - internal, external

Multimedia productions may include or be included in:

aspects or sections of film/video production:

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commercials

live or pre-recorded performances

music video

television production of any type (music, drama, comedy, variety, sport)

live or pre-recorded television productions

educational product

game

promotional product

information product

training product

e-commerce

a range of others

Unit Sector(s)

Not applicable.

CUFPOS402A Manage media assets

Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to manage media assets for screen and media productions and projects. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement.

Application of the Unit

Application of the unit	The skills and knowledge outlined in this unit are typically applied by a person working in a large enterprise on projects or productions that require a wide range of media assets. They work directly with asset creators (audio, video, graphics) to ensure that the asset management system accommodates their needs. Though reporting to a producer or manager, a person in this role works with a fair degree of autonomy. They are responsible for setting up the conventions for file naming, sourcing, sorting and storing formal documents and media assets, and recording project or production details. They also set up systems to manage these assets effectively. The systems may need to be built by other personnel within the enterprise or production.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisite units		

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
Establish systematic procedures for managing content and outputs	1. Confirm media asset management requirements with <i>relevant personnel</i> 2. Set up file naming system for <i>projects</i> based on standard conventions and protocols 3. Source and review storage repository and back-up systems appropriate for the task 4. Set up processes to record <i>information</i> required for tracking <i>formal documents</i> and <i>media assets</i> 5. Establish conventions for recording progress and locations of media assets 6. Develop strategy for tracking and recording media assets 7. Brief team members on the media asset management system, including the process for alerting relevant personnel to problems encountered as the system is

ELEMENT	PERFORMANCE CRITERIA
	implemented
Record information about documents and media assets	8. Document sources of media assets according to established procedures 9. Document progress and details of a range of outputs 10. Maintain records of technical information on work in progress 11. Maintain copyright and permissions information 12. Track media assets and record information according to established system 13. Maintain version control and identify status of interim products, prototypes and other relevant media assets 14. Respond to and resolve problems encountered as the system is implemented
Plan for project completion and storage	15. Confirm schedule for final sign-off with relevant personnel 16. Determine requirements for archiving 17. Confirm procedures for finalisation of projects
Finalise project	18. File and index formal documents according to agreed project or enterprise procedures 19. File and index scripts according to agreed project or enterprise procedures 20. Archive media assets in established system repository system according to industry practice 21. Ensure appropriate access by relevant personnel to formal documents and media assets developed by projects 22. Review the effectiveness of the media asset management system and note areas for future improvement

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- communication, teamwork and literacy skills sufficient to:
 - interpret project briefs

REQUIRED SKILLS AND KNOWLEDGE

- prepare and maintain media asset management documentation
- provide verbal and written briefings to team members
- work collaboratively as a member of a production team
- provide advice and support to team members
- technical skills sufficient to track, maintain, record and archive information using accepted industry protocols
- initiative and flexibility in the context of anticipating and resolving problems with a media asset management system
- self-management and planning skills sufficient to:
 - set up and administer a file naming system
 - prioritise work tasks
 - meet deadlines
 - seek expert assistance as required

Required knowledge

- industry knowledge, including:
 - roles and responsibilities of project team members in the relevant industry sector
 - sound understanding of the relationship between the technical and creative aspects and requirements of screen and media projects
 - issues and challenges that arise in the context of implementing media asset management systems
 - copyright and permissions
 - file and resource repository systems
 - industry or enterprise standard naming conventions
- OHS requirements as they relate to working on computers for periods of time

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

Evidence of the following is essential:

- proficient use of information tracking and repository

EVIDENCE GUIDE	
	systems • accurate record keeping, updating and tracking • attention to detail • ability to work effectively as a member of a production team.
Context of and specific resources for assessment	Assessment must ensure: • access to industry-standard technology and repository systems that permit file and resource management • access to appropriate learning and assessment support when required • use of culturally appropriate processes and techniques appropriate to the language and literacy capacity of learners and the work being performed.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct questioning combined with review of portfolios of evidence and third-party workplace reports of on-the-job performance • evaluation of at least two media asset management systems set up and managed by the candidate • written or verbal questioning to test knowledge of the processes followed to manage media assets and the respective roles and responsibilities of team members.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • CUFDIG301A Prepare video assets • CUFDIG303A Produce and prepare photo images • CUFSOU301A Prepare audio assets.

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

RANGE STATEMENT	
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.	
Relevant personnel may include:	• artists • author • designers • media asset creators • producer • programmer • project manager • supervisor • other specialist creative and administrative staff.
Projects may include or be included in:	• aspects or sections of film/video production: • feature • documentary • short film and/or video • animations • commercials • live or pre-recorded performances • music video • television production, e.g. music, drama, comedy, variety, sport • live or pre-recorded television productions • e-commerce • educational product • game • information product • promotional product • training product • website.
Information about assets may include:	• asset details • copyright • date of transfer • default technical settings • reusability • transfer details • versions • other metadata as required.

RANGE STATEMENT	
Formal documents may include:	• agreed terms and conditions • assets rights clearances • confidentiality agreements • contracts with subcontractors • copyright permissions • final proposal • intermediate and final sign-offs • software licences • technical information.
Media assets may include:	• 3D models • animations (2D, 3D) • audio • code and scripts • graphics • photographs • text documents (PDF, MSWord, PowerPoint) • videos • other assets as required by the project.

Unit Sector(s)

Unit sector	

Competency field

Competency field	Media and entertainment production - post-production

Co-requisite units

Co-requisite units		

CUFRAD01A Originate and develop the concept

Modification History

Not applicable.

Unit Descriptor

This unit describes the skills and knowledge required to originate a project in cultural industries and develop the concept to that stage where it becomes the basis of a creative and effective production.

This unit describes the skills and knowledge required to originate a project in cultural industries and develop the concept to that stage where it becomes the basis of a creative and effective production

Application of the Unit

Not applicable.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Not applicable.

Elements and Performance Criteria Pre-Content

Not applicable.

Elements and Performance Criteria

Elements and Performance Criteria

Element

Performance Criteria

1 Clarify creative ideas

1.1 Identify purpose of production and who the

- audience/user for the product will be
- 1.2 Refine the concept in terms of purpose, broad content, style, aesthetic effect, intended audience and other factors depending on the medium
 - 1.3 Identify a range of different, innovative and creative solutions
 - 1.4 Document the concept in an appropriate format
- 2 Investigate approaches to the realisation of the idea
- 2.1 Identify possible approaches and media to be used to achieve the desired outcome
 - 2.2 Evaluate the impact of different approaches and the creativity and technical feasibility of each
 - 2.3 Consult with appropriate personnel, identifying and discussing a range of creative and technical approaches
 - 2.4 Investigate the effects and advantages of various combinations of media to be used to achieve a creative, innovative and appropriate outcome
 - 2.5 Identify the resources and equipment required by the project
- 3 Evaluate possible approaches
- 3.1 Determine advantages and disadvantages of each approach/strategy based on criteria such as creativity, appropriateness to the user/audience, technical feasibility
 - 3.2 Determine any constraints to realisation of the concept
 - 3.3 Evaluate approaches and select the approach which will result in achieving the desired outcome
- 4 Develop the concept to an operational level
- 4.1 Develop a detailed specification for the project in terms of creativity, the audience/user, budget, and technical requirements
 - 4.2 Review the plan and the detailed specification and refine them
 - 4.3 Specify the creative and technical requirements of the production

Required Skills and Knowledge

Not applicable.

Evidence Guide

Underpinning skills and knowledge

Assessment must include evidence of essential knowledge of, and skills in, the following areas:

- principles of effective and creative design
- visual design and communication principles
- the range of media available
- the variety of methods available
- the theory of human/machine interaction
- principles of adult learning and instructional techniques
- technical feasibility

Linkages to other units

This unit underpins effective performance in a range of cultural industry units. It is recommended that this unit is delivered/assessed in conjunction with other units which have a design and/or project base.

Critical aspects of evidence

This unit of competence applies to a range of industry sectors. The focus of assessment will depend on the industry sector. Assessment must be customised to meet the needs of the particular sector in which performance is being assessed. Assessment should only address those variable circumstances, listed in the range of variables statements, which apply to the chosen context.

The following evidence is critical to the judgement of competence in this unit:

- the ability to generate creative and effective concepts and evaluate them
- the ability to translate an original idea into a concrete proposal
- the ability to document a proposal using a method appropriate to the audience

Method and context of assessment

Assessment may take place on the job, off the job or a mix of both of these. Off the job assessment must be undertaken in a closely simulated workplace environment.

Assessment may incorporate a range of methods to assess performance and the application of essential underpinning knowledge, and might include:

- practical demonstration (direct observation may need to occur on more than one occasion to establish consistency of performance)
- role play

case studies

work samples or simulated workplace activities

oral questioning/interview aimed at evaluating the processes used in developing and realising the creative concept

projects/reports/logbooks

third party reports and authenticated prior achievements

portfolios of evidence which demonstrate the processes used in developing and realising the creative concept

Evidence of competence would be best obtained by evaluation of a number of concept development tasks ensuring coverage of a wide range of styles and activities.

The assessment should cover the full range of information needed to evaluate proposals and take the development of an effective and creative project forward to the production stage.

Resource requirements

This unit of competency does not have any significant resource requirements but access to a computer and appropriate software to develop the proposal would be useful.

Underpinning skills and knowledge

Assessment must include evidence of essential knowledge of, and skills in, the following areas:

principles of effective and creative design

visual design and communication principles

the range of media available

the variety of methods available

the theory of human/machine interaction

principles of adult learning and instructional techniques

technical feasibility

Linkages to other units

This unit underpins effective performance in a range of cultural industry units. It is recommended that this unit is delivered/assessed in conjunction with other units which have a design and/or project base.

Critical aspects of evidence

This unit of competence applies to a range of industry sectors. The focus of assessment will depend on the industry sector. Assessment must be customised to meet the needs of the particular sector in which performance is being assessed. Assessment should only address those variable circumstances, listed in the range of variables statements, which apply to the chosen context.

The following evidence is critical to the judgement of competence in this unit:

the ability to generate creative and effective concepts and evaluate them

the ability to translate an original idea into a concrete proposal

the ability to document a proposal using a method appropriate to the audience

Method and context of assessment

Assessment may take place on the job, off the job or a mix of both of these. Off the job assessment must be undertaken in a closely simulated workplace environment.

Assessment may incorporate a range of methods to assess performance and the application of essential underpinning knowledge, and might include:

practical demonstration (direct observation may need to occur on more than one occasion to establish consistency of performance)

role play

case studies

work samples or simulated workplace activities

oral questioning/interview aimed at evaluating the processes used in developing and realising the creative concept

projects/reports/logbooks

third party reports and authenticated prior achievements

portfolios of evidence which demonstrate the processes used in developing and realising the creative concept

Evidence of competence would be best obtained by evaluation of a number of concept development tasks ensuring coverage of a wide range of styles and activities.

The assessment should cover the full range of information needed to evaluate proposals and take the development of an effective and creative project forward to the production stage.

Resource requirements

This unit of competency does not have any significant resource requirements but access to a computer and appropriate software to develop the proposal would be useful.

Range Statement

Media considered may include:

film

video

audio

still pictures

text

art work

live performances

multimedia

internet

Purposes of the production may be provision of:

education

entertainment

information

documentary

advertisement

game

Formats for documentation may include:

proposal to be submitted to a funding body

brief for a consultant

technical specification document

description of a creative proposal for inhouse consideration

Appropriate personnel to consult may include:

designers

IT personnel

film/television professionals

educators

designers

writers

musicians

clients/customers

heads of department

other technical staff

other specialist creative and administrative staff

Factors to be considered include:

length of program/film

navigational/flow (mm)

delivery platform (mm)

interactivity (mm)

level of skill and understanding required for use

Constraints to the project may be:

cost

finance

skilled experts

personnel

equipment

technical difficulty

Resources and equipment may include:

all the specialist staff required for successful development of the proposed product

computers

application software

video and audio equipment

editing equipment

Media considered may include:

film

video

audio

still pictures

text

art work

live performances

multimedia

internet

Purposes of the production may be provision of:

education

entertainment

information

documentary

advertisement

game

Formats for documentation may include:

proposal to be submitted to a funding body

brief for a consultant

technical specification document

description of a creative proposal for inhouse consideration

Appropriate personnel to consult may include:

designers

IT personnel
film/television professionals
educators
designers
writers
musicians
clients/customers
heads of department
other technical staff
other specialist creative and administrative staff

Factors to be considered include:

length of program/film
navigation/flow (mm)
delivery platform (mm)
interactivity (mm)
level of skill and understanding required for use

Constraints to the project may be:

cost
finance
skilled experts
personnel
equipment
technical difficulty

Resources and equipment may include:

all the specialist staff required for successful development of the proposed product
computers
application software
video and audio equipment
editing equipment

Unit Sector(s)

Not applicable.

CUFWRT07A Write an interactive sequence for multimedia

Modification History

Not applicable.

Unit Descriptor

This unit describes the skills and knowledge required to create, develop and write an interactive sequence for multimedia productions within the cultural industries.

This unit describes the skills and knowledge required to create, develop and write an interactive sequence for multimedia productions within the cultural industries

Application of the Unit

Not applicable.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Not applicable.

Elements and Performance Criteria Pre-Content

Not applicable.

Elements and Performance Criteria

Elements and Performance Criteria

Element

Performance Criteria

1 Prepare to write the interactive sequence

1.1 Establish production requirements of the interactivity with relevant personnel, according to organisational procedures

- 1.2 Determine the purpose and function of the interactive sequence and explore a range of ways of achieving this purpose
 - 1.3 Gather information from various sources as required to generate and record a range of ideas to develop the interactivity
 - 1.4 Consider and develop the ideas that have the most relevance to the purpose and function of the interactivity
 - 1.5 Evaluate and select the most appropriate ideas relevant to the purpose and function of the interactive sequence
- 2 Write the interactive sequence
 - 2.1 Write a draft of the interactive sequence using methods and conventions most appropriate to the context or as specifically required
 - 2.2 Ensure the draft contains all necessary multimedia components for the production
 - 2.3 Ensure factual information is accurate and relates to the results of research
 - 2.4 Refine and redraft interactive sequence until it meets creative and technical requirements
 - 2.5 Ensure that the material is written within the deadlines required
 - 2.6 Submit final draft to relevant personnel for consideration and review
 - 2.7 Document and implement any required changes to interactive sequence, when necessary
- 3 Re-evaluate the interactive sequence
 - 3.1 Liaise with relevant personnel to discuss and re-evaluate whether the sequence meets all production requirements
 - 3.2 Examine the interactive sequence to assess that the content meets with production requirements
 - 3.3 Analyse the interactive sequence to ensure that all necessary multimedia elements are included
- 4 Obtain approval from
 - 4.1 Present a final draft of the sequence to relevant

relevant personnel

personnel for validation

- 4.2 Discuss and agree upon final changes with relevant personnel and make necessary adjustments, ensuring that the interactive sequence meets all requirements and is ready to be implemented

Required Skills and Knowledge

Not applicable.

Evidence Guide

Underpinning skills and knowledge

Assessment must include evidence of essential knowledge of, and skills in, the following areas:

ability to locate and use resources to broaden creative experience

ability to demonstrate originality and innovative approaches in the creative scriptwriting process

ability to experiment with narrative styles and elements to develop own voice and extend writing practice

ability to extend creative boundaries for self and audience

knowledge of the principles and practices of writing for multimedia

knowledge of the structure of scriptwriting for multimedia programs

knowledge of implementation of multimedia script (text) formats

understanding of programming techniques

reading and interpreting documentation

knowledge of effective communication techniques including effective listening, questioning and non-verbal communication

knowledge of relevant organisational and/or legislative occupational health and safety requirements

Linkages to other units

This unit has linkages to the following units and combined training delivery and/or assessment is recommended:

CUFADM03A - Collect and organise information

CUSRAD02A - Conduct research

CUFGEN01A - Develop and apply industry knowledge

CUFGEN02A - Identify industry laws and regulations and apply them to work activities

Critical aspects of evidence

This unit of competence applies to a range of industry sectors. The focus of assessment will depend on the industry sector. Assessment must be customised to meet the needs of the particular sector in which performance is being assessed. Assessment should only address those variable circumstances, listed in the range of variables statements, which apply to the chosen context.

The following evidence is critical to the judgement of competence in this unit:

the development of the ability to write a script (text) for a multimedia production

knowledge and application of relevant local occupational health and safety legislation

knowledge of effective communication techniques

Method and context of evidence

Assessment may take place on the job, off the job or a mix of both of these. Off the job assessment must be undertaken in a closely simulated workplace environment.

Assessment may incorporate a range of methods to assess performance and the application of essential underpinning knowledge, and might include:

practical demonstration (direct observation may need to occur on more than one occasion to establish consistency of performance)

role play

case studies

work samples or simulated workplace activities

oral questioning/interview aimed at evaluating the processes used in developing and realising the creative concept

projects/reports/logbooks

third party reports and authenticated prior achievements

portfolios of evidence which demonstrate the processes used in developing and realising the creative concept

Resource requirements

Assessment requires access to the resources listed in the range of variables statement, currently used by the cultural industries.

Underpinning skills and knowledge

Assessment must include evidence of essential knowledge of, and skills in, the following areas:

ability to locate and use resources to broaden creative experience

ability to demonstrate originality and innovative approaches in the creative scriptwriting process

ability to experiment with narrative styles and elements to develop own voice and extend writing practice

ability to extend creative boundaries for self and audience
knowledge of the principles and practices of writing for multimedia
knowledge of the structure of scriptwriting for multimedia programs
knowledge of implementation of multimedia script (text) formats
understanding of programming techniques
reading and interpreting documentation
knowledge of effective communication techniques including effective listening, questioning and non-verbal communication
knowledge of relevant organisational and/or legislative occupational health and safety requirements

Linkages to other units

This unit has linkages to the following units and combined training delivery and/or assessment is recommended:

CUFADM03A - Collect and organise information

CUSRAD02A - Conduct research

CUFGEN01A - Develop and apply industry knowledge

CUFGEN02A - Identify industry laws and regulations and apply them to work activities

Critical aspects of evidence

This unit of competence applies to a range of industry sectors. The focus of assessment will depend on the industry sector. Assessment must be customised to meet the needs of the particular sector in which performance is being assessed. Assessment should only address those variable circumstances, listed in the range of variables statements, which apply to the chosen context.

The following evidence is critical to the judgement of competence in this unit:

the development of the ability to write a script (text) for a multimedia production
knowledge and application of relevant local occupational health and safety legislation
knowledge of effective communication techniques

Method and context of evidence

Assessment may take place on the job, off the job or a mix of both of these. Off the job assessment must be undertaken in a closely simulated workplace environment.

Assessment may incorporate a range of methods to assess performance and the application of essential underpinning knowledge, and might include:

practical demonstration (direct observation may need to occur on more than one occasion to establish consistency of performance)

role play

case studies

work samples or simulated workplace activities

oral questioning/interview aimed at evaluating the processes used in developing and realising the creative concept

projects/reports/logbooks

third party reports and authenticated prior achievements

portfolios of evidence which demonstrate the processes used in developing and realising the creative concept

Resource requirements

Assessment requires access to the resources listed in the range of variables statement, currently used by the cultural industries.

Range Statement

Types of productions may include:

animation

educational

training

industrial

interactive games

multi-path movies

short films and videos

Relevant sources may include:

inspiration

imagination

life experience

actual events

existing dramatic material

educational texts and resources

news sources

Production requirements may include:

duration

style

content

budget

deadlines

location

audience

purpose

contractual

confidentiality

intellectual property

schedule

instructional design

navigation design

Multimedia elements may include:

video

text

audio

graphics

animation

interactivity - branching techniques

Presentation media may include:

CD-ROMs

floppy disks

world wide web

video disks - CDI, DVI

Scripts may include:

interactive multi-path movies

interactive games

interactive educational

interactive training

interactive industrial

reference

promotion

entertainment

Appropriate personnel may include:

project manager

navigation designers

instructional designers

programmers

graphic designers

sound engineers

producers

writers

other technical staff

other specialist staff

Types of productions may include:

animation

educational

training

industrial

interactive games

multi-path movies

short films and videos

Relevant sources may include:

inspiration

imagination

life experience

actual events

existing dramatic material

educational texts and resources

news sources

Production requirements may include:

duration

style

content

budget

deadlines

location

audience

purpose

contractual

confidentiality

intellectual property

schedule

instructional design

navigation design

Multimedia elements may include:

video

text

audio

graphics

animation

interactivity - branching techniques

Presentation media may include:

CD-ROMs

floppy disks

world wide web

video disks - CDI, DVI

Scripts may include:

interactive multi-path movies

interactive games

interactive educational

interactive training

interactive industrial

reference

promotion

entertainment

Appropriate personnel may include:

project manager

navigation designers

instructional designers

programmers

graphic designers

sound engineers

producers

writers

other technical staff

other specialist staff

Unit Sector(s)

Not applicable.

CUFWRT601A Write scripts

Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to write scripts for a wide range of creative productions or projects. Scriptwriters take material from concept proposal, treatment or outline format to final draft ready for production. The script-writing process involves negotiation and mediation, as well as an understanding of working collaboratively with other members of a production or project team. This unit has strong links with: • CUFWRT501A Develop storylines and treatments. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement.

Application of the Unit

Application of the unit	Scriptwriters apply the skills and knowledge described in this unit. They work on a wide range of film and media productions, for example, children's television, series and serials, situation comedies, animation, adaptations, miniseries, documentaries, and experimental or feature films. Script-writing is also required for commercials, live performances, computer games, e-learning resources and performances for radio or other media.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisite units		

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
Prepare to write scripts	1. Evaluate existing narrative form in preparation for developing scripts for specified <i>productions</i> 2. Identify audience and purpose, and requirements for <i>genre, structure and format</i> 3. Evaluate script concepts and ideas, narrative and structural framework in relation to stipulated <i>source material</i>, as required 4. Review, discuss and obtain feedback about narratives from <i>relevant personnel</i>, as required 5. Establish criteria to provide an effective measure of the

ELEMENT	PERFORMANCE CRITERIA
	success of scripts in their context
Write draft scripts	6. Develop scripts using a range of appropriate <i>script-writing tools and techniques</i> 7. Use <i>collaborative techniques</i> to refine and redraft scripts until they meet creative and artistic requirements 8. Ensure factual information is accurate and relates to the results of research and agreed existing narrative, as required 9. Ensure final drafts of scripts meet stipulated <i>production and performance requirements</i>
Produce final scripts	10. Document and incorporate <i>feedback</i> from relevant personnel 11. Evaluate draft scripts against criteria established at the outset to determine whether they successfully meet production requirements 12. Make final adjustments to scripts and submit to relevant personnel by agreed deadlines

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- communication and literacy skills sufficient to:
 - interpret and clarify briefs, production documentation and feedback
 - present draft scripts to team members and respond positively to constructive feedback
 - apply correct grammar, spelling and punctuation
 - analyse genre, audience and purpose
 - apply redrafting skills
 - negotiate outcomes through use of appropriate assertive strategies
- ability to work as a member of a team in writing scripts to time and budget
- technical skills sufficient to use standard word processing applications with appropriate industry-specific formatting
- self-management and planning skills sufficient to:
 - prioritise work tasks
 - meet deadlines

REQUIRED SKILLS AND KNOWLEDGE

- develop clear goals, outlines and outcomes
- seek out and participate in professional development activities
- learning skills sufficient to improve performance and product through self-reflection and redrafting after feedback
- initiative and enterprise sufficient to:
 - develop original, innovative and creative approaches in the script-writing process
 - experiment with narrative styles and elements to develop a creative long-term vision
 - extend creative boundaries for self and audience
 - find creative solutions to problems identified during the process of obtaining feedback
 - locate and use resources to broaden own creative experience

Required knowledge

- industry knowledge, including:
 - roles and responsibilities of production or project team members
 - issues and challenges that arise when writing scripts
- well-developed understanding of storytelling techniques and writing conventions appropriate to stipulated screen, media, performance and text contexts
- in-depth knowledge of script-writing narrative, structure and formats appropriate to genre and production methods
- communication and interpersonal techniques appropriate to working with high-level teams
- organisational and legislative OHS standards as they relate to working for periods of time on computers
- copyright and intellectual property requirements as they relate to developing scripts for productions or cultural industry projects

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**Critical aspects for assessment and evidence required to demonstrate**

Evidence of the following is essential:

EVIDENCE GUIDE	
competency in this unit	• scripts written for a range of creative productions or projects • understanding of copyright and intellectual property issues in relation to script-writing • ability to apply effective interpersonal communication techniques • ability to write scripts by agreed deadlines • collaborative approach to work, including a positive attitude towards incorporating feedback on draft scripts into final scripts.
Context of and specific resources for assessment	Assessment must ensure: • access to a computer and the internet • access to print and media resources • access to a range of sources as listed in the range statement for the analysis and review of ideas and concepts • access to appropriate learning and assessment support when required • use of culturally appropriate processes and techniques appropriate to the language and literacy capacity of learners and the work being performed.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct questioning combined with review of portfolios of evidence and third-party workplace reports of on-the-job performance • evaluation of scripts written by the candidate and their quality in terms of addressing production requirements • written or oral questioning to test knowledge as listed in the required skills and knowledge section of this unit.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • BSBCRT501A Originate and develop concepts • CUFWRT501A Develop storylines and treatments • CUFWRT602A Edit scripts.

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.

Productions may include:

- advertisements/commercials
- animation
- children's television or films
- corporate and training films and videos
- documentaries
- experimental films
- feature films and videos
- film and television adaptations
- interactive digital media
- live events and performances:
 - sketch comedy
 - short plays
 - extended performance pieces
 - corporate launches or presentations
- radio dramas and performance pieces
- short films and videos
- television comedies, such as situation or sketch comedy
- television series, serials and miniseries.

Genre may include:

- film:
 - thriller
 - horror
 - road movie
 - romance
 - science fiction
 - action
 - western
 - comedy
 - film-noir
 - crime
 - historical
 - cinema vrit

RANGE STATEMENT	
	• documentary • television: • police series • prison series • comedy • historical series • family series • documentary.
Structure may include:	• major and minor character emphasis and development • opening plans • point of view • subplots • transitions • turning points.
Format may include:	• corporate production script • film script • interactive digital media script, including: • games • e-learning resource • live performance script • radio performance script • television episode script.
Source material may include:	• a range of ideas for the design of stories that have been generated and explored using techniques, such as: • role-playing • making analogies • looking at the subject from different viewpoints • innovation • inspiration • imagination • life experience • actual events and facts • existing narrative material • other media • travel • observation

RANGE STATEMENT	
	• client brief • comics • feature articles or other non-fiction material • games • interviews • literary, film, television or digital stories • novellas • novels • plays • researched archival material • short stories.
Relevant personnel may include:	• broadcasters • clients • directors • funding bodies • interactive digital media technical staff • performers • producers • script editors • storyliners • writers • other technical/specialist staff.
Script-writing tools and techniques may include:	• condensing character, time, location and plot within requirements of production • consistency of: • character portrayal • plot • style and attitude • structure • impact • language • experimental techniques: • abstraction • ellipses • symbol • metaphor • tone • myth • archetype

RANGE STATEMENT	
	• atmosphere • generating material consistent with selected genres • linear and non-linear storytelling • point of view • sustaining audience attention • sustaining essential narrative, performative and promotional elements • sustaining themes • use of sound • use of subtext and resonance • use of visual motifs, symbols and metaphors.
<i>Collaborative techniques</i> may include:	• incorporating and documenting creative input and feedback within production teams or projects • negotiation and mediation with other members of the creative team, including: • storyliners • script editors • concept developers • technical and production team members • team scheduling and planning • using effective interpersonal communication techniques, including: • questioning and listening • non-verbal communication • conflict resolution.
<i>Production and performance requirements</i> may include:	• audience requirements • budget requirements • content • legal issues: • copyright • intellectual property • confidentiality • contracts • OHS issues • purpose • scheduling • sign-offs and approval processes • style

RANGE STATEMENT	
	• technical requirements • timing or duration • venue requirements.
Feedback may include:	• collaborative team conferencing • creative and production team meetings • mapping • scene breakdown • script conferencing • workshop feedback.

Unit Sector(s)

Unit sector	

Competency field

Competency field	Communication - writing

Co-requisite units

Co-requisite units		

CUSADM07A Establish and maintain work and contractual relationships

Modification History

Not applicable.

Unit Descriptor

This unit deals with the skills and knowledge required to set up and maintain work relationships, including contracts, within a cultural industries context. It focuses on the relationship building and negotiation skills required by project managers, freelance workers and managers of sections or departments in the industry.

This unit deals with the skills and knowledge required to set up and maintain work relationships, including contracts, within a cultural industries context. It focuses on the relationship building and negotiation skills required by project managers, freelance workers and managers of sections or departments in the industry.

Application of the Unit

Not applicable.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Not applicable.

Elements and Performance Criteria Pre-Content

Not applicable.

Elements and Performance Criteria

Elements and Performance Criteria

Element	Performance Criteria
1 Establish and conduct work relationships	1.1 Establish relationships within the appropriate context in a manner which promotes goodwill and trust between all parties 1.2 Employ effective communication skills and techniques in relationships to build trust and respect 1.3 Take all opportunities to maintain contact with all parties wherever possible
2 Conduct negotiations	2.1 Conduct negotiations in a business like and professional manner 2.2 Conduct negotiations using techniques to maximise benefits for all parties in the context of establishing long term relationships 2.3 Take account of input from colleagues and other relevant parties in negotiations, where appropriate 2.4 Communicate the results of negotiations within appropriate timeframes 2.5 Manage situations in which there is conflict or disagreement
3 Make formal agreements /contracts	3.1 Confirm agreements in writing with contracts or other documentation drawn up in accordance with legal and other requirements 3.2 Ensure that all parties check and approve all aspects of formal agreement/contract in accordance with enterprise procedures where appropriate 3.3 Seek specialist advice in the development of contracts where appropriate
4 Foster and maintain business relationships	4.1 Seek information needed to maintain sound business relationships, and review and act upon it 4.2 Honour agreements within the scope of individual responsibility

- 4.3 Make adjustments to agreements in consultation with all parties and share information with appropriate colleagues
- 4.4 Build relationships through regular contact and use of effective interpersonal and communication styles
- 4.5 Handle any situations of conflict or disagreement so problems are resolved by negotiation and the best possible level of agreement is reached

Required Skills and Knowledge

Not applicable.

Evidence Guide

Evidence guide

Underpinning knowledge and skills

Assessment must include evidence of essential knowledge of, and skills in, the following areas:

knowledge of the relevant cultural industry including:

major industry production and marketing issues

current funding and production environment

knowledge of the awards and conditions covering employment in the industry

knowledge of the legal issues that affect negotiations and contracts in the relevant cultural industry

knowledge of individual or enterprise requirements

negotiation skills, including the skills to conduct negotiations of significant commercial value

general knowledge of the elements of contracts as appropriate to different Industry

sectors, including considering accepting a contract and ensuring compliance with the terms of a contract

effective communication skills

Linkages to other units

This unit underpins effective performance in a range of other development and business administration units. Depending upon the industry sector and workplace, combined assessment/training may be appropriate. Examples include but are not limited to:

CUSGEN04A Participate in negotiations

CUSGEN05A Make presentations

CUSADM03A Manage a project

Critical aspects of evidence

This unit of competence applies to a range of Industry sectors. The focus of assessment will depend on the industry sector.

Assessment must be contextualised/tailored to meet the needs of the particular sector in which performance is being assessed.

Assessment should only address those variable circumstances, listed in the range of variables statements, which apply to the chosen context.

Care should be taken in developing training to meet the requirements of this unit. For generic prevocational training, organisations should provide training that considers the full range of industry contexts with no bias towards individual sectors. The range of variables will assist in this regard. For sector specific delivery, training should be tailored to meet the needs of that sector.

The following evidence is critical to the judgement of competence in this unit:

ability to conduct negotiations within a film, television, radio, music and multimedia

context

knowledge and understanding of the current environment in which film, television, radio, music and multimedia businesses and projects operate, and the major industry issues of relevance to the particular sector

knowledge and understanding of contracts and of awards and conditions of employment in the industry

Method and context of assessment

Assessment may take place on the job, off the job or a mix of both of these. However, assessment of this unit would most effectively be undertaken on the job due to the specific workplace environment requirements. Off the job assessment must be undertaken in a closely simulated workplace environment.

Assessment may incorporate a range of methods to assess performance and the application of essential underpinning knowledge, and might include:

case studies

work samples or simulated workplace activities

oral questioning/interview

projects/reports/logbooks

third party reports and authenticated prior achievements

portfolios of evidence

Assessment must take place over a period of time in order to determine competence in the ongoing implementation and monitoring aspects of this unit.

Resource requirements

There is no specialist equipment required apart from access to the information needed to support the negotiations and establish contracts and agreements.

Key competencies	Level
Collecting, organising and analysing information	3
Communicating ideas and information	3
Planning and organising activities	3
Working with others and in teams	3
Solving problems	1
Using mathematical ideas and techniques	1
Using technology	1

Range Statement

Range of variables

Variable	Scope
Negotiations and contracts may relate to:	individual agreements and/or broad and significant commercial dealings including but not limited to: individual performance service contracts agency agreements location contracts rate negotiations contracts for supply of equipment or materials marketing and distribution agreements
Contract or formal agreements may cover:	terms and conditions of employment

remuneration
specifications for equipment or materials
copyright
royalties
recording and distribution rights
insurance

Negotiations may be conducted by:

producer
director
artist
designer
heads of department
director of photography
financial manager
technical director
floor manager
managers of specialist sections
technical staff
specialist staff
presenters

Parties to an agreement may be:

the enterprise
its clients
sponsors
specialists
associates and suppliers

Negotiating techniques may include:

preparation for negotiation
research into the other party's needs/business operations
discussion
offers and counter offers

bargaining

use of a "BATNA": best alternative to a negotiated agreement

Relevant parties for consultation may be:

colleagues

artists

fellow performers

managers

agents

Unit Sector(s)

Not applicable.

CUSADM08A Address copyright requirements

Modification History

Not applicable.

Unit Descriptor

This unit describes the skills and knowledge required to protect creative work and performance from unauthorised use.

This unit describes the skills and knowledge required to protect creative work and performance from unauthorised use.

Application of the Unit

Not applicable.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Not applicable.

Elements and Performance Criteria Pre-Content

Not applicable.

Elements and Performance Criteria

Elements and Performance Criteria

Element

Performance Criteria

1 Identify copyright issues for the protection and exploitation of products	1.1 Apply knowledge of Copyright Act to products in terms of: protection against unauthorised use on own and

- other's works
 - commercial exploitation of own work under copyright intellectual property and licensing legislation
- 1.2 Seek advice, as required, to ensure that copyright issues are fully addressed in terms of own rights and the rights of others
- 2 Ensure that copyright protection on creative works or performance is adequate locally and internationally
 - 2.1 Undertake all procedures necessary to ensure that created material are protected at local and international levels against illegal or unauthorised reproduction of work, or parts of work:
 - in printed or recorded media
 - in live performance
 - in television, cable transmission or online media
 - in any media for advertising or screen for other purposes
 - 2.2 Undertake all procedures necessary to ensure that work is protected at local and international level against adaptations of work whether printed, live or in any electronic media
 - 2.3 Undertake research and/or obtain reliable legal advice where necessary to ensure that artists'/copyright owners' rights are protected
- 3 Assign copyright of creative works or performers
 - 3.1 Undertake strategic planning of negotiated deals for works/performances with an understanding of the difference between assignment of copyright and licensing
 - 3.2 Assign copyright for composers and/or performers only where artists are aware of all implications
 - 3.3 Confirm and agree with all relevant parties the degree to which artists and publisher may control the use and exploitation of work under assignment of copyright
 - 3.4 Ensure that the terms of assignments of copyright are written accurately into a formal contract that is available for legal advice where required, and understood and signed by all relevant parties
- 4 License rights to creative
 - 4.1 Confirm and agree to the territories in which the

works or performance	licensing rights may be exercised with all relevant parties
	4.2 Confirm and agree to the timeframe of the license with all relevant parties
	4.3 Confirm and agreed to the terms of exploitation of the work/license with all relevant parties
	4.4 Ensure that creative control of the work, including to what extent and how it may be recast, is confirmed and agreed by all relevant parties
	4.5 Ensure that fees are negotiated whether outright fee, royalty, or a combination of both, relevant to the context of the deal
	4.6 Ensure that responsibility for enforcement of the copyrights against infringement are confirmed and agreed
	4.7 Ensure that all terms relating to the licensing deal are written accurately, confirmed and signed by all relevant parties
5 Comply with conditions of copyright agreement	5.1 Maintain documents relevant to the copyright agreement in a secure and accessible form allowing for retrieval where required
	5.2 Undertake all responsibilities to ensure compliance with the conditions of the copyright agreement as and when required

Required Skills and Knowledge

Not applicable.

Evidence Guide

Evidence guide

Underpinning knowledge and skills

Assessment must include evidence of the following knowledge and skills:

copyright legislation, awareness of the Copyright Act

the difference between performing,
mechanical and synchronisation rights

the difference between copyright for
composition, a sound recording and a
published edition

the conditions necessary for copyright to
exist in composition and in sound recordings

procedures which need to be undertaken to
show proof of ownership of composed work

the difference between assignment and
licensing of copyright

the function of organisations such as the:

Australian Performing Rights Association

Australian Copyright Council

Australasian Mechanical Copyright Owners
Society Ltd

Australian Copyright Council

Phonographic Performance Company of
Australia

Audio-Visual Copyright Society

Copyright Agency Ltd

and international copyright and collection
societies

communicating to achieve consensus

communicating to achieve agreed outcomes

understanding of the needs of all relevant
parties

understanding of the rights of all relevant
parties

awareness of copyright conventions in
relation to:

intellectual property (using, producing and
protecting)

publishing

new technology

music

lyrics

text

visual materials

Linkages to other units

This unit has strong linkages to the following units and combined training delivery and/or assessment is recommended:

CUSADM09A Address legal and administrative

requirements

CUSGEN04A Participate in negotiations

Critical aspects of evidence

The following evidence is critical to the judgement of competence in this unit:

ability to research directly and/or seek appropriate assistance as required to manage copyright

understanding of the role of organisations relevant to copyright legislation and business

Method and context of assessment

Assessment may take place on the job, off the job or a combination of both of these. However, assessment of this unit would most effectively be undertaken on the job due to the specific workplace environment requirements. Off the job assessment must be undertaken in a closely simulated workplace environment.

Assessment may incorporate a range of methods to assess performance and the application of essential underpinning knowledge, and might include:

case studies and scenarios as a basis for discussion of copyright issues

work samples or simulated workplace activities

simulation of problem solving exercises

oral questioning on issues in copyright

projects/reports/logbooks

third party reports and authenticated prior achievements

authenticated samples of relevant work in managing copyright

portfolios of evidence

Assessment must take place over a period of time in order to determine competence in the ongoing implementation and monitoring aspects of this unit. Assessment should ensure that a sufficient range of tasks is covered.

Resource requirements

This unit requires access to the sources of information needed to manage copyright including the Copyright Act and a range of case studies. There is no specialist equipment required.

Key competencies	Level
Collecting, organising and analysing information	3
Communicating ideas and information	2
Planning and organising activities	1
Working with others and in teams	2
Solving problems	2
Using mathematical ideas and techniques	1
Using technology	1

Range Statement

Range of variables

Variable	Scope
Relevant parties may include:	artists

	industry or artists' managers
	agents
	legal representatives
Copyright may be fixed to:	music presented in any media or format
	artwork
	photographs
	flyers
	record covers
	original materials
	performances
	scripts
	film scores
Copyright may involve:	ownership of materials
	term of license or assignment
	length of control period after expiration of term
	exploited reversion triggers
	non exploited reversion triggers
Term involves:	the period during which the material may be exploited
Territory involves:	areas in which the licensing rights can or cannot be exercised
License may apply to the use of work for:	performance
	film/video
	multimedia
	advertising
	broadcast

Creative control involves:

ways in which the work is exploited

selection of material

selection of producers

right of approval of sub-licensing or
assignments

Unit Sector(s)

Not applicable.

CUSGEN03A Collaborate with colleagues in planning and producing a project

Modification History

Not applicable.

Unit Descriptor

This unit describes the skills and knowledge required to collaborate intensively with colleagues, particularly where they have different areas of expertise and are required to work with other specialists in developing and finalising a production.

This unit describes the skills and knowledge required to collaborate intensively with colleagues, particularly where they have different areas of expertise and are required to work with other specialists in developing and finalising a production.

Application of the Unit

Not applicable.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Not applicable.

Elements and Performance Criteria Pre-Content

Not applicable.

Elements and Performance Criteria

Elements and Performance Criteria

Element	Performance Criteria

1 Cooperate in planning the product and strategy for producing it	1.1 Clarify the understanding of what is to be produced and purpose for which it is being produced
	1.2 Identify the areas of expertise required and the role and area of input of each individual
	1.3 Take colleagues' and other specialists' opinions and expertise into account in the development of the plan
	1.4 Identify, evaluate and incorporate the contributions of colleagues in the development of the strategy
2 Value and respect the skills of others and their contribution to the project	2.1 Provide opportunities for all contributors to the project to explain their ideas and how their skills can contribute to the achievement of best outcomes
	2.2 Explain the importance of each area of expertise to the final product
	2.3 Identify the role and area of input of each person and explain how it relates to the achievement of the final production
3 Set up and maintain productive workplace relationships	3.1 Treat colleagues with consideration, respect and empathy to develop and maintain harmonious working relationships
	3.2 Ensure an effective flow of communication between those representing different areas of expertise
4 Use effective strategies for solving problems	4.1 Achieve solutions to problems by concentrating on the problem and not the personalities of the people involved
	4.2 Strive to achieve a solution that all those involved can accept by taking all points of view into account and providing opportunities for all to contribute to the solution

Required Skills and Knowledge

Not applicable.

Evidence Guide

Evidence guide

Underpinning knowledge and skills

Assessment must include evidence of essential knowledge of, and skills in, the following areas:

effective communication skills (verbal and non verbal)

knowledge of the particular industry and the areas of expertise required for successful production.

negotiation skills

high level management and organisational skills

problem solving and dispute resolution skills

Linkages to other units

This is a core unit that underpins effective performance in a range of cultural industry units. It is recommended that this unit is delivered/assessed in conjunction with other operational and technical units.

Critical aspects of evidence

The following evidence is critical to the judgement of competence in this unit:

productive and effective interaction with members of the team

the ability to put forward a point of view in an accepting and non judgemental manner

good listening techniques

high level communication and negotiation skills

Method and context of assessment

Assessment may take place on the job, off the job or a combination of both of these. Off the job assessment must be undertaken in a closely simulated workplace environment.

Assessment may incorporate a range of methods to assess performance and the

application of essential underpinning knowledge, and might include:

- practical demonstration (direct observation may need to occur on more than one occasion to establish consistency of performance)
- role play
- case studies
- work samples or simulated workplace activities
- oral questioning/interview
- written or interactive computer based test or quiz
- projects/reports/logbooks
- third party reports and authenticated prior achievements
- portfolios of evidence

Resource requirements

There are no special resource requirements for this unit apart from access to appropriate information.

Key competencies

Level

Collecting, organising and analysing information

2

Communicating ideas and information

3

Planning and organising activities

2

Working with others and in teams

3

Solving problems

3

Using mathematical ideas and techniques

1

Using technology

-

Range Statement

Range of variables

Variable

Scope

Areas of expertise may include:

design
writing the script
camera operation and photography
music and sound
engineering and other technical areas
directing
instructional design
programming
design of interactivity
game design
marketing
finance
graphics
animation
content expertise
cultural protocols

Appropriate personnel to work with may include:

producers
directors
designers
IT personnel
film/television professionals
programmers
information technology specialists
educators
designers
head of department
other technical staff

other specialist creative and administrative
staff

community groups

Unit Sector(s)

Not applicable.

ICPKN315B Apply knowledge and requirements of the multimedia sector

Modification History

Not applicable.

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to work in or deal with the multimedia sector of the printing industry; that is, a working knowledge of related areas and a detailed knowledge of specific multimedia areas. It facilitates technical communication and the ability to work as a team member.

This unit describes the performance outcomes, skills and knowledge required to work in or deal with the multimedia sector of the printing industry; that is, a working knowledge of related areas and a detailed knowledge of specific multimedia areas. It facilitates technical communication and the ability to work as a team member.

Application of the Unit

This unit covers preparation of a person working in or dealing with the multimedia sector of the printing industry and underpins all multimedia units packaged in the ICP30305 Certificate III in Printing and Graphic Arts (Multimedia).

Workers with the ICP30305 Certificate III in Printing and Graphic Arts (Multimedia) are likely to acquire most of this knowledge in the technical units.

This unit covers preparation of a person working in or dealing with the multimedia sector of the printing industry and underpins all multimedia units packaged in the ICP30305 Certificate III in Printing and Graphic Arts (Multimedia).

Workers with the ICP30305 Certificate III in Printing and Graphic Arts (Multimedia) are likely to acquire most of this knowledge in the technical units.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Nil

Nil

Employability Skills Information

This unit contains 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 italicised text is used, further information is detailed in the Required Knowledge and Skills and/or Range Statement. Assessment of performance is to be consistent with the Evidence Guide.

Elements describe the essential outcomes of a unit of competency.

Performance Criteria describe the required performance needed to demonstrate achievement of the Element. Where italicised text is used, further information is detailed in the Required Knowledge and Skills and/or Range Statement. Assessment of performance is to be consistent with the Evidence Guide.

Elements and Performance Criteria

Elements and Performance Criteria

Element	Performance Criteria
1 Apply knowledge of multimedia and the printing industry	1.1 Printing industry terminology and vocabulary are used correctly and accurately 1.2 New technology and new work processes are monitored and implemented when required 1.3 Trends within the printing industry are monitored on an ongoing basis to inform personal work practices 1.4 International standards and open source standards are monitored for new developments and understood and applied where appropriate
2 Apply knowledge of government acts and regulations	2.1 Basic principles and obligations involved in copyright, OHS, environmental protection, access and equity and industrial awards are understood in relation to the workplace 2.2 The basic principles and obligations involved in copyright, OHS, environmental protection, access and equity and industrial awards are followed in

personal work practices

3 Apply knowledge of pre-press processes

- 3.1 The basic principles behind the following pre-press functions: image production (typesetting, scanning, graphic arts camera), image combining (manual and electronic), image output (film, plates, direct to press) and digital workflow are understood and used in the production process where applicable
- 3.2 Different types of images (line, half-tone), digital and their use are understood and used as required
- 3.3 Different output settings eg screen rulings and angles, shapes, and how they affect final printed product are understood and used as required
- 3.4 The different types of output required for different media and printing processes are understood and used in the production process where applicable
- 3.5 Different output devices eg film setters, plate, analogue proofs, digital proofs are understood and used in the production process where applicable

4 Apply detailed knowledge of multimedia techniques and requirements

- 4.1 Designs that are appropriate or inappropriate for multimedia are understood and applied to the development process, where applicable
- 4.2 Criteria for choosing visual, audio or text delivery for presenting information in both passive and interactive products are understood and applied to the development process, where applicable
- 4.3 The differences between various markup languages and their application are understood and applied to a range of suitable development work
- 4.4 The differences between various scripting languages and their application are understood and applied to a range of suitable development work
- 4.5 The criteria for selecting graphic resolution and formats and advantages and limitations of different formats are understood and applied to the development process, where applicable
- 4.6 Criteria for selecting audio formats for multimedia and advantages and limitations of different formats are understood and applied to the development

process, where applicable

- 4.7 The criteria for selecting video formats for multimedia and advantages and limitations of different formats are understood and applied to the development process, where applicable
- 4.8 The criteria for selecting animation formats for multimedia and advantages and limitations of different formats are understood and applied to the development process, where applicable
- 4.9 Multimedia platforms and computer systems requirements for different multimedia products are understood and applied to the development process, where applicable
- 4.1 Different software and operating systems for producing multimedia products are evaluated for different jobs
- 4.1 The features of an effective navigation system for both passive and interactive products are understood and applied to the development process, where applicable
- 4.1 The effect of rapidly changing technology and how multimedia production needs to respond to it are understood
- 5 **Apply knowledge of colour theory**
 - 5.1 Colour theory of additive colours (light), RGB, is understood and used to inform design decisions
 - 5.2 Colour theory of subtractive colours (pigments), CMYK, is understood and used to inform design decisions
 - 5.3 The relationship between ranges of visual colour RGB and CMYK is understood and used to inform design decisions
 - 5.4 The relationship between hue and greyness for tone and colour correction is understood and used to inform design decisions
- 6 **Apply basic knowledge of costs of production**
 - 6.1 The main cost elements (fixed, capital and variable) in multimedia production are understood and used to inform development decisions

- 6.2 The information required to accurately cost jobs and the means of collecting it (manual and computerised) are understood and used to inform development decisions
 - 6.3 Ways of minimising use of materials without affecting the quality of output are understood and used to inform development decisions
 - 6.4 Ways of maximising efficiency of capital and human resources are understood and used to inform development decisions
- 7 **Demonstrate basic knowledge of production management requirements and systems**
 - 7.1 The types of information that need to be exchanged between different stages of production to facilitate production efficiency are understood and used to inform development decisions
 - 7.2 Systems (manual and computerised) that can be used to exchange information are understood and used in the workplace
 - 7.3 The basic principles of efficient production management is understood and used to inform development decisions

Required Skills and Knowledge

Required Knowledge and Skills

The following knowledge must be assessed as part of this unit:

This unit underpins all Certificate III level multimedia units of competency.

The following skills must be assessed as part of this unit:

OHS in relation to operating machinery such as safely switching off machinery before cleaning is started

Communication of ideas and information by accurately using correct printing industry terminology and vocabulary

Collecting, analysing and organising information by monitoring trends within the multimedia sector on an ongoing basis to inform personal work practices

Planning and organising activities by considering and implementing, where required, basic principles of efficient production management

Teamwork when implementing procedures that ensure effective colour management

Mathematical ideas and techniques by understanding and using as required different output settings eg screen rulings and angles, shapes

Problem-solving skills by considering and implementing, where required, ways of maximising efficiency of capital and human resources during different jobs

Use of technology by understanding and applying to the development process, where applicable, multimedia platforms and computer systems requirements for different multimedia products

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

Evidence of the following is essential:

Assessor must be satisfied that sufficient knowledge and understanding of multimedia and related production processes (as outlined in each Element) have been demonstrated so that job procedures, requirements and modifications can be intelligently discussed in some detail with a tradesperson, programmer, technician, production manager or client

Successful assessment of Certificate III level multimedia units of competency

Evidence for assessment may be gathered from assessment of the unit of competency alone or through an integrated assessment activity

Context of and specific resources for assessment

Assessment must ensure:

assessment may take place on the job, off the job or a combination of these. Off the job

assessment must be undertaken in a closely simulated workplace environment

Method of assessment

A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:

direct questioning combined with review of portfolios of evidence and third party workplace reports of on-the-job performance by the candidate.

Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.

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. Italicised wording in the Performance Criteria is detailed below.

Level of knowledge

Knowledge required to intelligently discuss job procedures, requirements and modifications with a tradesperson, programmer, technician, production manager or client

Degree of autonomy

Working in consultation with others

Unit Sector(s)

Not applicable.

Competency field

Holistic Knowledge

Holistic Knowledge

ICPMM263B Access and use the Internet

Modification History

Not applicable.

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to access and use the Internet within the printing and graphic arts industries.

This unit describes the performance outcomes, skills and knowledge required to access and use the Internet within the printing and graphic arts industries.

Application of the Unit

This unit describes the skills needed to access and use the Internet within the printing and graphic arts industry.

This unit describes the skills needed to access and use the Internet within the printing and graphic arts industry.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

This unit may be assessed with a range of other units relating to design and production of a multimedia product.

This unit may be assessed with a range of other units relating to design and production of a multimedia product.

Employability Skills Information

This unit contains 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 italicised text is used, further information is detailed in the Required Knowledge and Skills and/or Range Statement. Assessment of performance is to be consistent with the Evidence Guide.

Elements describe the essential outcomes of a unit of competency.

Performance Criteria describe the required performance needed to demonstrate achievement of the Element. Where italicised text is used, further information is detailed in the Required Knowledge and Skills and/or Range Statement. Assessment of performance is to be consistent with the Evidence Guide.

Elements and Performance Criteria

Elements and Performance Criteria

Element	Performance Criteria
1 Identify and use local resources	1.1 Installed Internet software applications and their purposes are identified
	1.2 Internet software applications are used online and offline
	1.3 Extracting (decompressing) software and virus scanners are used on downloaded files
	1.4 Identify Internet connection and protocols
	1.5 Applications and files are downloaded and installed correctly
	1.6 Potential security risks are identified and avoided
2 Identify and use remote resources	2.1 Websites are navigated to locate required information
	2.2 Files and documents are accessed using the Internet (world wide web) search engines
	2.3 The Internet is browsed to find related sites via links
	2.4 Files are retrieved from an FTP repository
	2.5 Emails are sent, downloaded, read, responded and saved to
	2.6 Files attached to incoming email are retrieved and attached files are sent

2.7 Newsgroups relevant to the industry are accessed

Required Skills and Knowledge

Required Knowledge and Skills

The following knowledge must be assessed as part of this unit:

How to initiate and conclude an Internet connection

If a connection attempt fails, what could be the cause and what do you do?

How do you know if you are still online, and how do you log off?

Appropriate uses of different Internet protocols and data types (WWW, email, etc)

Name TWO WWW search engines.

What is a URL?

Why might you sometimes use email to respond to a newsgroup post?

What is shareware?

In which of these is maintaining (upper/lower) case important: URLs, file names, passwords?

What are "zip" files and why are they used?

What is the difference between Java and JavaScript?

In what ways can you use the Internet to obtain product information and technical support?

Approximately how long would it take to download one megabyte of data using a fast modem?

Privacy and security measures related to on line tasks

What information would you refuse to provide when filling out a form on a web page?

What are cookies?

Why should you not leave the terminal unattended while online?

Which types of files can carry viruses?

Why must you scan for viruses before and after extracting the files from a compressed archive?

Who owns the copyright on the types of data you retrieve?

Information sources

What manuals, safety and other documentation are relevant to this task and where are they kept?

What information is included in these documents?

The following skills must be assessed as part of this unit:

OHS in relation to operating machinery such as safely switching off machinery before cleaning is started

Collecting, analysing and organising information by navigating websites to locate required information

Planning and organising activities by navigating websites to locate required information

Problem-solving skills by extracting files and virus scanning

Use of technology by accessing and using the Internet

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

Evidence of the following is essential:

Access the Internet and retrieve data using WWW and email and newsgroups

Send emails or newsgroup posting with correctly formatted attachments

Perform a search and save the text of a web page to disk

Extract and virus-scan downloaded files

Demonstrate an ability to find and use information relevant to the task from a variety of information sources

Context of and specific resources for assessment

Assessment must ensure:

assessment may take place on the job, off the job or a combination of these. Off the job assessment must be undertaken in a closely

simulated workplace environment

Method of assessment

A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:

direct questioning combined with review of portfolios of evidence and third party workplace reports of on-the-job performance by the candidate.

Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example:

CUFMEM12A Update web pages

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. Italicised wording in the Performance Criteria is detailed below.

Software applications

May include a wide range of programs, some current examples of which may be Eudora, Netscape. Note: these programs are constantly being upgraded and replaced and appropriate up-to-date programs should be selected

Relevant terminology used

May include but not be limited to ISDN, PPP, TCP/IP, URL, Java, JavaScript, HTML, Download, WWW, cookies, zip files and others

Unit Sector(s)

Not applicable.

Competency field

Multimedia

Multimedia

ICPMM321B Capture a digital image

Modification History

Not applicable.

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to use digital camera technology for the production of colour separated images.

This unit describes the performance outcomes, skills and knowledge required to use digital camera technology for the production of colour separated images.

Application of the Unit

This unit requires the individual to use digital camera technology for the production of colour separated images.

This unit requires the individual to use digital camera technology for the production of colour separated images.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Nil

Nil

Employability Skills Information

This unit contains 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 italicised text is used, further information is detailed in the Required Knowledge and Skills and/or Range Statement. Assessment of performance is to be consistent with the Evidence Guide.

Elements describe the essential outcomes of a unit of competency.

Performance Criteria describe the required performance needed to demonstrate achievement of the Element. Where italicised text is used, further information is detailed in the Required Knowledge and Skills and/or Range Statement. Assessment of performance is to be consistent with the Evidence Guide.

Elements and Performance Criteria

Elements and Performance Criteria

Element	Performance Criteria
1 Assess digital camera qualities	1.1 Camera software compatibility with hardware system is assessed and the appropriate software is selected for the job 1.2 Pixel resolution of the camera is matched to the required quality and resolution of outcome 1.3 The RAM capacity of the camera is checked to be appropriate to the number of images required to be captured 1.4 Shutter speed, focal lengths and camera feature modes (eg flash, scrollage, icon menu, close-up, wide angle and telephoto capacity) are assessed suitable for the quality and use of photographic images required 1.5 Lithium batteries are handled and stored according to OHS requirements
2 Set up for image capture	2.1 Camera is set up for image composition according to job specifications 2.2 Lighting is arranged according to job specifications 2.3 Light intensity is set for the correct exposure
3 Preview image	3.1 Tone curves are adjusted according to job specifications 3.2 The neutral balance of the image is arranged and adjusted 3.3 Adjustments to image composition and exposure are made

- 4 **Photograph and upload a digital image**
 - 4.1 The digital camera is loaded and operated according to manufacturer's specifications appropriate to the quality of image to be photographed
 - 4.2 The computer card interface/disk is uploaded onto the relevant computer and the image saved on hard disk
 - 4.3 Photographic image files are created and stored on the computer according to software procedures
 - 4.4 Photographic images are enhanced, cropped and altered electronically to deliver the required image
 - 4.5 Photographic images are checked for fitness of purpose and conformance to the job brief
 - 4.6 Photographic images are assessed fit for the relevant delivery mode (eg print, CD-ROM) and delivered appropriately

Required Skills and Knowledge

Required Knowledge and Skills

The following knowledge must be assessed as part of this unit:

Using a digital camera

What is meant by pixel resolution and how does this affect the resolution of the image?

Why is the RAM capacity of a digital camera relevant?

Why are shutter speed and focal lengths important to check when capturing a digital image?

What are the safety requirements for handling and storing lithium batteries?

Uploading and processing digital images using a computer

How is the data uploaded to a computer from the computer card interface/disk?

What is the process for filing and creating photographic image files on the computer?

What is required to enhance, crop and alter photographic images electronically?

What considerations need to be made to assess a digital photograph suitable for a newspaper, glossy brochure and CD-ROM?

Information sources

What manuals, safety and other documentation are relevant to this task and where are they kept?

What information is included in these documents?

What other sources of information are available?

The following skills must be assessed as part of this unit:

OHS in relation to operating machinery such as safely switching off machinery before cleaning is started

Communication of ideas and information by consulting with supervisors over the processing of digital images

Collecting, analysing and organising information by assessing the suitability of shutter speed, focal lengths and camera feature modes (eg flash, scrollage, icon menu, close-up, wide angle and telephoto capacity) for the photographic image required

Planning and organising activities by planning and coordinating digital image capture sessions

Teamwork when maintaining the production process in association with others

Mathematical ideas and techniques by choosing the correct shutter speed and focal length to capture digital images

Problem-solving skills applied by identifying and correcting problems of image quality

Use of technology applied by using digital camera technology

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

Evidence of the following is essential:

The photographed image meets the quality and look/ feel requirements of the brief. The digital camera functions are used to capture the required image

The underlying skills of capturing a digital image using a digital camera should be

transferable across the associated sectors of the printing industry

Demonstrate an ability to find and use information relevant to the task from a variety of information sources

Assess the capacity of, and operate, a digital camera to upload and process THREE digital images using industry hardware and software to deliver a designated quality of image outcome

Evidence for assessment may be gathered from assessment of the unit of competency alone or through an integrated assessment activity

Context of and specific resources for assessment

Assessment must ensure:

assessment may take place on the job, off the job or a combination of these. Off the job assessment must be undertaken in a closely simulated workplace environment

digital cameras, lighting

Method of assessment

A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:

direct questioning combined with review of portfolios of evidence and third party workplace reports of on-the-job performance by the candidate.

Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.

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. Italicised wording in the Performance Criteria is detailed below.

Degree of autonomy

A digital photographic image is processed in the workplace in consultation with the supervisor to ensure that correct skills and procedures are used

Types of systems

Digital cameras used in the pre-press sector and associated sectors with which a pre-press organisation may be required to work

Lighting

Direct (main) fill in lighting/fill reflector

Unit Sector(s)

Not applicable.

Competency field

Multimedia

Multimedia

ICPMM344B Manipulate and incorporate audio into multimedia presentations

Modification History

Not applicable.

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to edit, combine and incorporate audio into multimedia presentations.

This unit describes the performance outcomes, skills and knowledge required to edit, combine and incorporate audio into multimedia presentations.

Application of the Unit

This unit describes the competency required to edit, combine and incorporate audio into multimedia presentations.

This unit describes the competency required to edit, combine and incorporate audio into multimedia presentations.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Nil

Nil

Employability Skills Information

This unit contains 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 italicised text is used, further information is detailed in the Required Knowledge and Skills and/or Range Statement. Assessment of performance is to be consistent with the Evidence Guide.

Elements describe the essential outcomes of a unit of competency.

Performance Criteria describe the required performance needed to demonstrate achievement of the Element. Where italicised text is used, further information is detailed in the Required Knowledge and Skills and/or Range Statement. Assessment of performance is to be consistent with the Evidence Guide.

Elements and Performance Criteria

Elements and Performance Criteria

Element	Performance Criteria
1 Identify and describe formats of digital audio	1.1 The distinguishing features and uses of analogue and digital audio are determined 1.2 Terms describing audio characteristics (amplitude, sound waves, frequency, mono and stereo) are used correctly 1.3 Contemporary digital audio formats and their application in achieving defined outcomes are identified 1.4 Data rates for major digital sources and their relevance to defined outcomes are determined 1.5 Appropriate methods for saving and producing digital audio outputs are determined for a range of sources and destinations 1.6 Sampling techniques and sources for digital audio appropriate to defined outcomes are determined 1.7 Uses of MIDI technology are determined
2 Use digital audio software	2.1 Appropriate digital audio software is assessed and selected for the job 2.2 Programs are used to edit and manipulate audio according to the job brief
3 Edit digital audio	3.1 Single and multiple audio tracks are edited to achieve a defined outcome

- 3.2 Multiple tracks of digital audio are joined according to job specifications
 - 3.3 Digital effects are employed to modify and integrate digital audio tracks according to job specifications
 - 3.4 Time encoding is applied to single and multiple edited digital audio tracks according to job specifications
 - 3.5 An audio track is inserted into a multimedia production sequence according to job specifications
- 4 **Construct a digital audio track**
 - 4.1 Techniques for hooking sounds are identified
 - 4.2 Defects on sound recordings are eliminated and/or treated
 - 4.3 Special effects and mixing techniques are used on an audio track according to job specifications
 - 4.4 Sequencers are used to create digital audio tracks according to job specifications
 - 4.5 MIDI and sound cards are used to create digital audio according to job specifications
 - 4.6 An audio track is produced using appropriate track construction software and hardware
 - 4.7 Audio tracks are saved in the appropriate file formats

Required Skills and Knowledge

Required Knowledge and Skills

The following knowledge must be assessed as part of this unit:

The principles of analogue and digital audio

What are the distinguishing features of analogue and digital audio?

What is meant by amplitude, sound waves, frequency, mono and stereo?

What are some contemporary digital audio formats?

What data rates apply to selected digital sources?

What is meant by sampling, sampling techniques and sources for sampling digital audio?

What is MIDI technology?

Contemporary digital audio formats

What are the distinguishing features of selected digital audio software?

Methods for saving and producing digital audio outputs

What is an audio frame?

How do you join multiple tracks of digital audio?

What types of digital effects are used to modify and integrate digital audio tracks?

What is the purpose of time encoding?

What is a storybook design?

The principles of editing audio tracks

Why are sequencers used to create digital audio tracks?

What are the purposes of sound cards?

Information sources

What manuals, safety and other documentation are relevant to this task and where are they kept?

What information is included in these documents?

What other sources of information are available?

The following skills must be assessed as part of this unit:

OHS in relation to operating machinery such as safely switching off machinery before cleaning is started

Collecting, analysing and organising information by identifying digital audio formats

Mathematical ideas and techniques by identifying digital audio formats

Problem-solving skills by employing digital effects and modifying and integrating audio tracks

Use of technology by incorporating audio into multimedia presentations

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

Evidence of the following is essential:

Incorporate audio elements into different multimedia sequences, according to job specifications and the Performance Criteria

Incorporate audio elements into at least TWO different multimedia sequences, according to job specifications and the Performance Criteria. There should also be evidence of:

Ability to find and use information relevant to the task from a variety of information sources

Ability to use a range of software suitable for incorporating and manipulating sound

Evidence for assessment may be gathered from assessment of the unit of competency alone or through an integrated assessment activity

Context of and specific resources for assessment

Assessment must ensure:

assessment may take place on the job, off the job or a combination of these. Off the job assessment must be undertaken in a closely simulated workplace environment

Method of assessment

A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:

direct questioning combined with review of portfolios of evidence and third party workplace reports of on-the-job performance

by the candidate.

Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example:

CUFMEM12A Update web pages

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. Italicised wording in the Performance Criteria is detailed below.

Software

May include sound editing software such as Protools and Fairlight. Note: these programs are constantly being upgraded and replaced and appropriate up-to-date programs should be selected

Equipment used

May include digital recorders with/without timecode, analogue recording devices, multi track recorder, stereo recorder, portable mixers, microphones including lavalier or neck, shotgun and directional, special application, radio, stereo, amplifiers, microphone stands, microphone accessories, microphone windscreens, speakers, mixing console/desk, effects rack, tape machines, turntables, CD (compact disc) player, sequence sampler, computer DAT (digital audio tape), mini disc, reel to reel tape recorder, hard disc recorder, DVD (digital versatile disc), sound editing software including Protools and Fairlight, cables and connectors

Source material

May include dialogue, additional dialogue/voice overs, FX (effects), music,

atmosphere, Foley

Audio defects

May include hissing, popping, black holes

Multimedia productions

May include or be included in any aspects or sections of film/video production, educational product, game, promotional product, information product, training product, e-commerce and a range of others

Unit Sector(s)

Not applicable.

Competency field

Multimedia

Multimedia

ICPMM346B Incorporate video into multimedia presentations

Modification History

Not applicable.

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to edit, combine and incorporate video into multimedia presentations.

This unit describes the performance outcomes, skills and knowledge required to edit, combine and incorporate video into multimedia presentations.

Application of the Unit

This unit describes the competency required to edit, combine and incorporate video into multimedia presentations.

This unit describes the competency required to edit, combine and incorporate video into multimedia presentations.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Nil

Nil

Employability Skills Information

This unit contains 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 italicised text is used, further information is detailed in the Required Knowledge and Skills and/or Range Statement. Assessment of performance is to be consistent with the Evidence Guide.

Elements describe the essential outcomes of a unit of competency.

Performance Criteria describe the required performance needed to demonstrate achievement of the Element. Where italicised text is used, further information is detailed in the Required Knowledge and Skills and/or Range Statement. Assessment of performance is to be consistent with the Evidence Guide.

Elements and Performance Criteria

Elements and Performance Criteria

Element	Performance Criteria
1 Identify and describe formats of digital video	1.1 The distinguishing features and uses of a range of digital video software are determined 1.2 Current video software appropriate to a range of given outcomes is selected 1.3 Limiting factors of computer hardware on video production for a specified job are determined 1.4 Differences of image quality and image size required to deliver the desired outcome are determined 1.5 Data input, processing and output relevant to video are explained 1.6 The formats employed to create a given computer video sequence for a specified outcome are analysed
2 Design digital video	2.1 Appropriate digital video software for the job is assessed and selected 2.2 Digital video editing software is used to combine video assets 2.3 Variations in video frame rates are controlled as required for the job to be undertaken 2.4 Time stamping techniques are applied to the video frames as required for the job to be undertaken 2.5 Digital video is saved using the appropriate file techniques
3 Edit digital video	3.1 Single and multiple video tracks are edited to

- achieve a defined outcome
- 3.2 Multiple tracks of digital video are joined according to job specifications
- 3.3 Digital effects are employed to modify and integrate digital video tracks according to job specifications
- 3.4 Time encoding is applied to single and multiple edited digital video tracks according to job specifications
- 3.5 A video track is inserted into a multimedia production sequence according to job specifications
- 4 **Present a digital video sequence**
 - 4.1 Digital video is tested and combined with other digital imaging, sound and/or animation to create a multimedia sequence
 - 4.2 The multimedia sequence including video is saved and presented to the client

Required Skills and Knowledge

Required Knowledge and Skills

The following knowledge must be assessed as part of this unit:

Digital video formats

What are the distinguishing features of a selected video software program?

What are some of the limiting factors of video production on computer?

Why are differences of image quality and image size obtained?

Contemporary video software

What is involved in combining given video assets?

Describe the features of and differences between TWO current video software packages.

Principles of video production

How are variations in video frame rates controlled?

Why are time stamping techniques applied to video frames?

The digital medium for video

What needs to be considered when combining digital video with other digital imaging, sound and/or animation to create a multimedia sequence?

Information sources

What manuals, safety and other documentation are relevant to this task and where are they kept?

What information is included in these documents?

What other sources of information are available?

The following skills must be assessed as part of this unit:

OHS in relation to operating machinery such as safely switching off machinery before cleaning is started

Collecting, analysing and organising information by analysing formats to create a video sequence

Planning and organising activities by determining limiting factors of computer hardware

Mathematical ideas and techniques by determining differences of image quality and image size

Problem-solving skills by determining limiting factors of computer hardware

Use of technology by incorporating video into multimedia presentations

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

Evidence of the following is essential:

Design, compile, edit and test multimedia sequences incorporating video, according to job specifications and the Performance Criteria

Design, compile, edit and test at least TWO multimedia sequences incorporating video, according to job specifications and the

Performance Criteria

Evidence for assessment may be gathered from assessment of the unit of competency alone or through an integrated assessment activity

Context of and specific resources for assessment

Assessment must ensure:

assessment may take place on the job, off the job or a combination of these. Off the job assessment must be undertaken in a closely simulated workplace environment

Method of assessment

A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:

direct questioning combined with review of portfolios of evidence and third party workplace reports of on-the-job performance by the candidate.

Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example:

CUFMEM06A Design a multimedia product

CUFMEM07A Apply principles of visual design and communication to the development of a multimedia product

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. Italicised wording in the Performance Criteria is detailed below.

Multimedia products or presentations

May include educational game, promotional

	information, training, e-commerce and a range of others
Industry standard software	May include a wide range of current programs examples of which are Adobe Premier, QuickTime, Media 100. Note: these programs are constantly being upgraded and replaced and appropriate up-to-date programs should be selected
Digital imaging	May include titles/text, graphic images, 2D and 3D animation, 3D modelling, opticals, transitions such as dissolves, fade ins, fade outs, supers, subtitles, special effects
Sound	May include sound effects, music, atmospherics, dialogue, additional dialogue, eg re-recorded and narration
Documentation	May be computer-generated, manually written, scripts, production schedules, manufacturer's specifications/instructions, contracts, edit decision lists (EDLs), list of sequences with relevant shot numbers, assembly order , marked-up scripts, marked-up transcripts, sound sheets including timecode log sheets for location sound recordings, wild line and sound effects log sheets
Visual effects	May include keyers to combine, DVEs to move and distort, colour corrections to modify, texture generation to add blur, trackers to follow parts of the picture, production of titles, production of optical effects, graphic images, opticals, transitions such as dissolves, fade ins, fade outs, supers, subtitles, special effects

Video format	May include VHS, SVHS, DVC, Umatic, SP, Beta-cam, Digital Beta-cam
Editing equipment	May include computer hardware, non-linear digital editing and graphics software programs, monitors, keyboard and mouse, external hard drive, external disk drive, additional computer hardware, source and record machines, computer software programs, graphics computer program, digital video effects system (DVE), digital disk recorder (DDR), video transfer recorder (VTR)
Editing consumable materials	May include computer disks, paper for hardcopy, compact discs
Memory	May include disk, hard drive - internal, external

Unit Sector(s)

Not applicable.

Competency field

Multimedia

Multimedia

ICPMM581B Manage multimedia production

Modification History

Not applicable.

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to manage the multimedia production cycle.

This unit describes the performance outcomes, skills and knowledge required to manage the multimedia production cycle.

Application of the Unit

This unit covers the skills required to manage the multimedia production cycle.

This unit covers the skills required to manage the multimedia production cycle.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Nil

Nil

Employability Skills Information

This unit contains 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 italicised text is used, further information is detailed in the Required Knowledge and Skills and/or Range Statement. Assessment of performance is to be consistent with the Evidence Guide.

Elements describe the essential outcomes of a unit of competency.

Performance Criteria describe the required performance needed to demonstrate achievement of the Element. Where italicised text is used, further information is detailed in the Required Knowledge and Skills and/or Range Statement. Assessment of performance is to be consistent with the Evidence Guide.

Elements and Performance Criteria

Elements and Performance Criteria

Element	Performance Criteria
1 Design a production cycle for a multimedia product	1.1 Management components of the production cycle are identified and coordinated to achieve a defined outcome 1.2 Concepts for multimedia integration are posited and their sequence planned 1.3 Prototype sequences are designed and tested according to job specifications 1.4 Multimedia production is undertaken that conforms to product specifications 1.5 The final product is tested for conformance to specifications and released to client
2 Define the attributes of interactive multimedia products	2.1 The attributes of hypermedia are defined and incorporated into a given production 2.2 The attributes of hypertext are defined and incorporated into a given production 2.3 Linear and interactive information structures are distinguished and incorporated into a given production
3 Manage research	3.1 Client specifications are researched and checked with client to deliver the desired outcome 3.2 Files, documents, images and footage relevant to project requirements are sourced and their functions documented and sequenced 3.3 Liaison with clients is undertaken, records of interviews kept, and specifications monitored within the management of the project to achieve the required outcomes

- 3.4 Files, documents, images and footage relevant to specific projects are filed for future reference with regard for client confidentiality
- 4 **Manage the multimedia process**
 - 4.1 The order of process procedure is determined and documented to deliver the desired outcome
 - 4.2 Costs are determined, checked with client, and documented to deliver the desired outcome
 - 4.3 Quality outcomes are determined and documented and a quality system is established to monitor the quality of the product
 - 4.4 The product outcome is produced fit for the purpose
 - 4.5 The product is tested against specifications prior to client release
 - 4.6 Endorsement of the product by the client is gained to ensure specifications have been fulfilled

Required Skills and Knowledge

Required Knowledge and Skills

The following knowledge must be assessed as part of this unit:

Multimedia production cycle

What are the management components of the production cycle?

What considerations are involved in multimedia integration?

What is involved in designing and testing prototype sequences?

What is involved in multimedia product testing?

Interactive multimedia product attributes

What are the attributes of hypermedia?

What are the attributes of hypertext?

What is the difference between linear and interactive information structures?

The multimedia production process

What are the quality considerations of multimedia production?

Managing research

How are files, documents, images and footage relevant to project requirements sourced?

What steps are necessary to ensure good liaison with clients?

The following skills must be assessed as part of this unit:

OHS in relation to operating machinery such as safely switching off machinery before cleaning is started

Communication of ideas and information by liaising with clients

Collecting, analysing and organising information by researching client specifications

Planning and organising activities by identifying the production cycle

Teamwork when liaising with clients

Mathematical ideas and techniques by maintaining costs within budget

Problem-solving skills by testing product to ensure it meets specifications

Use of technology by working on a multimedia product

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

Evidence of the following is essential:

Establish, monitor and evaluate a production cycle including the project management of all technical aspects of the project

Demonstrate an ability to find and use information relevant to the task from a variety of information sources

Produce a portfolio covering a period of THREE months' information on the management of TWO multimedia projects that demonstrates establishing, monitoring and evaluating a production cycle including using attributes of specific multimedia

interactivity. The portfolio should include material that covers defined components of a production cycle, concepts for multimedia integration, prototype sequences and attributes, product testing and quality considerations

Evidence for assessment may be gathered from assessment of the unit of competency alone or through an integrated assessment activity

Context of and specific resources for assessment

Assessment must ensure:

evidence for assessment may be gathered from assessment of the unit of competency alone or through an integrated assessment activity

Method of assessment

A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:

direct questioning combined with review of portfolios of evidence and third party workplace reports of on-the-job performance by the candidate.

Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.

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. Italicised wording in the Performance Criteria is detailed below.

Degree of autonomy

Managing multimedia production is

undertaken in the workplace working independently and being able to cope with contingencies

Types of systems

Multimedia systems used in the pre-press sector and associated sectors with which a pre-press organisation may be required to work

Unit Sector(s)

Not applicable.

Competency field

Multimedia

Multimedia

ICPMM582B Manage multimedia projects

Modification History

Not applicable.

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to manage multimedia projects.

This unit describes the performance outcomes, skills and knowledge required to manage multimedia projects.

Application of the Unit

This unit covers the management of multimedia projects.

This unit covers the management of multimedia projects.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Nil

Nil

Employability Skills Information

This unit contains 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 italicised text is used, further information is detailed in the Required Knowledge and Skills and/or Range Statement. Assessment of performance is to be consistent with the Evidence Guide.

Elements describe the essential outcomes of a unit of competency.

Performance Criteria describe the required performance needed to demonstrate achievement of the Element. Where italicised text is used, further information is detailed in the Required Knowledge and Skills and/or Range Statement. Assessment of performance is to be consistent with the Evidence Guide.

Elements and Performance Criteria

Elements and Performance Criteria

Element	Performance Criteria
1 Develop a project plan	1.1 The elements of the project plan are identified according to the principles of project management 1.2 Planning tools are identified for application to the project 1.3 Time and budget factors are identified and incorporated into the plan
2 Manage resources and time	2.1 Hardware resources relevant to specific multimedia tasks are identified, evaluated and incorporated to achieve the required outcome 2.2 Time management is integrated into project planning and monitoring 2.3 Human resources are incorporated and supported within the project framework to achieve the required outcome 2.4 Teamwork elements are identified and developed to achieve the required outcome
3 Identify legal issues	3.1 Copyright principles and conventions relevant to digital data are identified and legal precedents noted 3.2 The copyright issues relating to multimedia authoring, digital imaging and digital sound are explained and strategies are devised to account for relevant contingencies 3.3 Copyright ownership of multimedia authoring, digital imaging and digital sound is established prior to commencing a brief and relevant documentation verified

- 3.4 Applications of law with reference to multimedia product warranties, software licences, consultants, sponsors and distribution are determined appropriate for the job to be undertaken and relevant to the industry sector
- 4 **Manage research**
 - 4.1 Files, documents, images and footage relevant to project requirements are sourced and their functions documented and sequenced
 - 4.2 Liaison with clients is undertaken, records of interviews kept, and specifications monitored within the management of the project to achieve the required outcomes
 - 4.3 Files, documents, images and footage relevant to specific projects are filed for future reference with regard for client confidentiality
- 5 **Determine and manage multimedia budgets**
 - 5.1 Estimation models of costs are identified and applied to a range of multimedia products
 - 5.2 Budget plans are established and checked against estimations to deliver accurate costings
 - 5.3 Tendering processes and costs are determined and implemented to deliver the required outcome within designated time frames and costs
 - 5.4 Project costs are determined, documented and monitored continuously to comply with business commitments and legal obligations
 - 5.5 Business transactions are undertaken ethically and according to law
 - 5.6 Multimedia project budget estimates and expenditure are contrasted and documented to assist in future business dealings
- 6 **Manage project outcomes**
 - 6.1 Multimedia inputs are combined to form a definitive master
 - 6.2 The master product is duplicated and distributed according to client specifications
 - 6.3 The project outcomes are refined to meet quality standards

Required Skills and Knowledge

Required Knowledge and Skills

The following knowledge must be assessed as part of this unit:

Developing a project plan

What elements need to be included in a multimedia project plan?

How are time and budget factors incorporated into a project plan?

Managing resources and time

What hardware resources are relevant to specific multimedia tasks?

How is time management integrated into project planning and monitoring?

How are human resources incorporated and supported within the project framework?

What teamwork elements should be implemented in a project plan?

Managing research

How are files, documents, images and footage relevant to project requirements sourced?

What steps are necessary to ensure good liaison with clients?

Managing project outcomes

How is the multimedia master created?

How is the master duplicated and distributed?

Legal issues

What legal issues apply to multimedia production?

What copyright principles and conventions are relevant to digital data?

What are the copyright issues relating to multimedia authoring, digital imaging and digital sound?

Who owns copyright of multimedia authoring, digital imaging and digital sound?

What laws apply to multimedia product warranties, software licences, consultants, sponsors and distribution?

Multimedia budgets

What estimation models might be used in multimedia production?

What constitutes a budget plan?

What is involved in tendering processes?

How are project costs calculated?

The following skills must be assessed as part of this unit:

OHS in relation to operating machinery such as safely switching off machinery before cleaning is started

Communication of ideas and information by explaining copyright issues

Collecting, analysing and organising information by identifying legal issues

Planning and organising activities by developing a project plan

Teamwork when liaising with clients and identifying teamwork elements

Mathematical ideas and techniques by determining a budget

Problem-solving skills by ensuring projects meet client specifications

Use of technology by working on multimedia projects

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

Evidence of the following is essential:

Manage a multimedia project including establishing, monitoring and evaluating a production cycle and using attributes of specific multimedia interactivity

Demonstrate an ability to find and use information relevant to the task from a variety of information sources

Produce a portfolio that demonstrates multimedia project management including establishing, monitoring and evaluating a production cycle and using attributes of specific multimedia interactivity over TWO different completed projects. The portfolio should include material that covers planning tools, time and budget factors, resource management, time management, human resources, teamwork, research management

and a multimedia master

Evidence for assessment may be gathered from assessment of the unit of competency alone or through an integrated assessment activity

Context of and specific resources for assessment

Assessment must ensure:

assessment may take place on the job, off the job or a combination of these. Off the job assessment must be undertaken in a closely simulated workplace environment

Method of assessment

A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:

direct questioning combined with review of portfolios of evidence and third party workplace reports of on-the-job performance by the candidate.

Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.

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. Italicised wording in the Performance Criteria is detailed below.

Degree of autonomy

Managing multimedia projects is undertaken in the workplace working independently and being able to cope with contingencies

Types of systems

Multimedia systems used in the pre-press sector and associated sectors with which a pre-press organisation may be required to work

Unit Sector(s)

Not applicable.

Competency field

Multimedia

Multimedia

ICPPP311B Develop a detailed design concept

Modification History

Not applicable.

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to develop a complex graphic design.

This unit describes the performance outcomes, skills and knowledge required to develop a complex graphic design.

Application of the Unit

The unit applies to operators taking some responsibility for a design brief.

This unit outlines the skills required to render a graphic design based on the design brief and to produce a finished complex artwork.

The unit applies to operators taking some responsibility for a design brief.

This unit outlines the skills required to render a graphic design based on the design brief and to produce a finished complex artwork.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

ICPPP211B Develop a basic design concept

ICPPP211B Develop a basic design concept

Employability Skills Information

This unit contains 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 italicised text is used, further information is detailed in the Required Knowledge and Skills and/or Range Statement. Assessment of performance is to be consistent with the Evidence Guide.

Elements describe the essential outcomes of a unit of competency.

Performance Criteria describe the required performance needed to demonstrate achievement of the Element. Where italicised text is used, further information is detailed in the Required Knowledge and Skills and/or Range Statement. Assessment of performance is to be consistent with the Evidence Guide.

Elements and Performance Criteria

Elements and Performance Criteria

Element	Performance Criteria
1 Determine brief specifications	1.1 Communicate with the client to confirm the requirements of the brief as required
	1.2 Job details are accurately documented according to enterprise policies and procedures
2 Render a graphic design	2.1 The client's requirements are translated into a design concept that accords with the brief
	2.2 Different graphic design ideas/concepts are detailed and the potential of each is assessed according to the brief
	2.3 A unique graphic design concept is rendered electronically or manually to conform to the brief
	2.4 The rendered graphic design is assessed for printing feasibility according to the requirements of the brief
	2.5 A visual is produced showing position and fit of design elements to document the design layout
3 Produce a dummy	3.1 A range of visual interpretations of the brief are made to present options to the client
	3.2 Text and images are graphically presented to conform to the grid layout
	3.3 Basic imposition is calculated to suit printing and binding processes

- 3.4 A dummy is produced for marking-up copy and to obtain client feedback about the suitability of design
- 4 **Produce complex finished artwork**
 - 4.1 A design concept is structured step by step to conform to the brief and to fit a grid format
 - 4.2 Appropriate type styles are selected to conform to the client brief and the printing substrate
 - 4.3 Line reproduction quality is assessed to effect the standard of print reproduction required by the client brief
 - 4.4 Images are selected to conform to the client brief and the end use
 - 4.5 Colours are selected and combined effectively using overlays to conform to the client brief and the end use

Required Skills and Knowledge

REQUIRED KNOWLEDGE AND SKILLS

The following knowledge must be assessed as part of this unit:

Technical requirements for preparing art for printing or electronic output

What are the parameters of the job for which this artwork is being prepared?

What instruments, materials and computer equipment will be used in producing this artwork?

How is colour used for effect and harmony?

What is the colour composition of white light?

Describe colour wheel elements and the use of the Pantone Matching System.

What effect does the selection of a print or electronic output system have on the preparation of artwork?

Basic design principles and use of instruments, materials and CAD programs

Describe the method for making or revising a layout.

What basic design principles are used in the preparation of layouts?

How do you vary format, size, style and preparation of artwork when using computer

equipment for layouts/colour roughs?

What is a CAD program and how could such a program aid the work of a designer?

Use of camera, scanner and computer equipment

What OHS concerns are there when using cameras or computers?

Describe the production of bromides using a process camera and contact frame.

Describe the diffusion transfer process for producing bromides.

What is your understanding of the operation of mono laser printers and resolution output?

How do you calculate proportional enlargement and reduction?

Describe the process of drawing line, borders and corners using drawing instruments or a computer or digitiser.

Evaluating artwork and its suitability for printing

How do you recognise and rectify faults on artwork supplied by the client?

How do you determine the effect of colour breakdown and sequence on printing operations and printed jobs?

What method do you use for checking size and scale of reproduction?

How do you assess whether artwork matches customer's specifications as outlined on the job sheet?

What methods do you use for assessing the quality and suitability of externally produced artwork?

What problems can be caused by using sub-standard and unsuitable artwork?

The following skills must be assessed as part of this unit:

OHS in relation to operating machinery such as safely switching off machinery before cleaning is started

Communication of ideas and information by determining exactly what the client wants from brief and subsequent discussion

Collecting, analysing and organising information by producing and collecting elements according to the initial conceptual ideas

Planning and organising activities by coordinating job sequence so that materials arrive, are processed and can be checked efficiently

Teamwork when ensuring that designers, printers and clients all know what they need to do and when

Mathematical ideas and techniques by calculating costs and enlargement/reduction factors

Problem-solving skills by coping with discrepancies between the brief and what is possible

Use of technology by using appropriate software to create the design and ensuring files are saved in the required format

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

Evidence of the following is essential:

Client requirements are accurately reflected in the design concept. The final design combines type, lines, tones, colours and images in a manner that meets the design brief and reproduction requirements

The underlying skill of designing a detailed layout to conform to brief specifications should be transferable across the design and pre-press sectors. It is important that the substrate for reproduction is identified and that the competencies be demonstrated with a clear identification of printing processes

Demonstrate an ability to find and use information relevant to the task from a variety of information sources

Prepare TWO sets of design, colour roughs and finished artwork which incorporate line and tone work according to specifications of the client brief, enterprise standards and listed performance criteria

Context of and specific resources for assessment

Assessment must ensure:

assessment may take place on the job, off the job or a combination of these. Off the job assessment must be undertaken in a closely simulated workplace environment

it is expected that special purpose tools, equipment and industry software packages will be used where appropriate

Method of assessment

A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:

direct questioning combined with review of portfolios of evidence and third party workplace reports of on-the-job performance by the candidate.

Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.

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. Italicised wording in the Performance Criteria is detailed below.

Complexity of process

Artwork is complex and may involve numerous elements

Job details

Include the number of colours, the media of the final product, the purpose of the design, materials

Images

Photographs, illustrations, format graphics, text

Degree of autonomy

Initiative, judgement and working in consultation with others

Enterprise policies and procedures

Tasks must be performed according to enterprise procedures

Quality standards

Should meet client requirements and enterprise and industry standards

Unit Sector(s)

Not applicable.

Competency field

Pre-press

Pre-press

ICPPP325B Create graphics using a graphics application

Modification History

Not applicable.

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to develop graphics incorporating a range of features for cross-media publishing based on a client brief using a high-end application.

This unit describes the performance outcomes, skills and knowledge required to develop graphics incorporating a range of features for cross-media publishing based on a client brief using a high-end application.

Application of the Unit

For this unit the knowledge and skills cover selecting, adapting and transferring skills and knowledge to new environments and providing technical advice and some leadership in resolution of specific problems. This will be applied across a range of roles in a variety of contexts with some complexity in the extent and choice of options available.

For this unit the knowledge and skills cover selecting, adapting and transferring skills and knowledge to new environments and providing technical advice and some leadership in resolution of specific problems. This will be applied across a range of roles in a variety of contexts with some complexity in the extent and choice of options available.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

ICPPP225B Produce graphics using a graphics application

ICPPP225B Produce graphics using a graphics application

Employability Skills Information

This unit contains 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 italicised text is used, further information is detailed in the Required Knowledge and Skills and/or Range Statement. Assessment of performance is to be consistent with the Evidence Guide.

Elements describe the essential outcomes of a unit of competency.

Performance Criteria describe the required performance needed to demonstrate achievement of the Element. Where italicised text is used, further information is detailed in the Required Knowledge and Skills and/or Range Statement. Assessment of performance is to be consistent with the Evidence Guide.

Elements and Performance Criteria

Elements and Performance Criteria

Element	Performance Criteria
1 Balance image quality and file size	1.1 Graphics files are opened and design brief requirements are confirmed 1.2 Graphics are repeated efficiently using a symbol or stamp to reduce file size 1.3 Slices are created from objects, layers or groups and updated as required 1.4 Type anti-aliasing is applied selectively to keep small text easy to read 1.5 Tasks are automated wherever possible and where necessary scripts are used for automation
2 Manipulate objects	2.1 Objects and text are manipulated and edited as required 2.2 Complex shapes are created by combining shapes into compounds and if required compounds are edited
3 Import images	3.1 Bitmap images are embedded and/or linked in the file 3.2 Placed Bitmaps are modified and/or duplicated depending on design requirements

- 3.3 Bitmaps are masked and/or an opacity mask is added
 - 3.4 Layered file is exported to image editing program for editing
- 4 **Develop variable templates**
 - 4.1 Based on the design brief, objects are defined within the template as variables
 - 4.2 An automated script or an image server is used to ensure variations, using data stored in any ODBC-compliant source
 - 4.3 The template variables are tested to ensure correct operation
- 5 **Colour separate artwork**
 - 5.1 The correct format for the colour separation is determined by the requirements of the pre-press workflow system
 - 5.2 Command preferences are set to correct preferences for print quality and process
 - 5.3 Based on printer feedback the colour separation options are set according to print requirements of the design brief
 - 5.4 Process and spot colours are combined if required
 - 5.5 A screen frequency value appropriate for the print quality is selected and colour separation preferences are saved
 - 5.6 Spreads and chokes traps are created to avoid mis-registration
 - 5.7 The overlapping and overprint of objects are defined
 - 5.8 A proof is created and the separations checked, any required editing is completed and the file is saved
- 6 **Prepare for final media**
 - 6.1 Metadata tags are embedded to catalogue, organise and retrieve artwork
 - 6.2 For cross-media publishing purposes web-safe colours are selected
 - 6.3 File formats are chosen to best represent artwork

styles

- 6.4 Objects are linked to create an image map that meets design requirements
- 6.5 Objects are layered to create animation frames and exported for animation set up
- 6.6 Compression options are selected that keep the image quality high and the file size low
- 6.7 Export options are set to the best settings for the final media and the file is saved and exported

Required Skills and Knowledge

REQUIRED KNOWLEDGE AND SKILLS

The following knowledge must be assessed as part of this unit:

Image formats (SWF, SVG, GIF, JPEG, PNG)

JavaScript, AppleScript or Microsoft Visual Basic

Text and formatting

Drawing shapes

Manipulating images

Design principles

Profiles

Colour management

The following skills must be assessed as part of this unit:

OHS in relation to operating machinery such as safely switching off machinery before cleaning is started

Communication of ideas and information by embedding metadata tags

Collecting, analysing and organising information by linking objects to create an image map that meets design requirements

Planning and organising activities by automating tasks wherever possible and using scripts for automation

Teamwork when maintaining the production process in association with others

Mathematical ideas and techniques by selecting a screen frequency value appropriate for the print quality

Problem-solving skills by creating complex shapes and editing them

Use of technology by creating graphics using a graphics application

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

Evidence of the following is essential:

Developing graphics incorporating a range of features for cross-media publishing based on a client brief using a high-end application

Demonstrate an ability to find and use information relevant to the task from a variety of information sources

For valid and reliable assessment of this unit, evidence should be gathered over a period of time through a range of methods for assessment to indicate consistent performance

Evidence for assessment may be gathered from assessment of the unit of competency alone or through an integrated assessment activity

Context of and specific resources for assessment

Assessment must ensure:

assessment may take place on the job, off the job or a combination of these. Off the job assessment must be undertaken in a closely simulated workplace environment

relevant hardware and software

Method of assessment

A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:

direct questioning combined with review of portfolios of evidence and third party workplace reports of on-the-job performance by the candidate.

Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.

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. Italicised wording in the Performance Criteria is detailed below.

High-end application	Adobe Illustrator, CorelDRAW, Freehand
Tasks	Batch processing and creating variations of similar designs
Manipulated	Bend, stretch, twist, warping, liquefy
Command preferences	RGB, CMYK, colour management, proof options, Document Information subjects
Colour separation options	Process colour, spot colour, halftone, resolution, bleed, printer marks

Colours	CMYK colours, Spot colours, Registration colours, PMS
Edited	Transparency, gradients, strokes, custom colours using CMYK sliders
Objects	Predefined shapes, drawn objects, curved segments, lines
Formatting	Font, leading, paragraph alignment, character size, columns of type, text flow
Appearance attributes	Fills, strokes, effects, blending modes, transparency
Properties	Are appearance attributes such as above
Effects	Glow, textures, opacity, blur
Elements	Layers, fine lines, blending, feathering

Unit Sector(s)

Not applicable.

Competency field

Pre-press

Pre-press

ICPPP411B Undertake a complex design brief

Modification History

Not applicable.

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to undertake advanced graphic design from the negotiation of design briefs through to the production of complex finished artwork.

This unit describes the performance outcomes, skills and knowledge required to undertake advanced graphic design from the negotiation of design briefs through to the production of complex finished artwork.

Application of the Unit

This unit requires an individual to negotiate a design brief, plan the design process and produce a complex design that meets the design brief and production and quality requirements. The individual will work independently and take responsibility for fulfilment of the brief.

This unit requires an individual to negotiate a design brief, plan the design process and produce a complex design that meets the design brief and production and quality requirements. The individual will work independently and take responsibility for fulfilment of the brief.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

ICPPP311B Develop a detailed design concept

ICPPP311B Develop a detailed design concept

Employability Skills Information

This unit contains 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 italicised text is used, further information is detailed in the Required Knowledge and Skills and/or Range Statement. Assessment of performance is to be consistent with the Evidence Guide.

Elements describe the essential outcomes of a unit of competency.

Performance Criteria describe the required performance needed to demonstrate achievement of the Element. Where italicised text is used, further information is detailed in the Required Knowledge and Skills and/or Range Statement. Assessment of performance is to be consistent with the Evidence Guide.

Elements and Performance Criteria

Elements and Performance Criteria

Element	Performance Criteria
1 Negotiate a complex design contract	1.1 Communication with the client results in the development of a complex design brief and client agreement is secured
	1.2 Job analysis and research are undertaken to source cost-efficient design production procedures
	1.3 Possible design options are analysed to meet optional printing processes and substrates
	1.4 Individual design stages of the brief are timed and costed to determine accurate parameters of cost
	1.5 A quotation is prepared using accurate estimates to communicate to the client the fees required to undertake the brief
	1.6 Client approval to proceed is obtained
2 Plan the design process	2.1 The appropriate production processes are planned and scheduled to meet the specifications of the brief for the printing substrate
	2.2 Materials are sourced and ordered to conform to the requirements of the brief
	2.3 Design team members are briefed and work roles allocated to facilitate the orderliness and timeliness

- of the design process
- 3 Render a complex graphic design**
 - 3.1 A complex graphic design concept is rendered electronically or manually to conform to the brief
 - 3.2 Adjustments or recommendations are made to enhance the design according to the brief in consultation with the client
 - 3.3 The production processes of the design concept for colour, production run, substrates and costs are assessed according to the requirements of the brief
 - 3.4 The specifications for reproducing the finished artwork are annotated so as to define specified printing processes and substrates
 - 4 Ensure feasibility of production**
 - 4.1 Type options are checked to meet specified printing processes and substrates
 - 4.2 The reproduction feasibility of multiple colour vignettes is analysed to meet specified printing processes and substrates
 - 4.3 Line and tone are combined and dot complexity of photography is analysed to meet specified printing processes and substrates
 - 4.4 The feasibility of complex imposition and folds are calculated to meet specified printing processes and substrates
 - 4.5 Foils and embossing are checked to meet specified printing processes and substrates
 - 5 Solve technical problems**
 - 5.1 Materials and/or format are reviewed to ensure the most suitable are selected and therefore do not create problems
 - 5.2 Technical problems are resolved by re-design or amendment of the brief in consultation with the client to acceptable standards
 - 6 Ensure quality output**
 - 6.1 Standards for reproduction are documented to form a reference bank for the design process
 - 6.2 Design solutions are filed and stored ready for retrieval according to enterprise procedures
 - 6.3 Internal performance standards are evaluated to

identify potential reforms for future enterprise procedures

- 6.4 Future actions are determined to incorporate accurate cost and time analyses into future briefs

Required Skills and Knowledge

REQUIRED KNOWLEDGE AND SKILLS

The following knowledge must be assessed as part of this unit:

Relevant printing processes and electronic media

What is the effect of the design brief upon the selection of a printing process?

Describe in detail the different design requirements for THREE printing processes, operations or electronic media.

Design and colour theory

What factors have you considered when selecting appropriate colours for this job?

How does the choice of colours utilised affect the mood of a targeted consumer?

Typography

What procedures have you implemented to produce a special effect?

The selection of type face design must be appropriate to the intended product. Explain this concept.

Chemical and reproduction nature of substrates

What factors have you considered when selecting the appropriate printing substrate for this job?

What effects do different inks and substrates have on design?

What problems may arise when running an image across a double page spread?

Technical problem solving

What steps would you take to overcome the problem of finger marks on dark solids?

What common technical problems occur when a design is printed and how can they be resolved?

Evaluating artwork

How do you recognise and rectify faults on artwork supplied by the client?

How do you determine the effect of colour breakdown and sequence on printing operations and printed jobs?

How do you assess whether artwork matches customer's specifications as outlined on the job sheet?

What methods do you use for assessing the quality and suitability of externally produced artwork?

What problems can be caused by using sub-standard and unsuitable artwork?

Costing

What design factors affect the cost of a printed job?

How do you ensure that a design can be reproduced within budget?

Information sources

What manuals, safety and other documentation are relevant to this task and where are they kept?

What information is included in these documents?

What other sources of information are available?

The following skills must be assessed as part of this unit:

OHS in relation to operating machinery such as safely switching off machinery before cleaning is started

Communication of ideas and information by determining exactly what the client wants from the brief and subsequent discussion

Collecting, analysing and organising information by balancing and matching client demands with requirements for reproduction and costs

Planning and organising activities by coordinating job sequence so that materials arrive, are processed and can be checked efficiently

Teamwork when ensuring that designers, printers and clients all know what they need to do and when

Mathematical ideas and techniques by calculating costs and determining enlargement/reduction factors

Problem-solving skills by coping with discrepancies between the brief and what is possible

Use of technology by using appropriate software to create the design and ensuring files are saved in the required format

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

Evidence of the following is essential:

Developing an agreed clear design brief and preparing a quotation. Rendering a complex design taking into account the design brief and quotation. Meeting the design reproduction and end user requirements

The underlying skill of solving complex technical problems of layout to conform to brief specifications should be transferable across the design and pre-press sectors. It is important that the substrate for reproduction is identified and that the competencies be demonstrated with a clear identification of printing processes

Demonstrate an ability to find and use information relevant to the task from a variety of information sources

Produce finished art from a complex design brief. Provide evidence that each stage from initial negotiations to completion has been carried out satisfactorily

Context of and specific resources for assessment

Assessment must ensure:

assessment may take place on the job, off the job or a combination of these. Off the job assessment must be undertaken in a closely simulated workplace environment

it is expected that special purpose tools, equipment and industry software packages will be used where appropriate

Method of assessment

A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:

direct questioning combined with review of portfolios of evidence and third party

workplace reports of on-the-job performance by the candidate.

Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.

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. Italicised wording in the Performance Criteria is detailed below.

Design tools	A range of manual equipment or hardware and design software applications
Clients	Internal or external clients
Costed	Hourly rates, material costs and any other factor contributing to job costs
Applications	Design can be specific to publishing, consultancy, advertising or packaging
Complex graphic design	Complex refers to intricate and detailed design (line and tones) and may include difficult vignettes, tone separations, colour reproductions and embossing
Quality standards	Should meet client requirements and enterprise and industry standards

Degree of autonomy

Working independently and taking
responsibility for fulfilment of the brief

Unit Sector(s)

Not applicable.

Competency field

Pre-press

Pre-press

ICTCC121A Use an enterprise information system

Modification History

Not applicable.

Unit Descriptor

Field: Technology

This unit applies to the use of an enterprise information system to obtain and record customer information. It addresses the use of a single information system while in contact with the customer.

This unit is based on unit ICTTC202A in the ICT97 training package.

Prerequisite units: ICTCC120

Equivalent units: Nil

Field: Technology

This unit applies to the use of an enterprise information system to obtain and record customer information. It addresses the use of a single information system while in contact with the customer.

This unit is based on unit ICTTC202A in the ICT97 training package.

Prerequisite units: ICTCC120

Equivalent units: Nil

Application of the Unit

Not applicable.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Not applicable.

Elements and Performance Criteria Pre-Content

Not applicable.

Elements and Performance Criteria

Elements and Performance Criteria

Element	Performance Criteria
1 Locate and interpret information for a customer inquiry	1.1 Log on to enterprise information system efficiently 1.2 Analyse customer inquiry and plan to obtain the required information 1.3 Identify sources of information within enterprise system 1.4 Locate appropriate system screens efficiently 1.5 Use appropriate codes to locate information 1.6 Access information from other sources as necessary. 1.7 Interpret information obtained to meet customer requirements 1.8 Follow enterprise procedures to satisfy customer inquiry 1.9 Observe legislation, codes, regulations and standards throughout transaction
2 Record information for a customer transaction	2.1 Access appropriate screen to initiate a transaction 2.2 Enter all relevant information required for the transaction 2.3 Enter appropriate commands to complete the transaction 2.4 Information and commands are entered efficiently and accurately 2.5 Check transactions for accuracy/errors before release 2.6 Observe legislation, codes, regulations and

standards throughout transaction

- 3 Use help systems
 - 3.1 Identify sources of help for information systems problems or issues
 - 3.2 The identified source/s of help are accessed to resolve problems/issues.

Required Skills and Knowledge

Not applicable.

Evidence Guide

Assessment location and resources

Assessment will occur in an operational customer contact centre using customer contact technologies and information technology or a simulated contact centre with similar features.

Critical evidence

Assessment candidates should produce evidence of the following:

Use of various screens within business systems.

Efficient and effective navigation through information systems.

Use of standard operating procedures.

Accurate use of codes used to locate data.

Accurate entering of information onto the system.

Checks to ensure information is captured in accordance with laid down procedures.

Help files are accessed when required.

Skills and knowledge

Computer Keyboard Usage.

Computer Literacy.

Problem Solving Processes.

Enterprise Policies, Procedures and Guideline.

Enterprise Information System(s) and Operating Platforms.

Operational Environment: Customer Base, Company Products and Services.

Operational Systems and Technology.

Workplace Ergonomics.

Assessment location and resources

Assessment will occur in an operational customer contact centre using customer contact technologies and information technology or a simulated contact centre with similar features.

Critical evidence

Assessment candidates should produce evidence of the following:

Use of various screens within business systems.

Efficient and effective navigation through information systems.

Use of standard operating procedures.

Accurate use of codes used to locate data.

Accurate entering of information onto the system.

Checks to ensure information is captured in accordance with laid down procedures.

Help files are accessed when required.

Skills and knowledge

Computer Keyboard Usage.

Computer Literacy.

Problem Solving Processes.

Enterprise Policies, Procedures and Guideline.

Enterprise Information System(s) and Operating Platforms.

Operational Environment: Customer Base, Company Products and Services.

Operational Systems and Technology.

Workplace Ergonomics.

Range Statement

The following statements cover a wide range of circumstances. Assessment of candidates should be within the range that applies to the candidate's particular role or workplace.

Information systems

Are unique to the enterprise and generally based on a spreadsheet or database application.

Customer

A user, purchaser, or beneficiary of a service, product, or process and may be internal or external to the organisation and may include colleagues.

Information

Specific details requested by a customer or others, and details required from core business systems or other sources in order to complete a transaction or process.

Transaction

A sequence of interactions in enterprise business systems performed by the staff member in satisfying the customer's needs.

Other sources

additional information systems

reference manuals

colleagues.

Sources of help

system helpdesks

system operation units

reference materials

colleagues

supervisor

coaches.

Relevant legislation, codes, regulations and standards include:

Privacy Act

Trade Practices Act

Telecommunications Act

Occupational Health and Safety legislation

Freedom of Information

The following statements cover a wide range of circumstances. Assessment of candidates should be within the range that applies to the candidate's particular role or workplace.

Information systems

Are unique to the enterprise and generally based on a spreadsheet or database application.

Customer

A user, purchaser, or beneficiary of a service, product, or process and may be internal or external to the organisation and may include colleagues.

Information

Specific details requested by a customer or others, and details required from core business systems or other sources in order to complete a transaction or process.

Transaction

A sequence of interactions in enterprise business systems performed by the staff member in satisfying the customer's needs.

Other sources

additional information systems

reference manuals

colleagues.

Sources of help

system helpdesks

system operation units

reference materials

colleagues

supervisor

coaches.

Relevant legislation, codes, regulations and standards include:

Privacy Act

Trade Practices Act

Telecommunications Act

Occupational Health and Safety legislation

Freedom of Information

Unit Sector(s)

Not applicable.

PRSSM504A Prepare security risk management plan

Modification History

Not applicable.

Unit Descriptor

This competency standard covers the process of planning to deal with security risks. It requires the ability to plan and prepare a security risk management plan which incorporates suitable response strategies and contingency arrangements compatible to identified risk. This work would be carried out within organisational guidelines.

Functional Area: Elective, Security Management

This competency standard covers the process of planning to deal with security risks. It requires the ability to plan and prepare a security risk management plan which incorporates suitable response strategies and contingency arrangements compatible to identified risk. This work would be carried out within organisational guidelines.

Functional Area: Elective, Security Management

Application of the Unit

Not applicable.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Not applicable.

Elements and Performance Criteria Pre-Content

Not applicable.

Elements and Performance Criteria

Elements and Performance Criteria

Element	Performance Criteria
1 Evaluate and prioritise risks	1.1 Consequences of identified risks are understood and considered against possible likelihood of occurrence 1.2 Acceptable and unacceptable risks are clearly distinguished and confirmed in accordance with organisational requirements 1.3 High priority risks are emphasised and specified to ensure the development of appropriate management requirements 1.4 Existing controls are evaluated to determine impact on risk occurrence and modifications and improvements are identified in accordance with organisational requirements
2 Develop action plans	2.1 Action plans are structured, formatted and identify key tasks and functions associated with security risk management 2.2 Type of risk associated with security context is identifiable through available examples and incorporated into planning processes 2.3 Communication and reporting arrangements for maintenance of plans are established in line with client requirements and organisational needs 2.4 Contingency arrangements for occurrence of risks are developed and incorporated into plans
3 Identify management requirements	3.1 Timelines and objectives specified in security risk plans are assessed against organisational processes and requirements 3.2 Documentation and checklists associated with plan are prepared in established formats to ensure focus on key activities in risk management 3.3 Project planning requirements are identified and reviewed to determine availability of suitable resources and expertise

- 3.4 Feedback and monitoring arrangements for operational staff are prepared and established using appropriate procedures
- 4 Design treatment options
 - 4.1 Operating environment, including potential changes, is researched, confirmed, reviewed and linked to potential and real risks, threats and treatment strategies
 - 4.2 Treatment options are selected in line with available industry practices, and implications of treatment options are researched, clarified and approved by the client
 - 4.3 Treatment options are feasible, documented and costed to ensure compatibility with nature of risk and client requirements, including future goals and potential changes to the operating environment
 - 4.4 Treatment options are linked to whole or part of security risks and are verified with clients for suitability to security context, this is documented, and the required resources are identified and allocated
 - 4.5 Tests are conducted on treatment options to determine applicability in field, and the results are statistically analysed if possible
- 5 Develop risk management plan
 - 5.1 Monitoring and review procedures are developed to ensure continuous improvement according to planning, client and organisational requirements
 - 5.2 All relevant information is collated and documented according to assessment, client and organisational requirements
 - 5.3 Plan is prepared and presented to client or authorised representatives for review and approval in accordance with organisational requirements

Required Skills and Knowledge

Not applicable.

Evidence Guide

The Evidence Guide identifies the requirements to be demonstrated to confirm competence for this unit. Assessment must confirm sufficient ability to use appropriate skills and knowledge to plan and prepare a security risk management plan. Assessment of performance should be over a period of time covering all categories within the Range of Variables statements that are applicable in the learning environment.

What critical aspects are required for evidence of competency?

Identify and evaluate assets, identified risks, analyse threats and determine existing and other required controls and determine impact on risk occurrence.

Develop effective action plans which incorporate implementation of any new treatment options or strategies, contingency arrangements, key tasks and functions and resource, communication and reporting arrangements.

Develop effective project milestones.

Systematically review project planning requirements and establish feedback and monitoring arrangements for operational staff.

Design treatment options which are compatible with nature of risk and client requirements.

Develop a comprehensive risk management plan which incorporates a broad range of relevant information, considers implementation issues, and incorporates continuous improvement mechanisms.

What specific knowledge is needed to achieve the performance criteria?

Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts and to deal with unplanned events. The knowledge requirements for this competency standard are listed below:

familiarity with client activities and systems including future intentions

broad process of security risk management

sources of supply of security equipment/systems

broad understanding of building facilities and services that apply to risk/threats being reviewed (electrical and air-conditioning systems)

legislation as it applies to security risk management

applicable industry codes of practice

relevant Australian Standards, including AS/NZS 4360:1999 or subsequent amendments

responsibilities necessary to comply with applicable OHS regulations

basic statistical analysis and presentation of statistical data.

What specific skills are needed to achieve the performance criteria?

To achieve the performance criteria, some specific skills are required. These include the ability to:

communicate in a variety of oral formats including negotiation and interviewing

summarise information and write reports to a high standard

communicate in writing to ensure comprehensive coverage of the topic, yet easily understood by the reader

collate numerical data

solve problems

identify and assess assets

research and analyse data

manage time effectively

Are there other competency standards that could be assessed with this one?

Competency in these units should be demonstrated either prior to, or in conjunction with assessment of the current unit:

PRSSM414A - Identification and assessment of assets

PRSSM409A - Risk assessment

PRSSM413A - Threat assessment

What resources may be required for assessment?

Access to a suitable venue and equipment.

Access to plain English version of relevant statutes and procedures.

Assignment instructions, work plans and schedules, policy documents and duty statements.

Assessment instruments, including personal planner and assessment record book.

Access to a registered provider of assessment services.

What is required to achieve consistency of performance?

For valid and reliable assessment of this unit, the competency should be demonstrated over a period of time and observed by the assessor. The competency is to be demonstrated in a range of situations, which may include involvement in related activities normally experienced in the workplace.

Evidence of underpinning knowledge understanding of processes and principles can be gained through thorough questioning and by observation of previous work.

Assessment against this unit may involve the following:

Continuous assessment in a setting that simulates the conditions of performance described in the elements, performance criteria and range of variables statement that make up the unit.

Continuous assessment in the workplace, taking into account the range of variables affecting performance.

Self-assessment on the same terms as those described above.

Simulated assessment or critical incident assessment, provided that the critical incident involves assessment against performance criteria and an evaluation of underpinning knowledge and skill required to achieve the required performance outcomes.

Key competency levels

There are a number of processes that are learnt throughout work and life which are required in all jobs. They are fundamental processes and generally transferable to other work functions. Some of these are covered by the key competencies, although others may be added.

Information below highlights how these processes are applied in this competency standard.

1 - perform the process

2 - perform and administer the process

3 - perform, administer and design the process

How can **communication of ideas and information** be applied? **(3)**

Information may be conveyed through discussions and presentations on organisational processes.

How can **information be collected, analysed and organised**? **(3)**

Action plans may be developed which incorporate key tasks and functions, resource, communication and reporting requirements.

How are **activities planned and organised**? **(3)**

Tests may be conducted on treatment options to determine applicability in a field context.

How can **team work** be applied? **(2)**

Acceptable and unacceptable risks may be discussed and clarified.

How can the use of **mathematical ideas and techniques** be applied? **(3)**

Mathematical techniques may be used in the analysis of data and costing resource requirements.

How can **problem solving skills** be applied? **(3)**

Contingency arrangements may be planned for and incorporated in security risk management plan.

How can the **use of technology** be applied? **(3)**

Technology may be used to communicate, research and manage information. It may also be used in aspects of project management.

The Evidence Guide identifies the requirements to be demonstrated to confirm competence for this unit. Assessment must confirm sufficient ability to use appropriate skills and knowledge to plan and prepare a security risk management plan. Assessment of performance should be over a period of time covering all categories within the Range of Variables statements that are applicable in the learning environment.

What critical aspects are required for evidence of competency?

Identify and evaluate assets, identified risks, analyse threats and determine existing and other required controls and determine impact on risk occurrence.

Develop effective action plans which incorporate implementation of any new treatment options or strategies, contingency arrangements, key tasks and functions and resource, communication and reporting arrangements.

Develop effective project milestones.

Systematically review project planning requirements and establish feedback and monitoring arrangements for operational staff.

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broad understanding of building facilities and services that apply to risk/threats being reviewed (electrical and air-conditioning systems)

legislation as it applies to security risk management

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relevant Australian Standards, including AS/NZS 4360:1999 or subsequent amendments

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identify and assess assets

research and analyse data

manage time effectively

Are there other competency standards that could be assessed with this one?

Competency in these units should be demonstrated either prior to, or in conjunction with assessment of the current unit:

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Access to a registered provider of assessment services.

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Assessment against this unit may involve the following:

Continuous assessment in a setting that simulates the conditions of performance described in the elements, performance criteria and range of variables statement that make up the unit.

Continuous assessment in the workplace, taking into account the range of variables affecting performance.

Self-assessment on the same terms as those described above.

Simulated assessment or critical incident assessment, provided that the critical incident involves assessment against performance criteria and an evaluation of underpinning knowledge and skill required to achieve the required performance outcomes.

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Information may be conveyed through discussions and presentations on organisational processes.

How can **information be collected, analysed and organised**? **(3)**

Action plans may be developed which incorporate key tasks and functions, resource, communication and reporting requirements.

How are **activities planned and organised**? (3)

Tests may be conducted on treatment options to determine applicability in a field context.

How can **team work** be applied? (2)

Acceptable and unacceptable risks may be discussed and clarified.

How can the use of **mathematical ideas and techniques** be applied? (3)

Mathematical techniques may be used in the analysis of data and costing resource requirements.

How can **problem solving skills** be applied? (3)

Contingency arrangements may be planned for and incorporated in security risk management plan.

How can the **use of technology** be applied? (3)

Technology may be used to communicate, research and manage information. It may also be used in aspects of project management.

Range Statement

The Range of Variables provides information about the context in which the unit of competency is carried out. It allows for different work practices and work and knowledge requirements as well as for differences between organisations and workplaces. The following variables may be present for this particular unit:

Identified risks may include:

- property risks
- risks associated with people
- process failures
- security systems
- client contact risks
- financial risks.

Organisational requirements may include:

- verification by senior management
- cost limits
- response times
- client acceptance
- application of organisational routines.

Controls may include:

- monitoring and surveillance

physical attendance
training
development of procedures
staff ratios and resource deployment.

Type of risk may be:

major
minor
intermediate
likely to occur
unlikely to occur
physical
property related
potentially avoidable
potentially unavoidable.

Contingency arrangements may include:

checklists and reporting
training
organisational instructions
approvals
identification requirements
internal licenses
confidentiality requirements.

Project planning requirements may include:

milestones
timelines
resources
key outcomes
personnel involvement
tasks.

Treatment options may include:

surveillance
controlled interruptions to normal operations
simulations
information collation and analysis

exercises

verification requirements.

Tests may include:

alarms and other warning devices

interviews

rehearsals

inspections

exercises.

Relevant information may include:

identified assets

risk assessment

threat assessment

management requirements

supporting evidence

treatment options and strategies linked to risks and threats

operational issues

any test results and relevant statistical analysis of the results

implementation issues

resource requirements including allocation and location of resources

review and monitoring procedures

action plans

contingency plans

backup systems or processes.

The Range of Variables provides information about the context in which the unit of competency is carried out. It allows for different work practices and work and knowledge requirements as well as for differences between organisations and workplaces. The following variables may be present for this particular unit:

Identified risks may include:

property risks

risks associated with people

process failures

security systems

client contact risks

financial risks.

Organisational requirements may include:

verification by senior management
cost limits
response times
client acceptance
application of organisational routines.

Controls may include:

monitoring and surveillance
physical attendance
training
development of procedures
staff ratios and resource deployment.

Type of risk may be:

major
minor
intermediate
likely to occur
unlikely to occur
physical
property related
potentially avoidable
potentially unavoidable.

Contingency arrangements may include:

checklists and reporting
training
organisational instructions
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identification requirements
internal licenses
confidentiality requirements.

Project planning requirements may include:

milestones
timelines
resources
key outcomes

personnel involvement
tasks.

Treatment options may include:

surveillance
controlled interruptions to normal operations
simulations
information collation and analysis
exercises
verification requirements.

Tests may include:

alarms and other warning devices
interviews
rehearsals
inspections
exercises.

Relevant information may include:

identified assets
risk assessment
threat assessment
management requirements
supporting evidence
treatment options and strategies linked to risks and threats
operational issues
any test results and relevant statistical analysis of the results
implementation issues
resource requirements including allocation and location of resources
review and monitoring procedures
action plans
contingency plans
backup systems or processes.

Unit Sector(s)

Not applicable.

PRSTS301A Identify technical security requirements

Modification History

Not applicable.

Unit Descriptor

This competency standard covers the skills and knowledge required to determine technical security requirements for small domestic or commercial environments. It requires the ability to source relevant information and use appropriate assessment methods to accurately determine security equipment/system options to meet client needs. This work would be carried out under routine supervision within organisational guidelines.

Functional Area: Core, Technical Security

This competency standard covers the skills and knowledge required to determine technical security requirements for small domestic or commercial environments. It requires the ability to source relevant information and use appropriate assessment methods to accurately determine security equipment/system options to meet client needs. This work would be carried out under routine supervision within organisational guidelines.

Functional Area: Core, Technical Security

Application of the Unit

Not applicable.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Not applicable.

Elements and Performance Criteria Pre-Content

Not applicable.

Elements and Performance Criteria

Elements and Performance Criteria

Element	Performance Criteria
1 Prepare to identify security requirements	1.1 Assignment instructions are reviewed and clarified with appropriate person(s) as required in accordance with organisational requirements 1.2 Discussions with client are conducted to establish perceived security risks and clarify scope of security requirements 1.3 Specific site requirements are identified and appropriate arrangements made as required in accordance with client and organisational requirements 1.4 Personal limitations in assessing security requirements are promptly identified and assistance is sought from appropriate person(s) in accordance with organisational procedures
2 Identify security requirements	2.1 Site restrictions, regulations and requirements are identified and complied with in accordance with legislative, client and organisational requirements 2.2 Information is gathered from reliable sources and is relevant to assignment requirements in accordance with legislative, client and organisational requirements 2.3 A site assessment is carried out where possible to facilitate an accurate determination of security system requirements 2.4 Security risk factors that may affect the site are identified and assessed in accordance with organisational procedures
3 Document security requirements	3.1 Business equipment is used to manage information efficiently and effectively in accordance with manufacturers specifications and organisational procedures 3.2 An assessment of client security requirements is completed within designated timeframes and presented for review to appropriate person(s)

- 3.3 Assessment report uses clear and concise language, is free of inconsistencies and meets organisational standards of style, format and accuracy
- 3.4 Recommendations for security equipment / systems and alternative options are supported by gathered and verifiable information in accordance with organisational requirements
- 3.5 Documentation requirements are completed and processed in accordance with legislative, assignment and organisational requirements

Required Skills and Knowledge

Not applicable.

Evidence Guide

The Evidence Guide identifies the requirements to be demonstrated to confirm competence for this unit. Assessment must confirm sufficient ability to use appropriate skills and knowledge to assess technical security requirements for clients. Assessment of performance should be over a period of time covering all categories within the Range of Variables statements that are applicable in the learning environment.

What critical aspects are required for evidence of competency?

Source and gather relevant information and conduct a comprehensive site assessment to identify client assets, activities and existing security arrangements.

Use appropriate research methods to determine suitable technical security requirements and options to meet client needs and expectations.

Prepare a summary of assessed client needs and recommended security options in a format suitable for review.

What specific knowledge is needed to achieve the performance criteria?

Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts and to deal with unplanned events. The knowledge requirements for this competency standard are listed below:

available security equipment/system options and basic requirements for installation

types and functions of security equipment and systems

building construction methods and types

organisational and client confidentiality requirements

basic problem solving strategies

operational principles of information technology
principles of effective communication
documentation requirements and processes.

What specific skills are needed to achieve the performance criteria?

To achieve the performance criteria, some specific skills are required. These include the ability to:

recognise security threats to people, property and premises
observe and assess technical security requirements
read and interpret plans, designs and specifications
apply basic numeracy techniques
apply safe and efficient work practices
communicate in a clear and concise manner
relate to people from different social and cultural backgrounds
present a professional image
prepare and present reports
organise work tasks in a methodical manner
enter data using basic keyboarding skills.

What resources may be required for assessment?

Access to a suitable venue and equipment.
Access to plain English version of relevant statutes and procedures.
Assignment instructions, work plans and schedules, policy documents and duty statements.
Assessment instruments, including personal planner and assessment record book.
Access to a registered provider of assessment services.

What is required to achieve consistency of performance?

For valid and reliable assessment of this unit, the competency should be demonstrated over a period of time and observed by the assessor. The competency is to be demonstrated in a range of situations, which may include involvement in related activities normally experienced in the workplace.

Evidence of underpinning knowledge understanding of processes and principles can be gained through thorough questioning and by observation of previous work.

Assessment against this unit may involve the following:

Continuous assessment in a setting that simulates the conditions of performance described in the elements, performance criteria and range of variables statement that make up the unit.

Continuous assessment in the workplace, taking into account the range of variables affecting performance.

Self-assessment on the same terms as those described above.

Simulated assessment or critical incident assessment, provided that the critical incident involves assessment against performance criteria and an evaluation of underpinning knowledge and skill required to achieve the required performance outcomes.

Key competency levels

There are a number of processes that are learnt throughout work and life which are required in all jobs. They are fundamental processes and generally transferable to other work functions. Some of these are covered by the key competencies, although others may be added.

Information below highlights how these processes are applied in this competency standard.

1 - perform the process

2 - perform and administer the process

3 - perform, administer and design the process

How can **communication of ideas and information** be applied? (2)

Discussions may be conducted with relevant persons to clarify scope of client technical security requirements.

How can **information be collected, analysed and organised**? (2)

A site assessment may be carried out, accurately documented and organised by records or reports.

How are **activities planned and organised**? (2)

Site assessments may be arranged with minimal disruption to client, services or normal work routines.

How can **team work** be applied? (2)

Clarification may be sought from relevant persons to ensure a clear understanding of assignment requirements.

How can the use of **mathematical ideas and techniques** be applied? (2)

Mathematical techniques may be used to estimate resource and equipment/system requirements. It may also be used to plan and schedule work tasks.

How can **problem solving skills** be applied? (2)

Personal limitations in assessing technical security requirements may be promptly identified and appropriate assistance sought.

How can the **use of technology** be applied? (2)

Technology may be used to communicate, schedule, source and document information.

The Evidence Guide identifies the requirements to be demonstrated to confirm competence for this unit. Assessment must confirm sufficient ability to use appropriate skills and knowledge to assess technical security requirements for clients. Assessment of performance should be over a period of time covering all categories within the Range of Variables statements that are applicable in the learning environment.

What critical aspects are required for evidence of competency?

Source and gather relevant information and conduct a comprehensive site assessment to identify client assets, activities and existing security arrangements.

Use appropriate research methods to determine suitable technical security requirements and options to meet client needs and expectations.

Prepare a summary of assessed client needs and recommended security options in a format suitable for review.

What specific knowledge is needed to achieve the performance criteria?

Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts and to deal with unplanned events. The knowledge requirements for this competency standard are listed below:

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observe and assess technical security requirements

read and interpret plans, designs and specifications

apply basic numeracy techniques

apply safe and efficient work practices

communicate in a clear and concise manner

relate to people from different social and cultural backgrounds

present a professional image

prepare and present reports

organise work tasks in a methodical manner

enter data using basic keyboarding skills.

What resources may be required for assessment?

Access to a suitable venue and equipment.

Access to plain English version of relevant statutes and procedures.

Assignment instructions, work plans and schedules, policy documents and duty statements.

Assessment instruments, including personal planner and assessment record book.

Access to a registered provider of assessment services.

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Continuous assessment in the workplace, taking into account the range of variables affecting performance.

Self-assessment on the same terms as those described above.

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Mathematical techniques may be used to estimate resource and equipment/system requirements. It may also be used to plan and schedule work tasks.

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Personal limitations in assessing technical security requirements may be promptly identified and appropriate assistance sought.

How can the **use of technology** be applied? (2)

Technology may be used to communicate, schedule, source and document information.

Range Statement

The Range of Variables provides information about the context in which the unit of competency is carried out. It allows for different work practices and work and knowledge requirements as well as for differences between organisations and workplaces. The following variables may be present for this particular unit:

Assignment instructions may include:

instructions from supervisor/management
work schedules and completion dates
specific client requirements
site requirements, security clearance and access requirements
reporting and documentation requirements
budget allocations.

Appropriate person(s) may include:

clients
site managers
project managers
engineers and technicians
technical experts
line managers/supervisors
colleagues
regulatory personnel
security consultants.

Organisational requirements may relate to:

legal and organisational operational policies and procedures
operations manuals, induction and training materials
insurance policy agreements

client and organisational confidentiality requirements
organisational goals, objectives, plans, systems and processes
employer and employee rights and responsibilities
own role, responsibility and delegation
quality and continuous improvement processes and standards
client service standards
defined resource parameters
OHS policies, procedures and programs
emergency and evacuation procedures
duty of care, code of conduct, code of ethics
access and equity policy, principles and practice
records and information systems and processes
communication channels and reporting procedures.

Client may include:

owner
property agent
tenant
building supervisor
manager
project manager
agent
government and legal instruments/agencies.

Scope may include:

protection of persons, property or assets
conformance with insurance
government or other requirements.

Site access and specific site requirements may relate to:

access and egress points, time of access
access codes, keys, passes, security clearances
union requirements
OHS requirements
building codes and regulations
heritage listings
noise control.

Assessment may involve

discussions with client
visual inspections
review of client floor plans and supporting documentation
questioning police, insurance companies and other bodies.

Applicable legislation, codes and national standards may relate to:

relevant Commonwealth/State/Territory legislation which affect organisational operation:

Occupational Health and Safety

environmental issues

equal employment opportunity

industrial relations

anti-discrimination and diversity.

licensing arrangements

Australian Standards, quality assurance and certification requirements

relevant industry Codes of Practice

trade practices, award and enterprise agreements

privacy related legislation.

Information may include:

insurance policy agreements

special rooms or areas requiring higher level of protection

current/proposed operating environments, assets and systems

activities and functions

existing security systems/equipment

existing management strategies

business and operational plans

incident history.

Site assessment may involve:

type and condition of building structures

site restrictions, regulations and requirements

access and egress patterns

floor plan

existing security equipment/systems.

Security risks factors may include:

vandalism, trespass, break-in, burglary
unsecured windows
entry points screened from public view
external doors without deadlocks or with hinges opening outward
flimsy building materials
client habits (e.g. doors left unlocked)
adequacy of street lighting
traffic flow
neighbourhood crime rating
proximity of other buildings.

Business equipment may include:

computers, computer applications, modems
personal schedulers
e-mail, internet/intranet
facsimile machines
printers
photocopiers
scanners.

Security equipment and systems may include:

detection devices, audible/visual warning devices
cameras, monitors and control equipment
control panels, intercoms
wireless equipment, car alarms
electronic readers, electronic recognition controls
locks and locking systems
grills, lighting, boom gates, turnstiles
bank pop-up screens
smoke detection devices
electric/mechanical fire safety and fire locking systems
power supplies, batteries
security doors and door controls.

Security systems may be:

electronic
mechanical

computerised

procedural.

Documentation may include:

checklists

reports

floor plans

client briefs

specifications

schedules.

The Range of Variables provides information about the context in which the unit of competency is carried out. It allows for different work practices and work and knowledge requirements as well as for differences between organisations and workplaces. The following variables may be present for this particular unit:

Assignment instructions may include:

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technical experts

line managers/supervisors

colleagues

regulatory personnel

security consultants.

Organisational requirements may relate to:

legal and organisational operational policies and procedures

operations manuals, induction and training materials

insurance policy agreements

client and organisational confidentiality requirements

organisational goals, objectives, plans, systems and processes
employer and employee rights and responsibilities
own role, responsibility and delegation
quality and continuous improvement processes and standards
client service standards
defined resource parameters
OHS policies, procedures and programs
emergency and evacuation procedures
duty of care, code of conduct, code of ethics
access and equity policy, principles and practice
records and information systems and processes
communication channels and reporting procedures.

Client may include:

owner
property agent
tenant
building supervisor
manager
project manager
agent
government and legal instruments/agencies.

Scope may include:

protection of persons, property or assets
conformance with insurance
government or other requirements.

Site access and specific site requirements may relate to:

access and egress points, time of access
access codes, keys, passes, security clearances
union requirements
OHS requirements
building codes and regulations
heritage listings
noise control.

Assessment may involve

discussions with client
visual inspections
review of client floor plans and supporting documentation
questioning police, insurance companies and other bodies.

Applicable legislation, codes and national standards may relate to:

relevant Commonwealth/State/Territory legislation which affect organisational operation:
Occupational Health and Safety
environmental issues
equal employment opportunity
industrial relations
anti-discrimination and diversity.

licensing arrangements
Australian Standards, quality assurance and certification requirements
relevant industry Codes of Practice
trade practices, award and enterprise agreements
privacy related legislation.

Information may include:

insurance policy agreements
special rooms or areas requiring higher level of protection
current/proposed operating environments, assets and systems
activities and functions
existing security systems/equipment
existing management strategies
business and operational plans
incident history.

Site assessment may involve:

type and condition of building structures
site restrictions, regulations and requirements
access and egress patterns
floor plan
existing security equipment/systems.

Security risks factors may include:

vandalism, trespass, break-in, burglary

unsecured windows
entry points screened from public view
external doors without deadlocks or with hinges opening outward
flimsy building materials
client habits (e.g. doors left unlocked)
adequacy of street lighting
traffic flow
neighbourhood crime rating
proximity of other buildings.

Business equipment may include:

computers, computer applications, modems
personal schedulers
e-mail, internet/intranet
facsimile machines
printers
photocopiers
scanners.

Security equipment and systems may include:

detection devices, audible/visual warning devices
cameras, monitors and control equipment
control panels, intercoms
wireless equipment, car alarms
electronic readers, electronic recognition controls
locks and locking systems
grills, lighting, boom gates, turnstiles
bank pop-up screens
smoke detection devices
electric/mechanical fire safety and fire locking systems
power supplies, batteries
security doors and door controls.

Security systems may be:

electronic
mechanical
computerised

procedural.

Documentation may include:

checklists

reports

floor plans

client briefs

specifications

schedules.

Unit Sector(s)

Not applicable.

PSPPM402B Manage simple projects

Modification History

Not applicable.

Unit Descriptor

Unit descriptor

This unit covers management of generally low risk projects that may be small scale and managed by one person or a person with a small team. It includes implementing project start-up activities, coordinating project implementation, monitoring the project and arranging follow-up activities. Contract management requirements are not included as this aspect is addressed by units of competency within the Competency field of *Procurement and Contract Management*.

In practice, managing simple projects overlaps with other generalist and specialist work activities such as applying government processes, using resources, gathering information, managing contracts etc.

When this unit is completed in conjunction with *PSPPM401B Design simple projects* and *PSPPM403B Close simple projects*, the three units together are equivalent to the eight private sector Business Services project management competencies: BSBPM401A - BSBPM408A inclusive.

This unit, and unit *PSPPM405A Administer simple projects*, are mutually exclusive. One or the other, but not both, may contribute to a qualification.

This unit replaces and is equivalent to *PSPPM402A Implement projects*.

Application of the Unit

Not applicable.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements are the essential outcomes of the unit of competency. Together, performance criteria specify the requirements for competent performance. Text in *bold italics* is explained in the Range Statement following.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Implement start-up activities	1.1 The <i>project plan</i> is updated with confirmed information for key dates and activities, resources and project governance details in accordance with the project implementation strategy 1.2 Project <i>stakeholders'</i> understanding of and agreement to fulfil the project requirements and their roles and responsibilities are confirmed 1.3 <i>Required systems</i> are established and maintained throughout the project in accordance with the project plan 1.4 A working knowledge of <i>project management tools</i> is used to facilitate integration of project activities and achievement of project outcomes
2. Coordinate project implementation	2.1 <i>Integration</i> and <i>management</i> of project activities are handled in accordance with the project plan 2.2 Stakeholder input and expectations are managed and their commitment is maintained throughout the life of the project in accordance with organisational policy and procedures and the project plan 2.3 Disagreements and disputes are resolved or referred to a higher authority in accordance with organisational policy and procedures 2.4 Project <i>change proposals</i> are received and changes are

ELEMENT**PERFORMANCE CRITERIA**

recommended/made in accordance with the project plan, and documented in accordance with *policy and procedures*

3. Monitor project

3.1 All aspects of the project are continually monitored and corrective action is taken as necessary to maintain progress in accordance with the project plan

3.2 Consultation and reporting mechanisms are applied in accordance with the communication plan when dealing with management, staff and/or contractors, steering committee members or other stakeholders

3.3 Project governance plans and any related contracts are monitored, reviewed and amended as appropriate, and results are reported in accordance with the communication plan

3.4 Project progress is monitored against agreed milestones in accordance with the project plan to provide a measure of performance throughout the life of the contract

3.5 Programmed review of objectives and achievement is implemented in accordance with the project plan

4. Arrange project follow-up activities

4.1 Project deliverables are analysed against *specifications*, performance standards and project objectives, under broad guidance, and the results are reported to stakeholders

4.2 An initial support package or product manual is produced, if required, to provide guidance for stakeholders who will be required to apply the project results

4.3 The support package includes options for stakeholders to take account of environmental and cultural factors in applying project results

4.4 Operational and support authorities are consulted to research any testing/trialling/building requirements resulting from the project, and evaluation of any recommendations are included in the project report

Required Skills and Knowledge**REQUIRED SKILLS AND KNOWLEDGE**

This section describes the essential skills and knowledge and their level, required for this unit.

Skill requirements

Look for evidence that confirms skills in:

leading and mentoring people to achieve project deliverables

REQUIRED SKILLS AND KNOWLEDGE

maintaining agreement of stakeholders and team members to timelines, roles and responsibilities
communicating with stakeholders and team members using a range of communication styles to suit different audiences and purposes
responding to diversity, including gender and disability
using project management tools applicable to small scale or low risk projects
applying ethical decision making and problem solving related to project management of small scale or low risk projects
writing recommendations and preparing implementation support packages requiring precision of expression
applying workplace safety procedures in line with project requirements
accessing/preparing information electronically or in hard copy

Knowledge requirements

Look for evidence that confirms knowledge and understanding of:
legislation, organisational policies and procedures that may impact on project management, for example:
public sector codes of ethics/conduct
occupational health and safety and environment requirements
project governance requirements
quality standards
risk management
procurement guidelines
human resources
equal employment opportunity, equity and diversity principles
project management tools to suit a range of small scale or low risk projects
project management principles
organisational and political context

Evidence Guide

EVIDENCE GUIDE

The Evidence Guide specifies the evidence required to demonstrate achievement in the unit of competency as a whole. It must be read in conjunction with the Unit descriptor, Performance Criteria, the Range Statement and the Assessment Guidelines for the Public Sector Training Package.

Units to be assessed

- *Pre-requisite* units that must be achieved prior to this unit: *Nil*
- *Co-requisite* units that must be assessed with this unit: *Nil*

EVIDENCE GUIDE

together

- *Co-assessed units* that may be assessed with this unit to increase the efficiency and realism of the assessment process include, but are not limited to:

PSPETHC401A Uphold and support the values and principles of public service

PSPGOV402B Deliver and monitor service to clients

PSPGOV403B Use resources to achieve work unit goals

PSPGOV411A Deal with conflict

PSPGOV412A Use advanced workplace communication strategies

PSPGOV422A Apply government processes

PSPLEGN401A Encourage compliance with legislation in the public sector

PSPPROC410A Administer contracts

PSPPM401B Design simple projects

PSPPM403B Close simple projects

- *Excluded units* that may not contribute to the same qualification as this unit:

PSPPM405A Administer simple projects

Overview of evidence requirements

In addition to integrated demonstration of the elements and their related performance criteria, look for evidence that confirms:

- the knowledge requirements of this unit
- the skill requirements of this unit
- application of the Employability Skills as they relate to this unit (see Employability Summaries in Qualifications Framework)
- simple projects managed in a range of (3 or more) contexts (or occasions, over time)

Resources required to carry out assessment

These resources include:

- legislation, guidelines, procedures and protocols relating to project management
- workplace project documentation
- scenarios and case studies
- examples of project management tools

Where and how to assess evidence

Valid assessment of this unit requires:

- a workplace environment or one that closely resembles normal work practice and replicates the range of conditions likely to be encountered when implementing projects, including coping with difficulties, irregularities and breakdowns in routine

EVIDENCE GUIDE

- simple projects managed in a range of (3 or more) contexts (or occasions, over time)

Assessment methods should reflect workplace demands, such as literacy, and the needs of particular groups, such as:

- people with disabilities
- people from culturally and linguistically diverse backgrounds
- Aboriginal and Torres Strait Islander people
- women
- young people
- older people
- people in rural and remote locations

Assessment methods suitable for valid and reliable assessment of this competency may include, but are not limited to, a combination of 2 or more of:

- case studies
- demonstration
- portfolios
- questioning
- scenarios
- authenticated evidence from the workplace and/or training courses

For consistency of assessment

Evidence must be gathered over time in a range of contexts to ensure the person can achieve the unit outcome and apply the competency in different situations or environments

Range Statement

RANGE STATEMENT

The Range Statement provides information about the context in which the unit of competency is carried out. The variables cater for differences between States and Territories and the Commonwealth, and between organisations and workplaces. They allow for different work requirements, work practices and knowledge. The Range Statement also provides a focus for assessment. It relates to the unit as a whole. Text in *italics* in the Performance Criteria is explained here.

Project plan will include some or all of

- acquisition strategies
- budget and financial management strategy
- contract management
- cost estimates

RANGE STATEMENT

- evaluation criteria
- expected outcomes/measurable benefits of the project
- facilities
- inclusions and exclusions from project
- information/communication strategy
- intellectual property strategies
- milestones
- objectives
- outputs/project deliverables and their acceptance criteria
- people plan including human resource management and human resource development
- performance criteria/indicators
- project control mechanisms
- project implementation strategy
- project governance strategy
- purpose
- quality assurance
- quality control
- quality standards for project
- rationale
- required project resources
- resource management
- risk management
- roles and responsibilities
- schedule/timeline
- task/work breakdown structure (WBS)

Stakeholders may include

- project sponsor/funding bodies
- clients or customers (internal and external)
- industry
- other agencies
- general public
- relevant interest groups
- unions
- functional areas
- the organisation's senior management
- Ministers
- project team
- steering committee members
- end user
- supplier/service provider

RANGE STATEMENT

Required systems for project management may include

- planning and monitoring system
- financial management including:
 - budget allocation/funding
 - income generated
 - expenditure
- recordkeeping for documented information such as:
 - correspondence
 - quality data including survey, needs, test results
- contracts
- time allocated and spent on each aspect of the project
- progress reports
- performance reports against milestones
- project outcomes
- samples, prototypes, models

Project management tools may include

- risk analysis
- organisational project governance framework
- communications plan
- reporting framework
- project management software and other tools:
 - Gantt and bar charts
 - Program Evaluation and Review Technique (PERT) charts
 - Critical Path Method
- cost schedule control system
- logistics support analysis
- life cycle cost analysis
- spreadsheets
- recording systems - electronic and manual

Integration of project activities may include

- scope
- time
- cost
- quality
- human resources
- communications
- risk
- procurement

Management may include

- scope management
- communication and reporting
- schedule management
- financial management
- quality management

RANGE STATEMENT

	- resources management - people management - logistics management - risk management - contract management - change management
<i>Change proposals may include</i>	- scope - administration - engineering, technical, technology changes - time - cost - resources
<i>Policy and procedures may include</i>	- government legislation (Federal, State and Local) affecting organisation's administration such as: - public sector management acts - financial management and accounting legislation and regulations - privacy legislation - government and organisational guidelines and procedures relating to: - project governance - resourcing - security - strategic plans - recruitment - risk management - procurement guidelines - designation approvals - industrial agreements
<i>Specifications may include</i>	- functional - technical - performance - material

Unit Sector(s)

Not applicable.

Competency field

Competency field Project Management

PSPPM501B Design complex projects

Modification History

Not applicable.

Unit Descriptor

Unit descriptor

This unit covers planning and development of projects which may be reasonably complex in terms of scope, degree of risk, political, cultural and social factors that apply, consequences of failure and degree of control of the projects. It includes identifying project opportunities, undertaking scoping, analysing the feasibility of projects, developing project plans and managing the establishment of projects. Contract management requirements are not included as this aspect is addressed by units of competency within the Competency field of *Procurement and Contract Management*.

In practice, designing complex projects overlaps with other generalist and specialist work activities such as acting ethically, coordinating resource allocation and usage, developing client services, undertaking research and analysis, etc.

When this unit is completed in conjunction with *PSPPM502B Manage complex projects*, and *PSPPM503B Close complex projects*, the three units together are equivalent to the nine private sector Business Services project management competencies: BSBPM501A - BSBPM509A inclusive.

This unit replaces and is equivalent to *PSPPM501A Initiate projects*.

Application of the Unit

Not applicable.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements are the essential outcomes of the unit of competency. Together, performance criteria specify the requirements for competent performance. Text in *bold italics* is explained in the Range Statement following.

Elements and Performance Criteria

ELEMENT

PERFORMANCE CRITERIA

1. Identify project opportunities and undertake scoping

- 1.1 A *critical analysis* of the need for a project is conducted in accordance with organisational *policy and procedures*
- 1.2 A project definition study is undertaken, where necessary, to determine the scope of the project
- 1.3 Project scoping is completed in accordance with organisational policy and procedures and identifies a rationale for the project that includes the purpose, outcomes/expected benefits
- 1.4 *Stakeholders* are identified and canvassed to ensure that their requirements are addressed in project planning

2. Analyse project feasibility

- 2.1 Research and analysis is undertaken to identify impacts and risks, *constraining factors* and alternate options
- 2.2 Technical feasibility, supportability and cost effectiveness of the project are analysed and the outcome is reported to key stakeholders
- 2.3 Alternatives for project design are assessed and a preferred option that fits the strategic direction of the organisation/work unit is identified and reported
- 2.4 Relevant specialists are consulted to determine the extent of financial, technical, security, scheduling, *whole-of-life support* and probity, and other risks
- 2.5 A business case is prepared and *approvals* to proceed with project development are obtained in accordance with

ELEMENT**PERFORMANCE CRITERIA**

organisational policy, procedures and guidelines

3. Develop project plans

- 3.1 Project aims, objectives and impacts are defined in the *project plan*, and timeframes and resources to complete quality deliverables on time and within budget are identified
- 3.2 Projected outcomes are recorded in measurable and achievable forms and indicators to monitor the performance of the project are developed and agreed by relevant parties
- 3.3 Potential risks are investigated and identified in the project plan and a risk management process is established to analyse information and *options to manage risks*
- 3.4 Skills, roles and responsibilities of team members and stakeholders are clarified and agreed, and reporting requirements are identified
- 3.5 *Management* of project *parameters* is addressed in the project plan and evaluation criteria are designed in accordance with organisational policy and practice
- 3.6 *Project management tools* are utilised for planning in accordance with project requirements and the project is designed and *documented* in consultation with *specialists* to meet user requirements

4. Manage establishment of project

- 4.1 If required, stakeholders are lobbied in accordance with organisational policy and procedures, to negotiate endorsement for the project
- 4.2 Terms of reference are written and agreed to by stakeholders and resources are obtained in accordance with organisational procedures to establish the project
- 4.3 Project scope and objectives are reviewed and analysed, and a strategy is developed to establish *work breakdown structures* to implement the project
- 4.4 Project *infrastructure* is identified and established in accordance with organisational policy and procedures
- 4.5 Specialist and technical support relevant to the project is obtained in accordance with the project plan
- 4.6 Project governance structure and processes are established as detailed in the project plan

Required Skills and Knowledge**REQUIRED SKILLS AND KNOWLEDGE**

This section describes the essential skills and knowledge and their level, required for

REQUIRED SKILLS AND KNOWLEDGE

this unit.

Skill requirements

Look for evidence that confirms skills in:

- using project planning techniques related to projects that may be reasonably complex in terms of scope, degree of risk, political, cultural and social factors that apply, consequences of failure and degree of control of the projects
- detailing requirements, writing recommendations and preparing plans requiring precision of expression
- negotiating timelines, roles and responsibilities with stakeholders and team members
- scheduling project activities
- communicating with stakeholders using a range of communication styles to suit different audiences and purposes
- responding to diversity, including gender and disability
- using project management tools suited to planning reasonably complex projects
- applying risk management techniques in project establishment including risk sharing and transfer
- using public relations strategies to promote and gain endorsement for projects
- including workplace safety issues in project planning requirements
- accessing/preparing information electronically or in hard copy

Knowledge requirements

Look for evidence that confirms knowledge and understanding of:

- legislation, organisational policies and procedures that may impact on the project and management of the project, for example:
- public sector codes of ethics/conduct
- occupational health and safety and environmental and sustainability requirements
- project governance requirements
- financial management requirements
- quality standards
- risk management
- procurement
- human resources
- equal employment opportunity, equity and diversity principles
- project planning methods which may be reasonably complex in terms of scope, degree of risk, political, cultural and social factors that apply, consequences of failure and degree of control of the projects
- project management tools suited to planning reasonably complex projects
- principles relating to the planning phase of project management
- the project specifications

REQUIRED SKILLS AND KNOWLEDGE

market capability
 resource plans
 project approval processes
 scheduling packages
 cost schedule control systems
 integrated logistics support
 work breakdown structures
 change management in the context of designing complex projects

Evidence Guide

EVIDENCE GUIDE

The Evidence Guide specifies the evidence required to demonstrate achievement in the unit of competency as a whole. It must be read in conjunction with the Unit descriptor, Performance Criteria, the Range Statement and the Assessment Guidelines for the Public Sector Training Package.

Units to be assessed together

- *Pre-requisite* units that must be achieved prior to this unit: *Nil*
- *Co-requisite* units that must be assessed with this unit: *Nil*
- *Co-assessed units* that may be assessed with this unit to increase the efficiency and realism of the assessment process include, but are not limited to:

PSPETHC501B Promote the values and ethos of public service

PSPGOV502B Develop client services

PSPGOV503B Coordinate resource allocation and usage

PSPGOV504B Undertake research and analysis

PSPGOV505A Promote diversity

PSPGOV507A Undertake negotiations

PSPGOV512A Use complex workplace communication strategies

PSPPM502B Manage complex projects

PSPPM503B Close complex projects

PSPPROC502A Establish contract management arrangements

Overview of evidence requirements

In addition to integrated demonstration of the elements and their related performance criteria, look for evidence that confirms:

- the knowledge requirements of this unit
- the skill requirements of this unit

EVIDENCE GUIDE

- application of the Employability Skills as they relate to this unit (see table Following for examples)
- complex projects designed in a range of (3 or more) contexts (or occasions, over time)

Resources required to carry out assessment

These resources include:

- legislation, guidelines, procedures and protocols relating to project planning and management
- workplace project documentation
- scenarios and case studies
- examples of project management tools

Where and how to assess evidence

Valid assessment of this unit requires:

- a workplace environment or one that closely resembles normal work practice and replicates the range of conditions likely to be encountered when initiating projects, including coping with difficulties, irregularities and breakdowns in routine
- complex projects designed in a range of (3 or more) contexts (or occasions, over time)

Assessment methods should reflect workplace demands, such as literacy, and the needs of particular groups, such as:

- people with disabilities
- people from culturally and linguistically diverse backgrounds
- Aboriginal and Torres Strait Islander people
- women
- young people
- older people
- people in rural and remote locations

Assessment methods suitable for valid and reliable assessment of this competency may include, but are not limited to, a combination of 2 or more of:

- case studies
- demonstration
- observation
- portfolios
- projects
- questioning
- scenarios
- simulation or role plays
- authenticated evidence from the workplace and/or training courses

EVIDENCE GUIDE

For consistency of assessment

Evidence must be gathered over time in a range of contexts to ensure the person can achieve the unit outcome and apply the competency in different situations or environments

Range Statement

RANGE STATEMENT

The Range Statement provides information about the context in which the unit of competency is carried out. The variables cater for differences between States and Territories and the Commonwealth, and between organisations and workplaces. They allow for different work requirements, work practices and knowledge. The Range Statement also provides a focus for assessment. It relates to the unit as a whole. Text in *italics* in the Performance Criteria is explained here.

Critical analysis may include

- internal and external environment scan
- political imperatives
- previous and current related projects
- policies likely to be impacted
- cost-benefit analysis

Policy and procedures may include

- government legislation (Federal, State and Local) affecting organisation's administration such as:
- public sector management acts
- financial management and accounting legislation and regulations
- privacy legislation
- environmental/sustainability legislation
- government and organisational guidelines and procedures relating to:
- project governance
- resourcing
- security
- strategic plans
- recruitment
- risk management
- procurement guidelines
- designation approvals
- industrial agreements

Stakeholders may include

- project sponsor/funding bodies
- clients or customers (internal and external)

RANGE STATEMENT

	• industry • other agencies • general public • relevant interest groups • unions • functional areas • the organisation's senior management • Ministers • project team • steering committee members • end user • supplier/service provider
<i>Constraining factors may include</i>	• political • industrial • legislative • technical • financial • social • cultural • security/privacy • environmental • logistical support • resources
<i>Whole-of-life support may include</i>	• maintenance • supply • technical data • personnel • training • facilities • packaging, handling • storage and transportation • support and test equipment • computing support
<i>Approval may be required from</i>	• project sponsor • business owner of the project • program manager • line manager • specialist project management office • chief executive officer, manager or management representative • funding body

RANGE STATEMENT

Project plan will include some or all of

- customer or client
- acquisition strategies
- budget and financial management strategy
- contract management
- cost estimates
- evaluation criteria
- expected outcomes/measurable benefits of the project
- facilities
- inclusions and exclusions from project
- information/communication strategy
- intellectual property strategies
- milestones
- objectives
- outputs/project deliverables and their acceptance criteria
- people plan including human resource management and human resource development
- performance criteria/indicators
- project control mechanisms
- project implementation strategy
- project governance strategy
- purpose
- quality assurance
- quality control
- quality standards for project
- rationale
- required project resources
- resource management
- risk management
- roles and responsibilities
- schedule/timeline
- task/work breakdown structure (WBS)

Risk management may include

- acceptance
- avoidance
- minimisation
- transfer

Management may include

- risk management
- schedule management
- financial management
- communication, including reporting
- resources management

RANGE STATEMENT

<i>Project parameters include</i>	• logistics management • scope management • change management • quality management • people management • procurement management • occupational health and safety management • project scope - outcomes, objectives, project deliverables • feasibility • skills required for project team • people required for project including specialist expertise • communications including reporting requirements • risks associated with project including people, environment, resources, technology change during the life of the project, if applicable • steering committee arrangements • timeframe and milestones • cost • resources for project • acquisition/procurement • organisational structure for project • project quality control and operational flexibility • project governance structure • monitoring through staged rollout • project delivery requirements • pilot outcomes • intellectual property • integration of project within organisation • transition arrangements • change management • project evaluation
<i>Project management tools may include</i>	• risk analysis • organisational project governance framework • communications plan • reporting framework • project management software and other tools: • Gantt and bar charts • Program Evaluation and Review Technique (PERT) charts • Critical Path Method • cost schedule control system

RANGE STATEMENT

	• logistics support analysis • life cycle cost analysis • spreadsheets • recording systems - electronic and manual
<i>Documented information may include</i>	• reports detailing strategy • statement of requirement/work • industry development proposals • project plans • resource plans • project team work plans • risk and issues plan and log • performance evaluation criteria • reports to industry • whole-of-life support proposals • project definition study
<i>Relevant specialists may include</i>	• legal • technical • financial • other functional areas • other relevant agencies • logistics
<i>Work breakdown structures may include</i>	• how the work is to be performed and how cost and schedule data are to be tracked and reported • identification of the project tasks (deliverables) • identification of specific management responsibilities for tasks
<i>Project infrastructure may include</i>	• staffing levels/need for recruitment action and training • equipment and technical support • resource requirements including travel, finance etc • project office accommodation • management infrastructure

Unit Sector(s)

Not applicable.

Competency field

Competency field Project Management

PSPPM502B Manage complex projects

Modification History

Not applicable.

Unit Descriptor

Unit descriptor

This unit covers management of projects that may be reasonably complex in terms of scope, degree of risk, political, cultural and social factors that apply, consequences of failure and degree of control of the projects. It includes managing start-up, project implementation, project integration and follow-up activities. Contract management requirements are not included as this aspect is addressed by units of competency within the Competency field of *Procurement and Contract Management*.

In practice, managing complex projects overlaps with other generalist and specialist work activities such as acting ethically, coordinating resource allocation and usage, developing client services, undertaking research and analysis, etc.

When this unit is completed in conjunction with *PSPPM501B Design complex projects*, and *PSPPM503B Close complex projects*, the three units together are equivalent to the nine private sector Business Services project management competencies: BSBPM501A - BSBPM509A inclusive.

This unit replaces and is equivalent to *PSPPM502A Manage projects*.

Application of the Unit

Not applicable.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements are the essential outcomes of the unit of competency. Together, performance criteria specify the requirements for competent performance. Text in *bold italics* is explained in the Range Statement following.

Elements and Performance Criteria

ELEMENT

PERFORMANCE CRITERIA

1. Manage start-up activities

- 1.1 *Project plans* are refined in consultation with steering committee and team members, and precise details are included for schedules of activities, milestones and resources
- 1.2 *Required systems* are established and maintained throughout the project in accordance with the complexity of the project and in line with the project plan
- 1.3 Project team members' understanding of and commitment to fulfilling the project requirements and their roles and responsibilities for the duration of the project are confirmed
- 1.4 *Project management tools* are selected and applied effectively to achieve project outcomes

2. Manage project implementation

- 2.1 *Integration and management* of complex project activities are handled in accordance with the project plan
- 2.2 Leadership and required *development* are provided to the project team, and morale, stress levels and triggers are managed throughout the life of the project in accordance with organisational *policy and procedures*
- 2.3 *Stakeholder* input and expectations are managed throughout the project in accordance with the communication plan
- 2.4 Disagreements and disputes are resolved to the satisfaction of stakeholders or referred to a higher authority in accordance with organisational policy and procedures
- 2.5 Project *change proposals* are negotiated, agreed and documented in accordance with policy and procedures

3. Manage project

- 3.1 All aspects of the project and related projects are integrated and

ELEMENT**PERFORMANCE CRITERIA****integration**

links are established to ensure objectives are met in accordance with the project plan

3.2 Consultation and reporting mechanisms are applied in accordance with the communication plan and staff and contractors are regularly consulted to discuss progress and ensure effective results

3.3 Project integration is monitored, and management plans and any related contracts are reviewed and amended as appropriate, with results reported in accordance with mechanisms identified in the communication plan

3.4 Ongoing progress is monitored against agreed milestones in accordance with the project plan to provide a measure of performance throughout the life of the project

3.5 Programmed review of objectives and achievement is planned and implemented in accordance with the project plan

4. Coordinate project follow-up activities

4.1 Significant judgment is applied in the analysis of project deliverables against *specifications*, performance standards and project objectives, and the results are reported to stakeholders

4.2 Support package arrangements are identified and offered to stakeholders who will be required to apply the project results

4.3 Options for stakeholders to take account of environmental and cultural factors in applying the project results are included in the support package

4.4 Operational and support authorities are consulted to investigate any testing/trialling/building and evaluation requirements resulting from the project, and funding implications estimated in project report

Required Skills and Knowledge**REQUIRED SKILLS AND KNOWLEDGE**

This section describes the essential skills and knowledge and their level, required for this unit.

Skill requirements

Look for evidence that confirms skills in:

leading and mentoring people to achieve project outcomes

maintaining agreement of stakeholders and team members to timelines, roles and responsibilities

negotiating with stakeholders and team members using communication styles to suit

REQUIRED SKILLS AND KNOWLEDGE

different audiences and purposes
responding to diversity, including gender and disability
using project management tools applicable to reasonably complex projects
applying ethical decision making and problem solving related to project management of reasonably complex projects
writing recommendations and preparing project reports requiring precision of expression
applying workplace safety procedures in line with project requirements
accessing/preparing information electronically or in hard copy

Knowledge requirements

Look for evidence that confirms knowledge and understanding of:
legislation, organisational policies and procedures that may impact on project implementation, for example:
public sector codes of ethics/conduct
occupational health and safety and environmental and sustainability requirements
project governance requirements
quality standards
risk management
procurement guidelines
financial management and budgetary framework
human resources
equal employment opportunity, equity and diversity principles
project management tools to suit a range of reasonably complex projects in terms of scope, degree of risk, political, cultural and social factors that apply, consequences of failure and degree of control of the project
project management systems
organisational and political context
critical analysis in a project management context
business and commercial issues related to the projects managed

Evidence Guide

EVIDENCE GUIDE

The Evidence Guide specifies the evidence required to demonstrate achievement in the unit of competency as a whole. It must be read in conjunction with the Unit descriptor, Performance Criteria, the Range Statement and the Assessment Guidelines for the Public Sector Training Package.

EVIDENCE GUIDE

Units to be assessed together

- *Pre-requisite* units that must be achieved prior to this unit: *Nil*
- *Co-requisite* units that must be assessed with this unit: *Nil*
- *Co-assessed units* that may be assessed with this unit to increase the efficiency and realism of the assessment process include, but are not limited to:

PSPETHC501B Promote the values and ethos of public service

PSPGOV502B Develop client services

PSPGOV503B Coordinate resource allocation and usage

PSPGOV504B Undertake research and analysis

PSPGOV505A Promote diversity

PSPPM501B Design complex projects

PSPPM503B Close complex projects

PSPPROC501A Manage contract risk

PSPPROC503A Manage contract performance

Overview of evidence requirements

In addition to integrated demonstration of the elements and their related performance criteria, look for evidence that confirms:

- the knowledge requirements of this unit
- the skill requirements of this unit
- application of the Employability Skills as they relate to this unit (see Employability Summaries in Qualifications Framework)
- management of complex projects in a range of (3 or more) contexts (or occasions, over time)

Resources required to carry out assessment

These resources include:

- legislation, guidelines, procedures and protocols relating to project management in the organisation and the public sector
- workplace project documentation
- scenarios and case studies
- examples of project management tools

Where and how to assess evidence

Valid assessment of this unit requires:

- a workplace environment or one that closely resembles normal work practice and replicates the range of conditions likely to be encountered when managing complete projects, including coping with difficulties, irregularities and breakdowns in routine
- management of complex projects in a range of (3 or more) contexts (or occasions, over time)

Assessment methods should reflect workplace demands, such as

EVIDENCE GUIDE

literacy, and the needs of particular groups, such as:

- people with disabilities
- people from culturally and linguistically diverse backgrounds
- Aboriginal and Torres Strait Islander people
- women
- young people
- older people
- people in rural and remote locations

Assessment methods suitable for valid and reliable assessment of this competency may include, but are not limited to, a combination of 2 or more of:

- case studies
- demonstration
- portfolios
- questioning
- scenarios
- authenticated evidence from the workplace and/or training courses

For consistency of assessment

Evidence must be gathered over time in a range of contexts to ensure the person can achieve the unit outcome and apply the competency in different situations or environments

Range Statement

RANGE STATEMENT

The Range Statement provides information about the context in which the unit of competency is carried out. The variables cater for differences between States and Territories and the Commonwealth, and between organisations and workplaces. They allow for different work requirements, work practices and knowledge. The Range Statement also provides a focus for assessment. It relates to the unit as a whole. Text in *italics* in the Performance Criteria is explained here.

Project plans will include some or all of

- acquisition strategies
- budget and financial management strategy
- contract management
- cost estimates
- evaluation criteria
- expected outcomes/measurable benefits of the project
- facilities

- inclusions and exclusions from project
- information/communication strategy
- intellectual property strategies
- milestones
- objectives
- outputs/project deliverables and their acceptance criteria
- people plan including human resource management and human resource development
- performance criteria/indicators
- project control mechanisms
- project implementation strategy
- project governance strategy
- purpose
- quality assurance
- quality control
- quality standards for project
- rationale
- required project resources
- resource management
- risk management
- roles and responsibilities
- schedule/timeline
- task/work breakdown structure (WBS)
- planning and monitoring system
- financial management including:
 - budget allocation/funding
 - income generated
 - expenditure
- recordkeeping for documented information such as:
 - correspondence
 - quality data including survey, needs, test results
 - contracts
 - time allocated and spent on each aspect of the project
 - progress reports
 - performance reports against milestones
 - project outcomes
 - samples, prototypes, models
- risk analysis
- organisational project governance framework
- communications plan
- reporting framework
- project management software and other tools:

Required systems for project management may include

Project management tools may include

	• Gantt and bar charts • Program Evaluation and Review Technique (PERT) charts • Critical Path Method • cost schedule control system • logistics support analysis • life cycle cost analysis • spreadsheets • recording systems - electronic and manual
<i>Integration of project activities may include</i>	• scope • time • cost • quality • human resources • communications • risk • procurement
<i>Management may include</i>	• scope management • communication and reporting • schedule management • financial management • fraud control • quality management • resources management • people management • logistics management • risk management • contract management • project implementation • transition • change management
<i>Development may include</i>	• regular meetings • feedback • encouragement • mentoring and coaching • additional physical and human resources (within allocated budget) if and as required
<i>Policy and procedures may include</i>	• government legislation (Federal, State and Local) affecting organisation's administration such as: • public sector management acts • financial management and accounting legislation and regulations • privacy legislation

- government and organisational guidelines and procedures relating to:
- project governance
- resourcing
- security
- strategic plans
- recruitment
- risk management
- procurement guidelines
- designation approvals
- industrial agreements
- environment and sustainability

- Stakeholders may include*
- project sponsor/funding bodies
 - clients or customers (internal and external)
 - industry
 - other agencies
 - general public
 - relevant interest groups
 - unions
 - functional areas
 - the organisation's senior management
 - Ministers
 - project team
 - steering committee
 - end user
 - supplier/service provider

- Contract change proposals may include*
- administration
 - cost
 - engineering, technical, technology changes
 - resources
 - scope
 - specifications
 - time

- Specifications may include*
- functional
 - technical
 - performance
 - material

Unit Sector(s)

Not applicable.

Competency field

Competency field Project Management

PSPPM503B Close complex projects

Modification History

Not applicable.

Unit Descriptor

Unit descriptor

This unit covers closure of projects that may be reasonably complex in terms of scope, degree of risk, political, cultural and social factors that apply, consequences of failure and degree of control of the projects. It includes reviewing project activity and managing project closure. Contract management requirements are not included as this aspect is addressed by units of competency within the Competency field of *Procurement and Contract Management*.

In practice, closing complex projects overlaps with other generalist and specialist work activities such as acting ethically, coordinating resource allocation and usage, developing client services, undertaking research and analysis, etc.

When this unit is completed in conjunction with *PSPPM501B Design complex projects* and *PSPPM502B Manage complex projects*, the three units together are equivalent to the nine private sector Business Services project management competencies: BSBPM501A - BSBPM509A inclusive.

This unit replaces and is equivalent to *PSPPM503A Finalise projects*.

Application of the Unit

Not applicable.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements are the essential outcomes of the unit of competency. Together, performance criteria specify the requirements for competent performance. Text in *bold italics* is explained in the Range Statement following.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Review project activity	1.1 Evaluation of project process, supplier performance and achievement against objectives is undertaken in consultation with <i>stakeholders</i> and results are reported in accordance with the <i>project plan</i> evaluation framework and organisational <i>policy and procedures</i> 1.2 The extent to which clients needs were met is evaluated and action to rectify problems is identified and documented 1.3 Implications of project outputs/outcomes for policies and operating procedures are identified and recommendations are made for their amendment 1.4 Information obtained from the evaluation of the project is provided in accordance with organisational requirements so it may be used to improve relevant policy and practice
2. Manage project closure	2.1 Any funding associated with the project is acquitted against project budget items, and financial records are checked for accuracy and completed in accordance with organisational procedures 2.2 Project wind-down is <i>managed</i> and <i>documentation</i>, records and <i>approvals</i> are handled in accordance with project plan and organisational policy and procedures 2.3 Project stakeholders are debriefed, and infrastructure and resources are redeployed in accordance with organisational policy and procedures 2.4 Project hand-over to user/s is completed in accordance with organisational procedures, and lessons learnt are documented and reported to stakeholders to assist in continuous

ELEMENT

PERFORMANCE CRITERIA

improvement

2.5 Stakeholders are advised of procedures and authorities for initial support to apply project results where relevant, and strategies are provided to manage long-term project momentum in accordance with organisational requirements

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the essential skills and knowledge and their level, required for this unit.

Skill requirements

Look for evidence that confirms skills in:

analysing results and evaluating outcomes against objectives
writing recommendations and preparing reports requiring precision of expression
communicating with stakeholders and team members using a range of communication styles to suit different audiences and purposes
responding to diversity, including gender and disability
debriefing stakeholders and redeploying resources and infrastructure
acquitting and reporting on resource expenditure including time and costs
using project management tools applicable to reasonably complex projects
applying workplace safety procedures in line with project requirements
accessing/preparing information electronically or in hard copy

Knowledge requirements

Look for evidence that confirms knowledge and understanding of:

legislation, organisational policies and procedures that may impact on project finalisation, for example:
public sector codes of ethics/conduct
occupational health and safety and environmental and sustainability requirements
project governance requirements
quality standards
risk management
procurement guidelines
financial management
human resource management and development
equal employment opportunity, equity and diversity principles

REQUIRED SKILLS AND KNOWLEDGE

project specifications and objectives

project management tools to suit a range of reasonably complex projects in terms of scope, degree of risk, political, cultural and social factors that apply, consequences of failure and degree of control of the project

project management principles and systems

critical analysis in a project management context

business and commercial issues related to the projects managed

organisational and political environment

Evidence Guide

EVIDENCE GUIDE

The Evidence Guide specifies the evidence required to demonstrate achievement in the unit of competency as a whole. It must be read in conjunction with the Unit descriptor, Performance Criteria, the Range Statement and the Assessment Guidelines for the Public Sector Training Package.

Units to be assessed together

- *Pre-requisite* units that must be achieved prior to this unit: *Nil*
- *Co-requisite* units that must be assessed with this unit: *Nil*
- *Co-assessed units* that may be assessed with this unit to increase the efficiency and realism of the assessment process include, but are not limited to:

PSPETHC501B Promote the values and ethos of public service

PSPGOV502B Develop client services

PSPGOV503B Coordinate resource allocation and usage

PSPGOV504B Undertake research and analysis

PSPGOV505A Promote diversity

PSPGOV507A Undertake negotiations

PSPGOV512A Use complex workplace communication strategies

PSPGOV517A Coordinate risk management

PSPPM501B Design complex projects

PSPPM502B Manage complex projects

PSPPROC504A Finalise contracts

Overview of evidence requirements

In addition to integrated demonstration of the elements and their related performance criteria, look for evidence that confirms:

- the knowledge requirements of this unit

EVIDENCE GUIDE

- the skill requirements of this unit
- application of the Employability Skills as they relate to this unit (see Employability Summaries in Qualifications Framework)
- reviewing and closing complex projects in a range of (3 or more) contexts (or occasions, over time)

Resources required to carry out assessment

These resources include:

- legislation, guidelines, procedures and protocols relating to project close-out
- workplace project documentation
- scenarios and case studies
- examples of project management tools suited to reasonably complex projects

Where and how to assess evidence

Valid assessment of this unit requires:

- a workplace environment or one that closely resembles normal work practice and replicates the range of conditions likely to be encountered when reviewing and closing complex projects, including coping with difficulties, irregularities and breakdowns in routine
- reviewing and closing complex projects in a range of (3 or more) contexts (or occasions, over time)

Assessment methods should reflect workplace demands, such as literacy, and the needs of particular groups, such as:

- people with disabilities
- people from culturally and linguistically diverse backgrounds
- Aboriginal and Torres Strait Islander people
- women
- young people
- older people
- people in rural and remote locations

Assessment methods suitable for valid and reliable assessment of this competency may include, but are not limited to, a combination of 2 or more of:

- case studies
- demonstration
- observation
- portfolios
- projects
- questioning
- scenarios
- simulation or role plays

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- authenticated evidence from the workplace and/or training courses

For consistency of assessment

Evidence must be gathered over time in a range of contexts to ensure the person can achieve the unit outcome and apply the competency in different situations or environments

Range Statement

RANGE STATEMENT

The Range Statement provides information about the context in which the unit of competency is carried out. The variables cater for differences between States and Territories and the Commonwealth, and between organisations and workplaces. They allow for different work requirements, work practices and knowledge. The Range Statement also provides a focus for assessment. It relates to the unit as a whole. Text in *italics* in the Performance Criteria is explained here.

Stakeholders may include

- project sponsor/funding bodies
- clients or customers (internal and external)
- industry
- other agencies
- general public
- relevant interest groups
- unions
- functional areas
- the organisation's senior management
- Ministers
- project team
- steering committee members
- end user
- supplier/service provider

Project plan will include some or all of

- acquisition strategies
- budget and financial management strategy
- contract management
- cost estimates
- evaluation criteria
- expected outcomes/measurable benefits of the project
- facilities
- inclusions and exclusions from project
- information/communication strategy

RANGE STATEMENT

	• intellectual property strategies • milestones • objectives • outputs/project deliverables and their acceptance criteria • people plan including human resource management and human resource development • performance criteria/indicators • project control mechanisms • project implementation strategy • project governance strategy • purpose • quality assurance • quality control • quality standards for project • rationale • required project resources • resource management • risk management • roles and responsibilities • schedule/timeline • task/work breakdown structure (WBS)
<i>Policy and procedures may include</i>	• government legislation (Federal, State and Local) affecting organisation's administration such as: • public sector management acts • financial management and accounting legislation and regulations • privacy legislation • government and organisational guidelines and procedures relating to: • project governance • resourcing • security • strategic plans • recruitment • risk management • procurement guidelines • designation approvals • industrial agreements • environment and sustainability
<i>Management of project</i>	• risks • issues

RANGE STATEMENT

wind-down may include

- assets
- consultants
- project team
- support staff

Documentation may include

- project completion report
- supplier performance reports
- whole-of-life support plans
- transfer documents
- financial reports and acquittals
- evaluation reports
- transition plans

Approvals may be required from

- project sponsor/funding body
- business owner of the project
- program manager
- line manager
- project governance office/personnel in the organisation
- chief executive officer, manager or management representative
- customer or client

Unit Sector(s)

Not applicable.

Competency field

Competency field Project Management

PSPPM601B Direct complex project activities

Modification History

Not applicable.

Unit Descriptor

Not applicable.

Application of the Unit

Not applicable.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements are the essential outcomes of the unit of competency. Together, performance criteria specify the requirements for competent performance. Text in *bold italics* is explained in the Range Statement following.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA

ELEMENT**PERFORMANCE CRITERIA****1. Identify project scope in a strategic context**

- 1.1 Organisational requirements are anticipated/identified and communicated to project developers and managers
- 1.2 Project definition studies are undertaken and the results are analysed against similar projects already conducted to determine/approve the scope of projects
- 1.3 Project *infrastructure* is approved in accordance with organisational *policy and procedures*
- 1.4 Projects are initiated in accordance with the organisation's strategic direction in consultation with clients
- 1.5 Conceptual and analytical skills are applied to develop a management strategy to ensure project objectives and client requirements are met
- 1.6 An effective *risk management* system is developed and applied to ensure project objectives are met within the organisation's accountability framework

2. Manage establishment of projects

- 2.1 The political context is managed and *stakeholder* expectations are influenced in accordance with organisational policy and procedures, to ensure endorsement and *whole-of-life support* for the project
- 2.2 Project scope and objectives are analysed to determine the *work breakdown structures* to achieve project objectives on time and within budget, and project infrastructure is acquired and allocated
- 2.3 *Project plans* are approved and a personal work plan for checking progress, mentoring, reading reports, providing feedback and authorising approvals is developed in accordance with project requirements
- 2.4 Processes identified for monitoring, evaluating and reporting performance against project objectives are established in accordance with project requirements

3. Manage integration of project activities

- 3.1 All aspects of the project and related projects are *integrated* and links are established to ensure objectives remain appropriate
- 3.2 Consultation and reporting mechanisms are applied in accordance with project requirements to regularly consult with and provide advice to staff and contractors, and to discuss progress to ensure effective results
- 3.3 Stakeholders' motivations are identified and considered in the management of the project
- 3.4 Progress is monitored to ensure time, performance, cost and quality of project are achieved, and change proposals are investigated, negotiated and approved in consultation with

ELEMENT	PERFORMANCE CRITERIA
	stakeholders
	3.5 High-level judgment is applied to provide ongoing advice and to resolve disagreements and disputes to the satisfaction of parties involved
4. Finalise and review project activities	4.1 Finalisation plans are developed to ensure all objectives are achieved, whole-of-life support will be maintained, and transition to next/following projects is facilitated 4.2 <i>Documented information</i> is evaluated, and lessons learnt are analysed and reported to stakeholders to assist in continuous improvement 4.3 Evaluation of project achievement against objectives is monitored in accordance with the evaluation framework and is reported to approval authorities and stakeholders in accordance with organisational policy and procedures

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the essential skills and knowledge and their level, required for this unit.

Skill requirements

Look for evidence that confirms skills in:

managing projects
 leading and mentoring people to achieve project outcomes
 maintaining commitment of stakeholders and project teams
 negotiating with stakeholders and team members using a range of communication styles to suit different audiences and purposes
 responding to diversity, including gender and disability
 using project management tools applicable to complex project activities
 applying risk management techniques including risk sharing and transfer
 managing finances to bring in complex projects within budget
 applying ethical decision making and problem solving related to project management of complex projects
 writing recommendations and preparing reports requiring precision of expression
 applying workplace safety procedures in line with project requirements
 accessing/preparing information electronically or in hard copy

Knowledge requirements

REQUIRED SKILLS AND KNOWLEDGE

Look for evidence that confirms knowledge and understanding of:

- legislation, organisational/jurisdictional policies and procedures that may impact on project implementation, for example:
- public sector codes of ethics/conduct
- occupational health and safety and environmental and sustainability requirements
- project governance requirements
- quality standards
- risk management
- procurement guidelines
- budgetary framework
- financial management requirements
- human resources
- public relations
- equal employment opportunity, equity and diversity principles
- project specifications and objectives
- project management tools and techniques suited to a range of complex projects activities
- project management systems
- organisational and political context
- critical analysis in a project management context
- cost schedule control systems to handle potential budget blow-outs
- business and commercial issues related to the projects managed

Evidence Guide

EVIDENCE GUIDE

The Evidence Guide specifies the evidence required to demonstrate achievement in the unit of competency as a whole. It must be read in conjunction with the Unit descriptor, Performance Criteria, the Range Statement and the Assessment Guidelines for the Public Sector Training Package.

Units to be assessed together

- *Pre-requisite* units that must be achieved prior to this unit: *Nil*
- *Co-requisite* units that must be assessed with this unit: *Nil*
- *Co-assessed units* that may be assessed with this unit to increase the efficiency and realism of the assessment process include, but are not limited to:

PSPGOV601B Apply government systems

EVIDENCE GUIDE

PSPGOV604A Foster leadership and innovation
 PSPGOV605A Persuade and influence opinion
 PSPMNGT604B Manage change
 PSPMNGT605B Manage diversity
 PSPMNGT606B Manage quality client service
 PSPMNGT608B Manage risk
 PSPOHS602A Manage workplace safety
 PSPPOL601A Develop public policy
 PSPPROC602B Direct the management of contracts

Overview of evidence requirements

In addition to integrated demonstration of the elements and their related performance criteria, look for evidence that confirms:

- the knowledge requirements of this unit
- the skill requirements of this unit
- application of the Employability Skills as they relate to this unit (see Employability Summaries in Qualifications Framework)
- complex project activities directed in a range of (3 or more) contexts (or occasions, over time)

Resources required to carry out assessment

These resources include:

- legislation, guidelines, procedures and protocols relating to project management
- workplace project documentation
- scenarios and case studies to capture the range of situations likely to be encountered when directing complex project activities

Where and how to assess evidence

Valid assessment of this unit requires:

- a workplace environment or one that closely resembles normal work practice and replicates the range of conditions likely to be encountered when directing complex project activities, including coping with difficulties, irregularities and breakdowns in routine
- project activities directed in a range of (3 or more) contexts (or occasions, over time)

Assessment methods should reflect workplace demands, such as literacy, and the needs of particular groups, such as:

- people with disabilities
- people from culturally and linguistically diverse backgrounds
- Aboriginal and Torres Strait Islander people

EVIDENCE GUIDE

- women
- young people
- older people
- people in rural and remote locations

Assessment methods suitable for valid and reliable assessment of this competency may include, but are not limited to, a combination of 2 or more of:

- case studies
- demonstration
- portfolios
- questioning
- scenarios
- authenticated evidence from the workplace and/or training courses

For consistency of assessment

Evidence must be gathered over time in a range of contexts to ensure the person can achieve the unit outcome and apply the competency in different situations or environments

Range Statement

RANGE STATEMENT

The Range Statement provides information about the context in which the unit of competency is carried out. The variables cater for differences between States and Territories and the Commonwealth, and between organisations and workplaces. They allow for different work requirements, work practices and knowledge. The Range Statement also provides a focus for assessment. It relates to the unit as a whole. Text in *italics* in the Performance Criteria is explained here.

Project infrastructure may include

- resources including budget
- specialist and technical support
- contractors
- project management skills required
- make-up of project team
- developing the team
- steering committee
- project site, equipment, technology, consumables

Policy and procedures may include

- government legislation (Federal, State and Local) affecting organisation's administration such as:
- public sector management acts

RANGE STATEMENT

	• financial management and accounting legislation and regulations • privacy legislation • government and organisational guidelines and procedures relating to: • project governance • resourcing • security • strategic plans • recruitment • risk management • procurement guidelines • designation approvals • industrial agreements • environment and sustainability
<i>Risk management may include</i>	• acceptance • avoidance • transfer • minimisation
<i>Stakeholders may include</i>	• project sponsor/funding bodies • clients or customers (internal and external) • industry • other agencies • general public • relevant interest groups • unions • functional areas • the organisation's senior management • Ministers • project team • steering committee • end user • supplier/service provider
<i>Whole-of-life support may include</i>	• maintenance • supply • technical data • personnel • training • facilities • packaging, handling

RANGE STATEMENT

<i>Work breakdown structures may include</i>	• storage and transportation • support and test equipment • computing support • how the work is to be performed and how cost and schedule data are to be tracked and reported • identification of project tasks • identification of specific management responsibilities for tasks
<i>Project plans will include some or all of</i>	• acquisition strategies • budget and financial management strategy • contract management • cost estimates • evaluation criteria • expected outcomes/measurable benefits of the project • facilities • inclusions and exclusions from project • information/communication strategy • intellectual property strategies • milestones • objectives • outputs/project deliverables and their acceptance criteria • people plan including human resource management and human resource development • performance criteria/indicators • project control mechanisms • project implementation strategy • project governance strategy • purpose • quality assurance • quality control • quality standards for project • rationale • required project resources • resource management • risk management • roles and responsibilities • schedule/timeline • task/work breakdown structure (WBS)
<i>Integration of project activities may include</i>	• scope • time • cost

RANGE STATEMENT

	• quality • human resources • communications • risk • procurement • organisational project management framework
<i>Documented information may include</i>	• statement of requirement/work • industry development proposals • project plans • risk and issues plan and log • transition plans • project completion report • supplier performance reports • whole-of-life support plans • reports detailing strategies • performance evaluation criteria • project team work plans

Unit Sector(s)

Not applicable.

Competency field

Competency field	Project Management

TAAASS501B Lead and coordinate assessment systems and services

Modification History

Not applicable.

Unit Descriptor

This unit specifies the competence required to provide leadership in assessment and to coordinate assessment validation and appeals processes.

Application of the Unit

Assessment leadership and coordination involves a complex mix of extending own and others expertise in assessment practice, guiding and leading assessors, monitoring assessment practice and taking responsibility for assessment validation and appeals processes.

This competence also involves developing and/or confirming the assessment strategy for an assessment only pathway. In a learning and assessment pathway, the assessment strategy is determined as part of the learning strategy documentation. In that context, this vocational outcome is addressed in **TAADES501B Design and develop learning strategies**.

This unit also includes coordinating and managing assessment across multiple sites, and managing partnership arrangements for assessment services. These performance outcomes may not be applicable in all workplace contexts, depending on the size, scope and needs of the training and/or assessment organisation.

Where this unit is undertaken as a single unit outside of the TAA50104 Diploma of Training and Assessment, learners must demonstrate competence in the following pre-requisite units:

TAAASS401C Plan and organise assessment

TAAASS402C Assess competence

TAAASS403B Develop assessment tools

TAAASS404B Participate in assessment validation.

Achievement of this unit requires high-level language, literacy skills and cognitive skills in planning, analysis, evaluation and synthesis. This unit also requires leadership skills.

Related competence includes preparing/managing budgets/financial plans, records management, recruitment selection and performance management. These are addressed through a number of relevant imported units from the **BSB01 Business Services Training Package**. These are listed at the end of this unit for possible integrated assessment purposes.

The competence specified in this unit is typically required by lead trainers/facilitators/teachers who assess, lead assessors, program/training and/or assessment coordinators, training managers and training consultants.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

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

Elements and Performance Criteria

Element	Performance Criteria
1 Develop and extend assessment expertise	1.1 Relevant and current research on assessment is accessed, read and incorporated into own and others' assessment practice 1.2 Opportunities to extend assessment expertise are sourced and accessed and new/extended assessment skills and knowledge are incorporated into own and others' assessment practice 1.3 A range of assessment methods is demonstrated in assessment practice 1.4 Cognitive skills are used to guide and support quality assessment practice and address issues in assessment practice 1.5 Ethical standards underpin assessment practice 1.6 Reflection is used to explore and extend expertise in assessment

- 2 **Lead assessment activities**
 - 2.1 **Assessment strategies** are developed and confirmed in assessment only pathways
 - 2.2 Roles, responsibilities and accountabilities of **relevant persons** in assessment are discussed and confirmed
 - 2.3 AQTF and organisational requirements relating to the competence of assessors are confirmed and documented
 - 2.4 Where required, **partnership arrangements** are initiated and developed setting out identified roles, responsibilities and services to be provided
 - 2.5 Strategies for communication and networking are established and maintained with and between assessors
 - 2.6 **Leadership skills** are used to provide clear direction, advice and support to assessors
 - 2.7 Professional development needs and opportunities for assessors are identified and recommendations made to relevant personnel
- 3 **Monitor assessment practice**
 - 3.1 Assessment practice of assessors is systematically monitored in relation to:
 - how client/candidate needs are being met
 - how effectively and accurately the designated competency standards are being interpreted by assessors as the benchmarks for assessment
 - how the **principles of assessment** are being applied in assessment practice
 - assessors' application of assessment methods and assessment tools
 - how the **rules of evidence** are being applied in gathering evidence
 - whether assessment is being conducted in accord with the **policies and procedures** of the organisation's **assessment system**
 - whether organisational/legal/ethical requirements are being met
 - 3.2 **Individual facilitation techniques** are used to guide and support assessors as they work and to

improve assessment practice

- 3.3 Assessment records are analysed to ensure legal/organisational/ethical requirements are being met and appropriate advice is provided to improve record keeping arrangements where issues arise

4 **Coordinate assessment validation activities**

- 4.1 Assessment system policies and procedures relating to validation are accessed and interpreted, and **validation** is initiated in line with organisational/legal/ethical requirements

- 4.2 Risk assessment/analysis is undertaken to determine the **purpose, focus and context** of **validation activities**

- 4.3 **Approaches to validation** are considered and determined

- 4.4 Participants in validation are determined and/or confirmed, and **materials and resources** needed for validation activities are organised

- 4.5 Guidance and leadership is provided to direct and support participants throughout the validation process

- 4.6 **Validation documentation** is finalised and processed in accordance with assessment system/legal/organisational procedures and presented to relevant people, within an agreed timeframe

- 4.7 Recommendations from validation processes are identified and forwarded to the appropriate authority

5 **Manage assessment appeals**

- 5.1 Assessment system policies and procedures for assessment appeals are accessed and interpreted

- 5.2 Documented appeal claims are accessed, read and interpreted

- 5.3 Relevant parties to the appeal are interviewed, and negotiation skills are used to achieve resolution prior to formal appeal, where appropriate

- 5.4 Appeal panel is constituted and a timetable is set to hear unresolved claims

- 5.5 Guidance and leadership are provided to panel members and other parties during the appeal process to ensure fairness, equity, verity and relevance
- 5.6 All **documentation relevant to the appeal process** is checked for accuracy and completeness
- 5.7 **Panel decision** is confirmed and recorded in accordance with organisational policy and procedures, and outcomes are communicated to the parties

Required Skills and Knowledge

Not applicable.

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

To demonstrate competence against this unit candidates must be able to provide evidence that they have undertaken continuous development of own assessment expertise; provided leadership, direction and support to other assessors, including role-modelling good assessment practice; monitored the work of assessors and taken responsibility for initiating, organising and facilitating assessment validation and appeals processes; accurately interpreted the organisation's quality assurance goals and strategies

Evidence Requirements

Required knowledge includes:

competency-based assessment including:
vocational education and training as a competency-based system
assessment is criterion referenced/distinction to norm referenced assessment
criterion used in national VET is endorsed or accredited competency standards defining specifications for performance of work/work

functions and skills/knowledge
reporting of competency-based assessment
competency standards as the basis of
qualifications
the principles of competency-based
assessment

the structure and application of competency
standards

how to interpret competency standards and
other related assessment information to
determine the evidence needed to
demonstrate competency including:

the components of competency

assessment of Employability Skills,
dimensions of competency and OHS
requirements

Training Package Assessment Guidelines

the qualification level of units

AQTF requirement for assessment

the organisation's assessment system policies
and procedures

different assessment methods, purposes and
applications

appeals mechanisms within the organisation

different types of assessment tools, what
tools work for what types of evidence, what
are well-constructed assessment tools and
why

what are the principles of assessment and
how they guide assessment, validation,
appeals processes

what are the rules of evidence, why are they
important, particularly in a validation context

what is an assessment strategy and
assessment plan and what are the
components of assessment strategies and
assessment plans

what is validation, purpose/focus of carrying out validation, different approaches to assessment validation and the critical aspects of validation

different activities and tools for validation and their appropriateness to the purpose/focus

a range of technology and its application to improve or assist in quality assessment

roles and responsibilities of workplace trainers/facilitators, assessors and others - such as vocational experts, workplace supervisors and support persons - in the assessment process, including OHS obligations and duty of care

strategies which ensure the assessment process is transparent and credible, such as:

identifying common pitfalls or errors that affect judgement

open/ongoing communication between assessors

self-assessment

networking

professional development activities for assessors

ongoing contact with industry

using assessment panels or teams

conflict resolution techniques

motivating others

team and group roles and processes, such as:

monitoring progress against key goals

leading others

encouraging team contribution

legal, organisational and ethical responsibilities associated with the assessment system, including:

maintaining client privacy and confidentiality

providing accurate information
duty of care under common law
meeting environmental standards
the industrial relations system,
industry/workplace relations, and industrial
awards/enterprise agreements
compliance with AQTF requirements
copyright and privacy laws in terms of
electronic technology
security of information
plagiarism
Training Packages/competency
standards/other assessment documentation
licensing requirements
compliance requirements of relevant
Commonwealth and state/territory
legislation, including OHS, equal
employment opportunity, anti-discrimination
and state/territory vocational education and
training

Code of Practice for assessors
relevant OHS legislation, codes of practice,
standards and guidelines relating to
providing assessment advice and guidance

Required skills and attributes include:

analysis and interpretation skills to:
evaluate assessment methods and tools
access and interpret organisation's standards
and values

observation skills to:
assess the effectiveness of the organisation's
assessment process
distinguish different types of problems, e.g.
technical, people and theoretical

technology skills to:
use appropriate equipment and software to

systematically monitor assessment process
and practice

distribute information

evaluation skills to:

evaluate validation process and determine
and implement improvements

determine sampling methods to be used to
access information

systematically evaluate personal or others'
practice to improve performance or
understanding

research skills to:

determine sampling methods to be used to
access information

access and analyse relevant documents

use a range of source documents to access
information for validation

problem solving skills to:

combine different modes of thinking such as
creative and analytic for practical problem
solving

anticipate future implications for own and
others' decisions

reliably evaluate alternative solutions

literacy skills to:

read, interpret and evaluate policies and
procedures to monitor assessment and
recognition processes

prepare required documentation and
information for those involved in the
assessment process

prepare written reports regarding validation
outcomes

leadership skills to:

- set direction for others
- influence and motivate others
- guide and support others
- manage conflict
- make informed decisions and recommendations
- schedule validation processes
- gain commitment to validation processes and make recommendations to improve processes

- communication skills to:
 - obtain feedback on validation strategy
 - explain the purpose of reports and other documentation used in the work area
 - use language to influence others
 - promote and implement quality standards

- individual facilitation techniques:
 - guide and support assessors one on one
- conflict resolution techniques to:
 - manage difficulties with and between assessors and between assessors/candidate and/or assessors/other persons
 - address appeals situations and process

- team and group skills to:
 - conduct group discussions to gather ideas
 - recognise different abilities or knowledge
 - build relationships and networks with colleagues

- attributes, including capacity to encourage, accept and utilise feedback
- awareness and sensitivity to individual difference and culture

Products that could be used as evidence

- assessment strategies including quality

include:	- requirements developed and implemented - documented outcomes of an initiated and facilitated assessment validation process - documented outcomes of an initiated and facilitated assessment appeals process - products and materials organised for validation and appeals processes - analysis of assessment records - risk assessment analysis
Processes that could be used as evidence include:	- how opportunities have been provided for assessors to practise and maintain current competence - new and/or extended assessment expertise incorporated into own and others' assessment practice - how support was given to the implementation of quality assurance procedures - leadership, direction and support given to other assessors, including role-modelling of good assessment practice - how improvements were made to assessment and recognition processes
Resource implications for assessment include:	- operating assessment system with working assessors and defined assessment system in place including documented policies and procedures for assessment, validation and appeals - access to competency standards and other assessment documentation - access to assessment materials and tools - access to suitable assessment venue/equipment - workplace documentation - cost/time considerations - personnel requirements
The collection of quality evidence requires that:	assessment must address the scope of this unit and reflect all components of the unit i.e. the Elements, Performance Criteria, Range

Statement, Evidence Guide, Employability Skills

a range of appropriate assessment methods/evidence gathering techniques is used to determine competency

evidence must be gathered in the workplace wherever possible. Where no workplace is available, a simulated workplace must be provided

the evidence collected must relate to a number of performances assessed at different points in time and in a learning and assessment pathway these must be separated by further learning and practice

assessment meets the rules of evidence

a judgement of competence should only be made when the assessor is confident that the required outcomes of the unit have been achieved and that consistent performance has been demonstrated

Specific evidence requirements must include:

demonstrated continuing development of own assessment expertise

providing leadership, direction and support to other assessors, including role-modelling good assessment practice

monitoring the work of assessors and others involved in carrying out assessments

taking responsibility for initiating, organising and facilitating assessment validation and appeals processes

Integrated assessment means that:

this unit can be assessed alone or as part of an integrated assessment activity involving relevant units in the **TAA04 Training and Assessment Training Package**. Suggested units include but are not limited to:

TAACMQ502B Coordinate training and/or assessment arrangements for apprenticeships/ traineeships

TAACMQ503B Lead and conduct training and/or assessment evaluations

TAACMQ505B Lead a team to foster

innovation**BSBFLM513A Manage budgets and financial plans within work team****BSBFLM514A Manage people****BSBRKG502B Manage and monitor business or records systems****BSBHRM506A Manage recruitment, selection and induction processes****BSBMGT503A Prepare budgets and financial plans****BSBWOR502A Ensure team effectiveness.**

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.

Opportunities include:

networking through assessor networks,
communities of practice and membership of
representative organisations
professional and staff development activities
attending forums, conferences, workshops
participating in projects

A range of **assessment methods** includes:

simulations such as hypotheticals,
problem-based exercises and simulated 'real
world' scenarios
structured aural/written questioning
techniques, such as invitation, exploration,
confirmation, investigation and reflection
practical and theoretical tests
workplace projects
structured activities such as role-plays,
presentations, completion of assessment

	activity sheets
	portfolios
	observation
	third party feedback
	product review
Cognitive skills may include:	analysis skills
	synthesis skills
	interpretative skills
	planning skills
	evaluation skills
	problem solving skills
	critical thinking skills
	knowledge transfer skills
Issues may include:	issues and concerns raised by assessors
	issues and concerns raised by candidates
	issues and concerns raised by others
	impacted by the assessment process
	assessment system policy and procedure
	issues
	organisational/legal/ethical issues
Ethical standards include:	following assessment system organisational
	policies and procedures
	ensuring privacy/confidentiality
	demonstrating inclusiveness
	following AQTF standards relating to
	assessment
	ensuring assessment is guided by the
	principles of assessment and the rules of
	evidence
	using Code of Practice for Assessors
	duty of care under common law
	security of information
	confidentiality and privacy requirements
Reflection may include:	asking critical questions about own ability,

for example:
what worked
what did not work
how the session could be improved

reviewing records and journals
critically evaluating personal performance

Assessment strategies are documented frameworks to guide and structure assessment arrangements for a vocational education and training qualification and may include:

the identification and interpretation of competency standards for assessment purposes
the identification and interpretation of related assessment documentation for assessment purposes

application of Training Package Assessment Guidelines

arrangements for recognition of existing competence (RCC/RPL), including provision of guidance and assistance to candidates in gathering and evaluating own evidence

determination of assessment methods for identified competency standards

selection of assessment tools for identified competency standards

organisational arrangements for assessment, including physical and human resources, roles and responsibilities, team assessment and partnership arrangements (where relevant)

nominated quality assurance mechanisms

identified risk management strategies

Relevant persons may include:

assessors in own organisation and on site

assessors in own organisation operating in different site/s

assessors of another organisation which is in partnership with own organisation

personnel of own/another organisation who provide vocational/subject matter expertise and who work with the assessor/s in team assessments

other personnel who assist the assessor in collecting evidence of candidate/s competence

other personnel impacted by the assessment process

Partnership arrangements refers to:

collaborative arrangements between a Registered Training Organisation (RTO) and other organisations including other RTOs which enable the partners to share for mutual benefit their resources, effort, time, costs, responsibility and expertise in the provision of training and/or assessment services. These arrangements are regulated by the AQTF Standards for Registered Training Organisations which requires a written agreement between the RTO and each organisation that provides training and/or assessment services on behalf of the RTO.

Leadership skills may include:

techniques for initiating action and directing decision making

strategies for presenting a confident, assured and unhesitant manner in response to challenging situations

strategies for not accepting unreasonable expectations

maintaining ethical practice and beliefs in the face of opposition

modelling behavioural and personal presentation standards

time management

strategies for acknowledging and respecting the attitudes and beliefs of others

techniques for promoting active and genuine participation

Client/candidate needs may include:

clear information and advice on the assessment process

contextualisation of assessment benchmarks and assessment tools to the assessment environment

timeliness and recognition of readiness for assessment

Principles of assessment guide the assessment process and must address:

assessment tools that support integrated assessment
advice, support and guidance from assessor/s on participation and role in the assessment process
reasonable adjustment needs
cultural sensitivity

validity
reliability
flexibility
fairness

Assessment methods are the particular techniques used to gather evidence and may include:

direct observation, for example:
real work/real time activities at the workplace
work activities in a simulated workplace environment

structured activities, for example:
simulation exercises/role-plays
projects
presentations
activity sheets

questioning, for example:
written questions, for example, on a computer
interviews
self-assessment
verbal questioning
questionnaires
oral or written examinations (applicable at higher AQF levels)

portfolios, for example:
collections of work samples compiled by the

candidate
product with supporting documentation
historical evidence
journal/log book
information about life experience

review of products, for example:
products as a result of a project
work samples/products

third party feedback, for example:
testimonials/reports from
employers/supervisors
evidence of training
authenticated prior achievements
interview with employer, supervisor, peer

Assessment tools contain both the instruments and the procedures for gathering and interpreting evidence in accordance with designated assessment methods and may include:

the instruments to be used for gathering evidence such as:
a profile of acceptable performance measures
templates/proformas
specific questions or activities
evidence/observation checklists
checklists for the evaluation of work samples

candidate self-assessment materials
the procedures, information and instructions for the assessor/candidate relating to the use of assessment instruments and the conditions for assessment

Rule of evidence include:

validity of evidence
sufficiency of evidence
currency of evidence
authenticity of evidence

Assessment system policies and procedures may include but are not limited

candidate selection

to:

- rational and purpose of competency-based assessment
- assessment records/data management/information management
- recognition of current competency/recognition of prior learning/credit arrangements
- assessors - needs, qualifications, maintaining currency
- assessment reporting procedures
- assessment appeals
- candidate grievances/complaints
- validation
- evaluation/internal audit
- costs/resourcing
- access and equity/reasonable adjustment
- partnership arrangements
- links with human resource or industrial relations systems
- links with overall quality management system

Organisational/legal/ethical requirements may relate to:

- AQTF standards in assessment/registration
- Assessment specifications of Training Packages
- state or territory registering body requirements
- clauses defining assessment operations in award and enterprise agreements and relevant industrial arrangements
- confidentiality and privacy requirements
- relevant legislation from all levels of government that affect training and/or assessment operations
- occupational health and safety (OHS)
- environmental issues
- equal opportunity requirements
- industrial relations and anti-discrimination

relevant industry codes of practice
reporting procedures for assessment results
certification procedures/requirements
AQF Guidelines
recording and reporting assessment results
maintaining and retrieving assessment information
quality assurance and/or procedures manuals
goals, objectives, plans, systems and processes
organisational policies/guidelines
access and equity principles and practice
ethical standards
collaborative/partnership arrangements
OHS policies, procedures and programs
quality and continuous improvement processes and standards
defined resource parameters

Individual facilitation techniques include coaching, mentoring, tutoring matching individuals one on one and may be used to:

identify any gaps in assessor skills/competence
explain legal/organisational/policy requirements
clarify assessment issues
provide encouragement and direction
provide feedback/advice/guidance
promote safety in assessment
problem solve

Validation is:

a process involving assessors working in collaboration to review, compare and evaluate their assessment process and their assessment outcomes, in relation to the same units of competency

Purpose, focus and context of validation activities may be:

part of organisational quality assurance arrangements
to address an identified area of risk in assessment practice and quality

to demonstrate compliance with the AQTF Standards for Registered Training Organisations (RTOs)

to provide evidence for external audit

to provide evidence for internal audit

to improve assessment practices

to evaluate the quality of assessment tools

to provide professional development

to increase assessor confidence

to determine whether different assessors using the same tools collect the same types and levels of evidence

to determine whether different assessors interpret the same evidence similarly

to determine whether assessment decisions reflect the rules of evidence

Approaches to validation may include:

analysing and reviewing assessment tools

analysing and reviewing collected evidence

analysing and reviewing assessment decisions/records of assessment outcomes

examining assessment records

examining assessment systems

discussing the assessment process, issues and difficulties in interpretation

holding interviews with each other or with management, trainers/facilitators, candidates

analysing client feedback

observing assessment conduct

using validation tools

reviewing and interpreting Assessment Guidelines

examining assessor qualifications

analysing appeals processes

recording evidence of validation processes and outcomes

Materials and resources for validation

relevant documented assessment strategy

may include:

- samples of assessment materials/tools
- copies of relevant competency standards, modules, Training Package Assessment Guidelines and course assessment requirements
- copies of organisational policies and procedures on validation
- copies of relevant AQTF standards
- copies of assessment records (in accord with confidentiality requirements)
- copies of client/candidate feedback
- determining time/availability for validation sessions
- technology requirements
- meeting room/space for conduct of validation
- copies of occupational health and safety policy, procedures and programs
- copy of quality and continuous improvement policies
- copy of equity policy and procedures

Validation documentation may include:

- report of validation process
- recommendations from validation process
- copies of materials/resources used in validation process
- version control documentation

Assessment appeals:

is a process whereby the candidate, or other interested party, may dispute the assessment decision and seeks a formal review of the decision

Documentation relevant to the appeals process may include:

- candidate's claim for appeal
- documented information given to the candidate outlining assessment system, process and requirements
- records of assessor/meetings with the candidate, discussions and agreements on assessment process

completed self-assessment tools
completed assessment tools signed by
assessor and/or other persons involved in
collecting evidence
supplementary documentation used as
evidence by the candidate
records of assessment outcomes
assessor/candidate feedback reports
records of appeal hearings
records of appeal outcomes

Panel decision may include:

confirmation of original assessment decision
change in decision based on evidence
presented
reassessment of the candidate

Unit Sector(s)

Not applicable.

Competency Field

Assessment

TAADEL503B Provide advanced facilitation to support learning

Modification History

Not applicable.

Unit Descriptor

This unit specifies the competency required to integrate and extend delivery and facilitation practices to support learning of a diverse client base operating in a range of contexts within the vocational education and training sector.

Application of the Unit

Advanced facilitation involves the trainer/facilitator creating a conceptual and experiential framework of professional practice that synthesises applied knowledge of learning theories and practical demonstration in a variety of teaching methodologies and delivery practices to suit different learner needs and learning contexts.

Increasing diversity in the vocational education and training sector client base requires high levels of flexibility in teaching/delivery practices that can support both generic and vocationally specific learner and client competency needs, often independent of time and place. This unit of competency draws on the trainer/ facilitators existing competency in delivery and facilitation to develop advanced facilitation skills, knowledge and practice.

Successful achievement of this unit will depend on the trainer/ facilitator having acquired competency across a number of delivery and facilitation methods and modes to support individual and group learning. These competencies are addressed separately in other units in the Delivery and Facilitation field.

Where this unit is undertaken as a single unit outside of the TAA50104B Diploma of Training and Assessment, learners must

demonstrate competency in the following two pre-requisite units:

TAADEL402B Facilitate group-based learning

TAADEL403B Facilitate individual learning

Plus at least one of these units:

TAADEL404B Facilitate work-based learning

TAADEL501B Facilitate e-learning

TAADEL405B Coordinate and facilitate distance-based learning

TAADEL502B Facilitate action learning projects.

This unit is applied in the context of documented learning frameworks, that is, learning strategies/courses/learning programs.

The competency specified in this unit is typically required by trainers/facilitators in environments requiring higher levels of knowledge and skill in practice. Such trainers/facilitators will often have a role supervising/ mentoring other trainers/facilitators.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

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

Elements and Performance Criteria

Element	Performance Criteria
1 Develop and extend teaching, facilitation and learning practices	1.1 Knowledge of teaching methodologies, facilitation approaches and learning theories is regularly updated to inform, guide and extend delivery and facilitation practices 1.2 This knowledge is synthesised with experiences in teaching and facilitation to support flexibility, innovation and adaptations in differing circumstances 1.3 Current vocational competency/subject matter expertise frames the content of teaching, facilitation and learning practices 1.4 Ethical standards underpin teaching, facilitation and learning practices 1.5 Own practice as a trainer/facilitator is continually evaluated and reflected upon to determine appropriateness of delivery methods 1.6 Existing delivery strategies and delivery plans are reviewed for quality and appropriateness and recommendations to revise are made as necessary 1.7 Collaborative facilitation models are used to broaden teaching, facilitation and learning skills and knowledge
2 Develop learner independence	2.1 Effective learning experiences are created using appropriate learning theories, principles and inclusive practices 2.2 Potential barriers to learning are acknowledged and addressed, where possible, through learner support and adjustment strategies

- 2.3 **Communication and interpersonal skills** are used effectively to motivate learners
 - 2.4 Facilitation practices extend learners' repertoire of preferred learning styles and enhance learner readiness for new learning
 - 2.5 Facilitation practices progressively transfer responsibility for learning in accordance with learners' readiness
- 3 **Manage learning**
 - 3.1 **Learner cues** and feedback are observed and facilitation skills are reviewed, and revised where necessary, to maintain learning momentum
 - 3.2 Activities to develop **meta-cognition skills** and generic skills are integrated into facilitation and learning practices
 - 3.3 Sensitivity related to diversity of culture, learning styles, abilities and experience is modelled
 - 3.4 Explanations of theoretical ideas and principles are linked to learners' existing knowledge and experience using comprehensible language
- 4 **Reflect on teaching, facilitation and learning practices**
 - 4.1 Teaching, facilitation and learning practices are examined to explore, test and develop ideas and theories of learning, and the implications of this for ongoing development of trainer/facilitator competency
 - 4.2 **Formal and informal monitoring** is used to collect evidence for reflections on practice
 - 4.3 Feedback from learners, other clients, colleagues and relevant personnel is sought and used to reflect on performance
 - 4.4 **Reflection** is used to explore and extend expertise in delivery and facilitation practices

Required Skills and Knowledge

Not applicable.

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

To demonstrate competency against this unit candidates must be able to provide evidence that they can meet the facilitation and learning requirements of a diverse client base in a range of contexts within the vocational education and training sector.

This will require developing a conceptual and experiential framework of practice based on applied learning theories and involving the selection and use of appropriate delivery methods and delivery modes to facilitate effective learning experiences and increase learner independence. Competency also requires reflecting on experience to improve practice.

Evidence Requirements

Required knowledge includes:

a sound knowledge of learning theories, for example:

learner-centred

theory of instruction

information processing

cognitive learning theory

andragogy

vocational education and training pedagogy

behavioural learning theory

experiential learning theory

different delivery modes and delivery methods and their appropriateness for different learners/learning situations

code of practice and/or ethics relevant to the vocational education and training sector

ways in which Training Packages, accredited curricula and learning resources can be contextualised to meet the needs of individual learners without compromising standards

range of ways in which professional practice

can be adapted to meet the needs and expectations of individual learners in different learning contexts

research methodologies, for example:

action research

analysis of learner feedback

interviews

learning needs of a range of vocational education and training learners

relevant policy, legislation, codes of practice and national standards including Commonwealth and state/territory legislation, for example:

ensuring fairness of learning opportunities

industrial relation awards and other possible barriers to learning

developing competency

licensing

industry/workplace requirements

duty of care

anti-discrimination including equal opportunity, racial vilification and disability discrimination

workplace relations

industrial awards/enterprise agreements

National Reporting System

occupational health and safety (OHS) knowledge relating to the work role, including:

reporting requirements for hazards

safe use and maintenance of relevant equipment

emergency procedures

sources of OHS information

Required skills and attributes include:

skills in a range of delivery methodologies to

meet the needs of diverse learners, for example:

group facilitation

individual facilitation, including coaching/mentoring

work-based learning

e-learning

action learning

flexible delivery

distance-based learning

reflection skills to:

systematically evaluate personal work practices to improve performance

identify gaps in skills or knowledge

ask critical questions about performance, problems, methods used and learner success

communication and interpersonal skills to:

apply active and reflective listening

adapt language to meet learner requirements

listen perceptively to

learners/clients/colleagues

present information and explain concepts clearly

provide sequenced, structured instructions

apply effective questioning techniques and initiate/response

maintain appropriate relationships

establish trust

build rapport

be open to others' opinions

use appropriate body language

interpret the verbal and non-verbal communication of the learners, e.g.

resistance/reluctance, uncertainty,

enthusiasm, confusion and body language

	observation skills to: - monitor learner progress - monitor group and individual interactions - manage conflict/behavioural difficulties - monitor learner cues re concerns/difficulties in learning - monitor learner readiness for assessment/new areas of learning language skills to hypothesise, plan and influence others literacy skills to: - select, read and interpret Training Package/accredited course information - read and interpret information from a range of sources to identify and respond to learner needs, goals, skills and learning styles - research current issues
Products that could be used as evidence include:	- course delivery documentation - feedback documentation - statements of participation in relevant professional development activities - notes of professional reading - reports and recommendations regarding delivery strategies or approaches - self-assessment journals or reflections
Processes that could be used as evidence include:	- performance-based assessment by supervisor - observation by peers
Resource implications for assessment include:	- access to learning environments in which mixed mode delivery takes place - access to multiple groups - sufficient time to use a wide range of learning theories - access to documented learning frameworks
The collection of quality evidence requires	assessment must address the scope of this

that:

unit and reflect all components of the unit i.e. the Elements, Performance Criteria, Range Statement, Evidence Guide, Employability Skills

a range of appropriate assessment methods/evidence gathering techniques is used to determine competency

evidence must be gathered in the workplace whenever possible. Where no workplace is available, a simulated workplace must be provided

the evidence collected must relate to a number of performances assessed at different points in time and in a learning and assessment pathway these must be separated by further learning and practice

assessment meets the rules of evidence

a judgement of competency should only be made when the assessor is confident that the required outcomes of the unit have been achieved and that consistent performance has been demonstrated

Specific evidence requirements must include:

demonstration of the outcomes, performance requirements, skills and knowledge set out in this unit including:

application of learning theories to different practices in different contexts

the selection and use of different teaching and delivery methods applied in different delivery modes which are relevant and appropriate to different learners and their needs

integration of theory and practice in own performance and in supporting the learner's developing competency

strategies to support increasing learner independence

documentation of reflection processes and outcomes

documentary evidence of direct observations of advanced facilitation practice by third

parties such as supervising teachers/trainers, peers, colleagues, learners, other clients

analysis of feedback from a range of sources and reflection on the success of the training delivery

Integrated assessment means that:

this unit can be assessed alone or as part of an integrated assessment activity involving relevant units in the **TAA04 Training and Assessment Training Package**. Suggested units include but are not limited to:

TAADEL405B Coordinate and facilitate distance-based learning

TAADEL501B Facilitate e-learning

TAADEL502B Facilitate action learning projects.

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.

Teaching methodologies, facilitation approaches and learning theories may include:

learner-centred/teacher-centred

learner-directed/teacher-guided

situated learning

constructivist

problem-based

experiential

information processing

behaviourist

cognitive apprenticeship

Ethical standards include:

following organisational policies and Australian Quality Training Framework

Delivery strategies may include:

(AQTF) requirements
duty of care under common law
security of information
confidentiality and privacy requirements

the focus of delivery, for example:
groups of varying sizes
groups from single context/from multiple contexts
groups of similar educational/competency levels
groups with divergent educational/competency backgrounds
on individuals

the context of delivery, for example:
in the workplace - work in situ
in a simulated work environment
in the training room/classroom
in specialist environments - e.g. laboratory, computer room
through the World Wide Web
at home
in a community setting

the mode of delivery, for example:
face-to-face
technology-based -
electronic/computer-based/online/audiovisual
experiential
distance resource-based
blended

delivery methods, for example:
lock step/learner-paced/mixed

interactive/participative/collaborative
trainer/facilitator-centred, learner-centred
time and place dependent/independent
demonstration

instruction
presentations
guided facilitation
learning-activity-based
guided work-based
activities/applications/experiences
tutoring
project-based
individual facilitation techniques -
coaching/mentoring
blended delivery methods

Collaborative facilitation may include:

other trainers/facilitators, teachers
supervisors
colleagues
specialist staff
associations/bodies representing learner
group with specific support needs
professional associations
government agencies
consultants
networks

Effective learning experiences may be:

authentic experiences
contextualised to the learner
modelled to support transferability of
learning
built on previous experiences or learning
based on actual or simulated work tasks and
activities
relevant to the learning objectives
sequenced in complexity

	inclusive of generic skills
	appropriate to learners' styles
	appropriate to learners' profiles/characteristics
	modelled on inclusive practice
Inclusive practices may include:	demonstrating probity in all areas of responsibility
	modelling organisational/professional codes of conduct
	reinforcing ethical conduct in interactions with and between other people
	showing respect for individual diversity, culture and religion
	recognising and utilising difference to develop both the individual and organisation
	demonstrating sensitivity to the circumstances and background of others
	fostering a culture of inclusiveness
	new/revised policy directions in vocational education and training
Potential barriers to learning may include:	physical or intellectual disabilities
	linguistic, cultural or ethnic differences
	language or communication issues
	age
	employment status
	prior experience in an adult learning environment
	poor educational experiences
	health issues
	issues arising from gender
	psychiatric disabilities
	learning problems
	English language, literacy and numeracy needs
	workplace culture
	location

Learner support strategies may include:

access to resources

providing referrals to internal services such as language, literacy and numeracy support unit, individual learning unit

providing referrals to external services such as community language, literacy and numeracy program, disability support service, counselling support

incorporating techniques such as modelling/ demonstrating, chunking, visual/diagrammatic, opportunities to practise, peer support, and repetition

drawing on range of resources from first language, including peer support

ensuring appropriate physical and communication supports are available

listening to problems and helping within own area of responsibilities and experience

building underpinning knowledge and skills using learning resources

providing access to resources, e.g. computers to access the Internet

Adjustment strategies may include:

engaging most five senses

structuring reflective activities

providing opportunities for practice and feedback

arranging for physical aids for learners with disabilities

Communication skills must include:

providing an open, warm communication style where effective verbal and body language is used

demonstrating a capacity to communicate clearly to facilitate learning within the group and for each individual

using critical listening and questioning techniques

providing constructive and supportive feedback

accurately interpreting verbal messages

	assisting participants to paraphrase advice/instructions to the trainer/facilitator
	providing clear and concrete options/advice
Interpersonal skills must include:	showing respect for learners' expertise/backgrounds
	demonstrating sensitivity to diversity, disability, culture, gender and ethnic backgrounds
	modelling facilitation and learning behaviours
	engaging in two-way interaction
	encouraging the expression of diverse views and opinions
	negotiating complex discussions by establishing a supportive environment
	using language and concepts appropriate to cultural differences
	accurately interpreting non-verbal messages
Learner cues may include:	level of participation
	level of interest
	capacity to meet outcomes
	disengagement
Meta-cognition skills include:	reflection
	interpreting
	problem solving
	analysing
	hypothesising
Formal and informal monitoring may include:	observations
	performance-based measures
	portfolios
	demonstrations
	projects
	journals
Reflection may include:	asking critical questions about own ability, for example:

what worked

what did not work

how the delivery session could be improved

reviewing records and journals

critically evaluating personal performance

Unit Sector(s)

Not applicable.

Competency Field

Delivery and Facilitation

TAADES501B Design and develop learning strategies

Modification History

Not applicable.

Unit Descriptor

This unit specifies the competency required to design, develop and evaluate learning strategies.

Application of the Unit

Learning strategies document a framework for the learning requirements and the teaching/delivery and assessment arrangements of a vocational education and training qualification. The learning strategy is the umbrella document that outlines the requirements for designing the learning and assessment process at the qualification level.

These requirements include: determining the specific criteria or learning outcomes to be achieved; any recognition and entry requirements (if appropriate); an outline of the areas of learning/content to be addressed; the assessment requirements, the broad sequence of learning, the delivery and assessment methods to be used, the resources required and any other additional information to support a learning and assessment pathway to a qualification.

The criteria may already exist if the qualification is part of a Training Package. In this instance the endorsed competency standards packaged within the Training Package qualification constitute the relevant criteria. Alternatively, if the learning strategy takes the form of a course for accreditation, the learning outcomes may need to be developed to reflect an identified industry, enterprise or community need.

This unit addresses the competency requirements for developing a learning strategy relevant to both Training Package qualifications and course-based qualifications.

The learning strategy provides an overview or outline only. Detailed guidance is fleshed out through the content of specific learning programs. Each learning strategy would require development of a number of learning programs, depending on the design approach of the learning strategy.

The competency of developing learning programs is addressed separately in **TAADES402B Design and develop learning programs**.

In a traineeship or apprenticeship context, this unit should be linked directly to **TAACMQ502B Coordinate training and/or assessment arrangements for apprenticeships/ traineeships**, which more closely establishes the learning strategy requirements for that model of training delivery.

The competency specified in this unit is typically required by instructional designers, trainers/facilitators, training consultants and training coordinators/managers.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

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

Elements and Performance Criteria

Element	Performance Criteria
1 Determine the parameters of the learning strategy	1.1 The purpose of the learning strategy is clarified 1.2 The likely target groups and their needs for learning are clarified 1.3 The characteristics of the likely target groups are researched and identified 1.4 Qualification options for meeting the likely target group needs are researched, and the appropriate option is selected 1.5 Consultations are carried out to confirm the parameters of the learning strategy with relevant people
2 Develop the framework for the learning strategy	2.1 The learning strategy design reflects the qualification requirements of the selected qualification

- 2.2 **Industry or organisation documentation** is analysed to determine additional and supporting requirements
 - 2.3 **Options for design** are researched and analysed, based on likely target groups, their learning needs and contexts for delivery
 - 2.4 The learning strategy design reflects and is supported by **appropriate learning theories** and **instructional design principles**
 - 2.5 The design approach is determined and broad **content headings** are identified and documented
 - 2.6 Consultations are carried out to confirm the framework
 - 2.7 The review process for the learning strategy is developed
- 3 **Devise the content and structure of the learning strategy**
 - 3.1 Each content heading is elaborated and documented to form an overview of content to be addressed
 - 3.2 The content is sequenced to support learning, and overall timelines are determined within **operating constraints**
 - 3.3 Learning strategy outcomes are expressed to reflect both **generic** and specific learning outcomes to be achieved
 - 3.4 **Pathways** are addressed and documented
 - 3.5 **Appropriate delivery** and **assessment strategies** are identified and documented, taking account of the learning parameters, design framework and learning context
 - 3.6 **Operational requirements** are identified and documented
 - 3.7 The completed learning strategy is checked for completeness
- 4 **Review the learning strategy**
 - 4.1 The learning strategy is reviewed in collaboration with relevant people against **relevant criteria** prior to and post implementation

- 4.2 A post-implementation review process is documented which includes **measures** for identifying the effectiveness and quality of the learning strategy
- 4.3 Recommendations/changes based on outcomes of the review processes are made, where appropriate, and documented
- 4.4 Modifications are further confirmed with relevant people, where appropriate

Required Skills and Knowledge

Not applicable.

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

To demonstrate competency against this unit candidates must be able to provide evidence that they have designed at least two learning strategies.

The learning strategies provided as evidence must: establish the learning context; identify learner and client needs; identify the units or other criteria which best reflect these needs; outline the learning framework which has been designed and sequenced to maximise learning; be logical, innovative and engaging to the learner group; identify the delivery and assessment arrangements; indicate pathways to, from and within the qualification; identify the operational resources needed to deliver the strategy; and provide a review process both before and after implementation.

Evidence Requirements

Required knowledge includes:

Training Packages, including:
range of current and relevant Training Packages
structure and definition of the endorsable components of Training Packages
content of Training Package/s relevant to

learning strategy

availability of relevant noted support materials

relevant accredited courses

relationship to the National Reporting System (NRS)

AQTF including:

standards for Registered Training Organisations (RTOs)

standards for State and Territory Registering/Course Accrediting Bodies

AQF including:

key features of each qualification

guidelines for each qualification title

national guidelines on cross-sector links

issuing a qualification guideline for qualification title of the learning strategy

guidelines on cross-sector qualification linkages

industry and enterprise knowledge, for example:

the names of relevant industry associations and trade unions

the relevant ISC or state/territory authorities

particular industry or enterprise requirements relevant to the learning strategy

industry licensing arrangements (where relevant)

particular regulations and guidelines relevant to the learning strategy, e.g. immigration, labour market

a general knowledge of the main branches of adult learning theory, for example:

behavioural learning theory

information processing theory
cognitive learning theory
andragogy
vocational education and training pedagogy

learning principles, for example:
adults have a need to be self-directing
adults have a range of life experience which they can connect to learning
adults have a need to know why they are learning something and its benefits
training needs to be learner-centred to motivate adults
the learning environment encourages interaction

instructional learning design, including:
presenting material in a logical order and sequence
presenting material in order of increasing difficulty
opportunities for review of material and repetition
the need for learner activity and interactivity
inclusion of a variety of approaches and techniques for presenting information and activities and for encouraging participation by learning
structure of the information is clear, logical

assessment, including:
Training Package Assessment Guidelines requirements
AQTF requirements
the basis and rationale for different assessment methods appropriate to the learning strategy
assessment tool design

appropriate cultural sensitivity, for example:
organisation diversity policies
cultural learning styles, preferences and
communication of the indigenous community
cultural learning styles, preferences and
communication of other potential target
groups
reasonable adjustment principles and practice

sources of information, for example:
National Training Information Service
(NTIS)
vocational education and training national
bodies - DEST; ISCs; National Centre for
Vocational Education Research (NCVER);
and Australian Qualifications Framework
Advisory Board (AQFAB)
State and Territory Training Authorities
(STAs) and agencies
regulatory agencies
professional associations

relevant policy, legislation, codes of practice
and national standards including
Commonwealth and state/territory
legislation, for example:
security of information
plagiarism
competency standards
licensing
industry/workplace requirements
duty of care under common law
anti-discrimination including equal
opportunity, racial vilification and disability
discrimination
workplace relations
industrial awards/enterprise agreements

relevant OHS knowledge relating to the work role, and OHS considerations which need to be included in the learning strategy, including:

internal policies and procedures to meet OHS requirements

hazards commonly found in the work environment to which learning is related

Required skills and attributes:

literacy skills to:

read, interpret and analyse information

develop and revise the content

write the learning strategy in accordance with design requirements

document and record the strategy using appropriate computer software

planning skills to:

set timelines to develop the learning strategy

organise and structure the development process

identify the tasks to be undertaken

identify measures to monitor progress

research skills and techniques to gather and interpret information relevant to the content and development of the learning strategy, for example:

literature and web-based research

interviews

focus groups

communication skills to:

clearly articulate information

collaborate with others on the strategy development

get feedback on the strategy

	interpersonal skills to: manage conflict and problems negotiate the strategy development solve problems
Products that could be used as evidence include:	documented learning strategies documented reviews of learning strategies evidence of collaboration that took place during the strategy development documentation analysing industry or organisational documentation documentation outlining content research
Processes that could be used as evidence include:	how learner characteristics were researched, the methods used and why how others were consulted to plan the strategy and why those people were selected how Training Package qualification rules were interpreted or how learning outcomes were defined how the learning framework was designed and the reasons for the approach adopted why the content was sequenced in the proposed order how reflection has been built into the learning design process and why it is important
Resource implications for assessment include:	access to industry/organisation documentation access to relevant learner information access to materials/information to support content outline of learning framework time to achieve the unit and meet the evidence requirements access to relevant persons
The collection of quality evidence requires that:	assessment must address the scope of this unit and reflect all components of the unit, i.e. the Elements, Performance Criteria,

Range Statement, Evidence Guide,
Employability Skills

a range of appropriate assessment
methods/evidence gathering techniques is
used to determine competency

evidence must be gathered in the workplace
wherever possible. Where no workplace is
available, a simulated workplace must be
provided

the evidence collected must relate to a
number of performances assessed at different
points in time and in a learning and
assessment pathway these must be separated
by further learning and practice

assessment meets the rules of evidence

a judgement of competency should only be
made when the assessor is confident that the
required outcomes of the unit have been
achieved and that consistent performance has
been demonstrated

**Specific evidence requirements must
include:**

a minimum of two examples of a learning
strategy designed by the candidate with
differentiated design structures in each that
reflect the specific qualification
requirements, client needs and contexts of
application

Integrated assessment means that:

this unit can be assessed alone or as part of
an integrated assessment activity involving
relevant units in the **TAA04 Training and
Assessment Training Package**. Suggested
units include but are not limited to:

**TAADES401B Use Training Packages to
meet client needs.**

**TAACMQ502B Coordinate training
and/or assessment arrangements for
apprenticeships/ traineeships**

**TAAASS501B Lead and coordinate
assessment systems and services.**

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.

Purpose may be to:

implement a Training Package qualification
 meet an identified client, industry or community need
 provide learning pathways/career development
 provide for apprenticeship/traineeship qualifications
 settle in Australia
 develop of English language, literacy and numeracy skills
 meet regulatory requirements

A learning strategy may apply to:

a nationally endorsed qualification from a Training Package or accredited course
 a traineeship or apprenticeship
 a course to be accredited with an AQF qualification outcome

Likely target groups and their needs may include:

existing industry/enterprise employees
 school leavers
 new entrants to the workforce
 apprentices/trainees
 individuals learning new skills/knowledge
 individuals seeking to upgrade skills/knowledge
 individuals changing careers
 unemployed individuals and groups
 learners who have a disability, or are members of target groups such as Aboriginal and Torres Strait Islander communities

Characteristicsof target groups may include:

recent migrants

individuals/groups meeting licensing or other regulatory requirements

particular class of visa holder

level and breadth of work experience

level and previous experiences of formal education

skill/competency profile

socio-economic background

cultural background and needs

age

specific physical or psychological needs

motivation for learning

language, literacy and numeracy needs

learning styles and preferences

as determined by funding body, e.g. residence and length of time in Australia, length of time unemployed

specific levels of English language, literacy and numeracy skill as determined by initial assessment process

Qualification optionsmay include:

selecting a relevant qualification from an endorsed Training Packages

using the packaging guidelines of the Training Package to determine the final mix of units which form the qualification

selecting appropriate existing accredited courses

developing a new accredited course based on combining endorsed units from different Training Packages or developing new competency standards to meet the identified need

Relevant peoplemay include:

enterprise/industry clients

Industry Skills Councils

state/territory industry training advisory bodies

industry associations/employer bodies
 trade unions
 professional associations
 universities
 research agencies
 regulatory/licensing authorities
 subject or technical specialists/experts
 previous clients
 people working in the roles targeted by training
 government agencies and departments, including:
 OHS authorities
 Department of Education, Science and Training (DEST)
 Department of Immigration and Multicultural and Indigenous Affairs (DIMIA)

Qualification requirements may include:

relevant Training Package qualification or packaging rules
 AQF guidelines for qualifications, including:
 key features of each qualification
 guidelines for each qualification title
 national guidelines on cross-sector linkages
 issuing a qualification
 Australian Quality Training Framework (AQTF) Standards for State/Territory Registering/Course Accrediting Bodies
 levels and aspects of communication of the National Reporting System (NRS)

Industry or organisation documentation may include:

workplace policies and procedures
 internal competency specifications
 existing training or learner support materials
 existing course information/curriculum
 industry codes of practice, guidance notes and other industry information on hazard and

risk control
business and risk management strategies
job descriptions
case studies
regulatory requirements related to the job,
including licensing
outcomes of organisational training needs
analyses
documented research relating to potential
content
contextualisation rules of relevant endorsed
industry Training Package/s
relevant Training Package noted support
materials

Options for design may include:

a learning framework that addresses each
unit of competency separately unit by unit
within the qualification
a learning framework that is based on
clustering units into meaningful
combinations to create an integrated learning
framework for the qualification
a learning framework-based on building
from less complex to more complex
tasks/skills/knowledge learning
objectives/outcomes
a learning framework designed around work
structures, work organisation and work
activities
project-based learning models
a learning framework built around
synthesising knowledge and skill
requirements across the qualification
an articulated approach
combinations of the above

**Appropriate learning theories may
include:**

behaviourist
social learning
discovery learning
cognitive learning theory

	constructivist
	situational
	humanistic
	action science
	applied learning models
Instructional design principles may include:	presenting material in a logical order and sequence
	presenting material in order of increasing difficulty
	opportunities for review of material and repetition
	the need for learner activity and interactivity
	inclusion of a variety of approaches and techniques for presenting information and activities and for encouraging participation by learning
	structuring the information effectively
	application of adult learning principles
Content headings may separate learning into:	topics
	subjects
	modules
	units
	knowledge components
	technical skill sets
	work activities
	the development of specific English language, literacy and numeracy skills
	generic skills
Operating constraints may include:	budget
	timelines
	availability of support materials
	nominal hours
	human and physical resourcing requirements
	occupational health and safety (OHS) requirements

Generic outcomes may include:

spoken and written communication
team work
numeracy
problem solving
planning and organising work
use of technology
self-management
initiative and enterprise
how to learn
OHS

Pathways may include:

entry and exit
prerequisites/co-requisites
access and equity
RPL/RCC arrangements
credit transfer arrangements
articulation with other qualifications

Appropriate delivery strategies may include:

the focus of delivery, for example:
groups of varying sizes
groups from single context/from multiple contexts
groups of similar educational/competency levels/groups with divergent educational/competency backgrounds
individuals

the context of delivery, for example:
in the workplace
in a simulated work environments
in the training room/classroom
in specialist environments - e.g. laboratory, computer room
through the Internet
at home
in a community setting

the mode of delivery, for example:

face-to-face

technology-based -
electronic/computer-based/
online/audiovisual

experiential

distance resource-based

blended

delivery methods, including:

lock step/learner-paced/mixed

interactive/participative/collaborative

trainer/facilitator-centred/learner-centred

time and place dependent/independent

demonstration

instruction

presentations

guided facilitation

learning activity-based

guided work-based
activities/applications/experiences

tutoring

project-based

individual facilitation techniques - coaching/
mentoring

blended delivery methods

Appropriate assessment strategies may include:

the identification and interpretation of
competency standards/other criteria for
assessment and for validation

application of Training Packages Assessment
Guidelines

arrangements for recognition of existing
competency (RCC/RPL), including provision
of guidance and assistance to candidates in
gathering and evaluating evidence

determination of assessment methods for identified competency standards

selection of assessment tools for identified competency standards

organisational arrangements for assessment, including physical and human resources, roles and responsibilities and partnership arrangements, where relevant

nominated quality assurance mechanisms

identified risk management strategies

Operational requirements may include:

infrastructure including facilities, plant/equipment

staffing requirements including number of full-time, part-time and sessional trainers/facilitators

other staffing needs including technical support, specialist and administrative personnel

copy/ies of relevant Training Package/s

learning resources

reference lists

Relevant criteria may include:

Training Package requirements

accreditation requirements

curriculum design

OHS implications for delivering the learning strategy

Measures may include:

learner/participant feedback

feedback from clients and industry bodies

enrolments

completion rates

Statements of Attainment, competencies achieved, qualifications awarded

return business

development of language, literacy and numeracy skills as measured by the National Reporting System (NRS)

Unit Sector(s)

Not applicable.

Competency Field

Learning Design

TAAENV501B Maintain and enhance professional practice

Modification History

Not applicable.

Unit Descriptor

This unit specifies the competency required for individuals to manage their personal professional performance and to take responsibility for their professional development in relation to the provision of training and/or assessment services.

Application of the Unit

This unit addresses the processes required to maintain a high level of professional performance in the vocational education and training field. It includes modelling high standards of performance in accordance with professional standards and procedures, and the processes and outcomes involved in determining professional development needs and participating in associated activities.

This unit is also designed to assist vocational education and training personnel to identify strategies for maintaining currency and to respond to changes in vocational education and training policy and the operating environment.

The competency specified in this unit is typically required by a person involved directly or indirectly in the provision of training/ assessment services in a **training and/or assessment organisation** (refer to the definition provided in the Range Statement).

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

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

Elements and Performance Criteria

Element	Performance Criteria
1 Model high standards of performance	1.1 Personal performance is consistent with the organisation's goals and objectives 1.2 Appropriate professional techniques and strategies are modelled 1.3 Personal work goals and plans reflect individual responsibilities and accountabilities in accordance with organisational/legal requirements 1.4 Ethical and inclusive practices are applied in professional practice
2 Determine personal development needs	2.1 Personal knowledge and skills are assessed against units of competency and other relevant benchmarks to determine development needs and priorities 2.2 Changes in vocational education and training policy and operating environments are identified and the impact on professional practice and personal development needs is determined 2.3 Feedback from colleagues and clients is used to identify personal learning needs/areas of professional development 2.4 Future career options are identified 2.5 Personal learning needs are documented and updated 2.6 Personal development needs are discussed with relevant personnel for inclusion in the professional development plan
3 Participate in professional development activities	3.1 Development opportunities suitable to personal learning style/s are selected and used to support continuous learning and maintain currency of

professional practice

- 3.2 **Professional networks** are participated in to support continuous learning and to maintain professional practice
 - 3.3 Own performance and professional competency is continuously improved through engagement in professional development activities
 - 3.4 **Technology** is used to maintain regular communication with relevant networks, organisations and individuals
- 4 **Reflect on and evaluate professional practice**
- 4.1 **Developments and trends** impacting on professional practice are researched and integrated into work performance
 - 4.2 Feedback from colleagues/clients is used to identify and introduce improvements in work performance
 - 4.3 Innovative and responsive approaches for improving professional practice are identified through the use of **continuous improvement techniques and processes**
 - 4.4 Records, reports and recommendations for improvement are managed within the organisation's systems and processes

Required Skills and Knowledge

Not applicable.

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

To demonstrate competency against this unit candidates must be able to provide evidence

that that they have managed their personal professional development. This includes documenting personal learning needs, having input into the professional development plan, in consultation with relevant personnel, participating in relevant industry networks and maintaining currency of professional practice.

Candidates must show that they have participated in relevant industry/professional development events or activities; identified and prioritised individual networking needs; shown how networks have been used to gain information and other support appropriate to workplace or work role; shown how feedback was used to identify further areas for development; used reflection strategies to identify new ways of improving performance; and used technology to access new information.

Evidence Requirements

Required knowledge includes:

- organisational goals/objectives
- organisational processes, procedures and opportunities relating to professional development
- a range of continuous improvement techniques and processes and their application
- social and education trends and changes impacting on the vocational education and training environment, for example:
 - policy changes
 - technological changes
 - cultural changes
 - economical changes
- networks relevant to professional practice
- standards/principles, ethnical/inclusive principles and practices
- types and availability of training development activities and opportunities
- relevant policies, legislation, codes of practice and national standards including national Commonwealth and state/territory legislation for example:
 - Training Packages, competency standards, other relevant benchmarks
 - licensing requirements
 - industry/workplace requirements
 - duty of care under common law

recording information and confidentiality requirements

anti-discrimination including equal opportunity, racial vilification and disability discrimination

workplace relations

industrial awards/enterprise agreements

National Reporting System

relevant OHS knowledge relating to the work role/work context, and OHS when managing own professional practice and performance

Required skills and attributes include:

reflection skills to:

systematically evaluate personal work practices to improve performance or understanding

reduce or prevent stress

leadership skills to present a professional image

self-evaluation skills to:

identify gaps in skills or knowledge

obtain competencies to meet current and future organisational objectives

research skills to:

keep up with trends in vocational education and training to obtain current information

identify relevant industry affiliations

keep up with trends/changes/developments in the vocational area of competency

communication skills to:

obtain feedback from colleagues and clients

participate in professional networks

consult with colleagues and clients

interpersonal skills to:

participate in industry events and activities

build professional relationships

networking skills to build an industry network

literacy skills to:

document personal learning needs

read and interpret vocational education and training information such as legal/organisational policy documents

complete and maintain records related to professional development

time management skills to:

organise professional development activities

analyse and identify career options

create a balance between work, study, personal and recreation activities

Products that could be used as evidence include:

documented personal learning needs

examples of developments and trends researched

examples of continuous improvement techniques and processes used

Processes that could be used as evidence include:

how organisational ethics and/or practices were accessed and applied within organisational requirements

how and why personal development needs were identified

how feedback was obtained from clients and colleagues and used to improve work performance

how and why professional practice was reflected on and evaluated

Resource implications for assessment include:

relevant organisational/legal documentation

access to relevant benchmarks

access to networks, technology,
communication

The collection of quality evidence requires that:

assessment must address the scope of this unit and reflect all components of the unit, i.e. the Elements, Performance Criteria, Range Statement, Evidence Guide, Employability Skills

a range of appropriate assessment methods and evidence gathering techniques is used to determine competency

evidence must be gathered in the workplace wherever possible. Where no workplace is available, a simulated workplace must be provided

the evidence collected must relate to a number of performances assessed at different points in time and in a Learning and Assessment Pathway these must be separated by further learning and practice

assessment meets the rules of evidence

a judgement of competency should only be made when the assessor is confident that the required outcomes of the unit have been achieved and that consistent performance has been demonstrated

Specific evidence requirements must include:

evidence of contribution to professional development plan

evidence of networking and using technology to gain information and other support

evidence of participating in professional development activities and maintaining currency

evidence of incorporating self reflection, feedback obtained from clients/colleagues into professional practice

Integrated assessment means that:

this unit can be assessed alone or as part of an integrated assessment activity involving relevant units in the **TAA04 Training and Assessment Training Package**. Suggested units include but are not limited to:

TAAASS501B Lead and coordinate assessment systems and services

TAACMQ505B Lead a team to foster innovation

TAADEL503B Provide advanced facilitation to support learning.

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.

Training and/or assessment organisation refers to:

a Registered Training Organisation (RTO), i.e. an organisation registered to provide recognised training and assessment services; includes TAFE institutes, private commercial colleges/companies, enterprises, community organisations, group training companies and schools

an organisation working in a partnership arrangement with an RTO to provide recognised training and assessment services

an organisation that provides non-recognised training and assessment services

Organisation's goals and objectives may relate to:

business plan

strategic plan

operational plan/s

organisation's code of conduct

flexibility and client responsiveness

client satisfaction

financial performance

people management

marketing and client service

quality and quality assurance

Professional techniques and strategies may include:

techniques for initiating action and directing decision making

strategies for presenting a confident and assured manner in challenging situations

maintaining ethical practice in the face of opposition

modelling behavioural and personal presentation standards

motivation strategies

time management

strategies for acknowledging and respecting the attitudes and beliefs of others

techniques for promoting active participation

Organisational/legal requirements may include:

customer complaints, grievances and appeals

risk identification and management, including OHS

quality and continuous improvement processes and standards, including validation systems

financial management, including refund policies and systems to protect fees paid in advance (if appropriate)

recognition of qualifications issued by other training and/or assessment organisations

access and equity

client selection, enrolment and induction/orientation

staff recruitment, induction and ongoing development and monitoring

availability of policies and procedures to all personnel and learners/clients

collaborative/partnership arrangements

confidentiality and privacy requirements

ethical standards

defined resource parameters

administrative and records management

Ethical and inclusive practices may include:

system, for example:

reporting/recording requirements and arrangements

maintenance, retention, archiving, retrieval, storage and security of assessment information

document version control

demonstrating probity in all areas of responsibility

modelling organisational/professional codes of conduct

reinforcing ethical conduct in interactions with and between other people

showing respect for individual diversity, culture and religion

recognising and utilising difference to develop both the individual and the organisation

demonstrating sensitivity to the circumstances and background of others

fostering a culture of inclusiveness

new/revised policy directions in vocational education and training

Feedback may include:

formal/informal performance appraisals

obtaining comments from supervisors and colleagues

obtaining comments from clients

personal reflective behaviour strategies

routine organisational methods for monitoring service delivery

Relevant personnel may include:

personnel responsible for initiating and approving the professional development plan for employees in the organisation

Professional development plan refers to:

the organisation's professional development plan for each individual staff member, outlining:

work and personal career objectives

	identified areas requiring development
	learning opportunities/activities
	relevant work activities/projects
	links to organisational training needs profile
Development opportunities may include:	undertaking further higher education/VET qualification
	undertaking professional development in specific areas of practice
	internal training/development programs
	relevant conferences, seminars and workshops
	reading relevant journals and literature
	networking with internal/external colleagues
	coaching and/or mentoring
Currency of professional practice may include:	vocational competency and/or technical expertise in subject matter
	professional practice as a trainer/facilitator, assessor
Professional networks may include:	informal networks with:
	other trainers/facilitators, assessors
	people working in industry/vocational area
	contacts in vocational education and training
	formal networks such as:
	local/interstate assessor/trainer networks
	interest and support groups
	regional, specialist and peak associations
	professional/occupation associations
	communities of practice
Technology may include:	computer-based communication, e.g. email, Internet, Extranet and Intranet
	facsimile machines
	telephone
	video conferencing

Developments and trends may include:

- new/revised Training Packages in vocational area of expertise
- legislative/regulatory changes in vocational area of competency
- new developments/directions/trends in vocational education and training
- policy changes in vocational education and training

Continuous improvement techniques and processes may include:

- limited and systemic evaluation
- records review and maintenance
- self-assessment
- strategic business/operational planning
- ongoing education and training
- team meetings and networking

Unit Sector(s)

Not applicable.

Competency Field

Learning Environment