Australian Government

ICT40613 Certificate IV in Telecommunications Networks Technology

Release 1

INDUSTRY
SKILLS
COUNCILS
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ICT40613 Certificate IV in Telecommunications Networks Technology

Modification History

Release	Comments
Release 2	This version first released with *ICT10 Integrated Telecommunications Training Package Version 3.0.* Change in WHS core unit. Additional elective units included.
Release 1	This version first released with *ICT10 Integrated Telecommunications Training Package Version 1.0.*

Description

This qualification reflects the role of a technician with a range of telecommunications skills who can:

- install and maintain enterprise network in emerging and converging technologies
- install and maintain optical and wireless equipment for high speed broadband network infrastructure
- install and maintain internet protocol (IP) based network telecommunications equipment
- install IP-based networks in home networks and small and medium enterprises
- install and maintain telecommunications, data cabling and cabling products on customer premises Cabling at the customer premises in accordance to requirements of the Australian Communications and Media Authority (ACMA) and relevant industry registration bodies, and in line with the specifications of the access network owner
- install and maintain telecommunications access network cabling and infrastructure, systems and basic customer premises equipment
- assess installation requirements of converging voice, video and data IP networks
- plan and performing installations
- test installed equipment and fault find.

This role involves a degree of autonomy and may include limited supervision of others.

Job Roles

Job roles and titles vary across different sectors of the industry. Possible job titles relevant to this qualification include:

- customer computer system installer
- customer premises equipment installer
- home network installer
- IP-based network installer
- network security equipment installer
- optical network equipment installer
- radio technician
- RFID system installer
- secure IT network installer
- SME network installer
- sustainability network equipment installer
- telecommunications network technician
- wireless LAN installer wireless network equipment installer.
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Prerequisite requirements

The following unit within this qualification have prerequisites. This is detailed as follows:

Code and title	Prerequisite unit required

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ICTCBL2137B Install, maintain and modify customer premises communications cabling: ACMA Open Rule	ICTCBL2136B Install, maintain and modify customer premises communications cabling: ACMA Restricted Rule

Pathways Information

Pathways into the qualification

Candidates may enter this qualification with limited or no vocational experience and without a relevant lower level qualification.

Pathways from the qualification

After achieving ICT40613 Certificate IV in Telecommunications Networks Technology, candidates may undertake ICT50210 Diploma of Telecommunications Network Engineering, a qualification for those seeking to develop more specialised technical skills and knowledge, or a range of other Diploma qualifications.

Licensing/Regulatory Information

All training programs must be conducted with the reference to the regulatory regime of the prevailing statutory authority (currently ACMA).

National Code of Practice for Induction for Construction Work

Some cabling and installation work may fall within the definition of construction work. If so, people entering the construction site are required to complete the general induction training program specified by the National Code of Practice for Induction Training for Construction Work (Australian Safety Compensation Council, May 2007).

Achievement of the unit CPCCOHS1001A Work safely in the construction industry from the CPC08 Construction, Plumbing and Services Training Package fulfils this requirement.

Entry Requirements

There are no entry requirements for this qualification.

Employability Skills Summary

Employability Skill	Industry/enterprise requirements for this qualification include:
Communication	• determining options to rectify faults and discussing them with customer so that necessary action is determined • documenting test methods and results • making a complete check of installation against installation plans • reading, interpreting and using equipment/system manuals and specifications and relevant enterprise policy and documentation • conveying information to clients, colleagues and other site personnel • providing feedback to customers on operating the equipment
Teamwork	• identifying members and roles of team • identifying and contributing to team tasks and goals • recognising and responding positively to conflict within team • working with team members to work with clients and install equipment • relating personal role to the industry • participating in a team structure by identifying team members, tasks and goals and recognising and responding positively to conflict • applying interpersonal skills with clients, employer, supervisors, work associates, team members and other contractors • giving and receiving feedback to assist in meeting team and organisational goals
Problem solving	• ranking causes of problems, working from system-wide impacts to specific impacts • diagnosing network security problems to secure the network • identifying barriers to installation and developing strategies to overcome them within time and budget restrictions • identifying faults or optimisation options • rectifying faults and adjusting system to optimal operation • determining cable routes taking into account building services, safety, industry codes and practices, and customer requirements • following up promptly on difficulties and known problem areas

Employability Skill	Industry/enterprise requirements for this qualification include:
Initiative and enterprise	• prioritising urgent requests and acting according to organisational guidelines • identifying barriers to installation and developing strategies to overcome them within time and budget restrictions • adapting plan to suit specific features of site • identifying issues and possible solutions within established guidelines • interacting with enterprise personnel, customers and other contractors keeping a customer focus and considering customer needs
Planning and organising	• identifying realistic short and long-term career objectives • planning and provision to meet key dates and milestones • gathering data for the installation of systems and equipment • planning the installation of fibre cable, taking into account technical, scheduling and financial considerations • interpreting design and relating to site characteristics • prioritising work according to organisation guidelines • running a test of network security arrangements
Self-management	• identifying realistic short and long-term career objectives • identifying work to be completed • complying with all related WHS requirements and work practices • developing installation plans to ensure minimal disruption to the workplace • checking that tools and equipment are in safe working order and adjusted to manufacturer specification • relating own role to the industry and establishing own work schedule • using strategies to present a professional image to customers • interpreting and applying relevant regulations and standards
Learning	• relating current or intended role to career objectives in a positive manner • giving and receiving feedback to assist in meeting team and organisational goals • making clients aware of opportunities that exist for system upgrades, additional services and training • seeking assistance from team members when necessary • providing suitable training and assessment opportunities

Employability Skill	Industry/enterprise requirements for this qualification include:
	for work team members • providing training to customers on system, product, product features and facilities
Technology	• checking that tools and equipment are in safe working order and adjusted to manufacturer specifications • converging many integrated and emerging technologies • testing and measuring of broadband network infrastructure • installing and operating telecommunications equipment and products • installing and operating equipment and products • identifying, replacing or repairing faulty parts and equipment • undertaking relevant acceptance tests and analysing results against specified performance criteria

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Packaging Rules

Total number of units = 17
8 core units, plus
1 elective unit from Group A workplace units, plus
8 elective units from Group B general units

Elective units must be relevant to the work outcome, local industry requirements and the qualification level.

A maximum of three units from Group B general elective units may be substituted with three units of competency from any endorsed Training Package or any accredited course at Certificate IV or Diploma level. One of those three units from Group B general elective units may be substituted from Group A workplace elective units where required by a specific job role.

Units selected from other Training Packages or accredited courses must not duplicate units selected from or available within the ICT10 Integrated Telecommunications Training Package.

CORE UNITS

ICTBWN3205B Use optical and radio frequency measuring instruments
ICTPMG4152A Manage the delivery of network infrastructure
ICTSUS4185A Install and test power management software
ICTTEN2008A Use electrical skills in telecommunications work
ICTTEN2140B Use hand and power tools
ICTTEN2219A Install and test internet protocol devices in convergence networks
ICTTEN4081A Locate, diagnose and rectify faults
ICTWHS2170B Follow work health and safety and environmental policies and procedures

ELECTIVE UNITS

Group A - Workplace elective units

BSBSMB401A Establish legal and risk management requirements of small business
BSBSMB405B Monitor and manage small business operations
BSBSMB407A Manage a small team
ICAICT401A Determine and confirm client business requirements
ICTTEN4003B Estimate and quote for customer telecommunications equipment installation

Group B - General elective units

Cabling

ICTCBL2136B Install, maintain and modify customer premises communications cabling: ACMA Restricted Rule

ICTCBL2137B Install, maintain and modify customer premises communications cabling: ACMA Open Rule
ICTCBL4002B Prepare design drawings and specification for a cable installation
ICTCBL4004B Schedule and supply cabling installation
ICTCBL4023B Supervise cabling project
ICTCBL4057B Test cable bearers
ICTCBL4099A Remotely locate and identify cable network faults

Digital reception technology

ICTDRE4166A Integrate customer digital reception equipment
ICTDRE4167A Integrate data delivery modes

ICT use
IP networks

ICAICT405A Develop detailed technical design
ICANWK406A Install, configure and test network security
ICANWK416A Build security into virtual private networks
ICANWK417A Build an enterprise wireless network
ICANWK410A Install network hardware to a network
ICANWK411A Install software to networked computers
ICASAS301A Run standard diagnostic tests

Occupational health and safety

CPCCOHS1001A Work safely in the construction industry
ICTOHS2153B Work safely near power infrastructure

Optical networks

ICTOPN4115B Install and test a dense wavelength division multiplexing system
ICTOPN4116A Use advanced optical test equipment
ICTOPN4117A Prepare activity plans and specifications for a fibre to the x installation

Project management

ICTPMG4048B Schedule installation of customer premises equipment

Radio frequency networks

ICTRFN4095A Conduct radio frequency measurements
ICTRFN4158A Select an antenna system for radio communications
ICTRFN4159A Test and repair cellular network equipment
ICTRFN4174A Undertake radio communications signals monitoring
ICTRFN4177A Install radio communications base station equipment
ICTRFN4178A Maintain hybrid fibre coaxial broadband cable network

Sustainability

ICTSUS4183A Install and test renewable energy system for ICT networks
ICTSUS4184A Install and test power saving hardware
ICTSUS4186A Install thin client applications for power over ethernet

Telecommunications engineering networks

ICTTEN2209A Build and maintain a secure network
ICTTEN3056A Install telecommunications network equipment
ICTTEN4001B Identify requirements for customer telecommunications equipment
ICTTEN4040A Assign a transmission path
ICTTEN4051A Install configuration programs on PC based customer equipment
ICTTEN4072A Effect changes to existing customer premises equipment systems and equipment
ICTTEN4073A Cut over customer premises equipment major upgrades
ICTTEN4076A Complete equipment and software upgrades
ICTTEN4078A Commission an electronic system
ICTTEN4085A Monitor, analyse and action telecommunications network alarms
ICTTEN4086A Undertake routine maintenance of the telecommunications network
ICTTEN4087A Undertake remote diagnosis and repair of network faults
ICTTEN4102A Repair telecommunication system faults

Emerging technologies

ICTTEN4050A Install and configure a wireless mesh network
ICTTEN4126A Install and configure internet protocol TV in a home network
ICTTEN4202A Install and test a radio frequency identification system
ICTTEN4215A Install and configure internet protocol TV in a service provider network
ICTTEN4229B Design, install and configure a customer smart technology network

(IP networks)

ICTTEN4198A Install, configure and test an internet protocol network
ICTTEN4199A Install, configure and test a router
ICTTEN4210A Implement and troubleshoot enterprise routers and switches
ICTTEN4211A Design, install and configure an internetwork
ICTTEN4212A Apply advanced routing protocols to network design
ICTTEN4213A Configure and troubleshoot advanced network switching
ICTTEN4214A Install and maintain a wide area network
ICTTEN5201A Install, configure and test a server

Selecting electives for different outcomes

The context of this qualification varies and this must guide the selection of elective units.

The following examples are designed to assist in the selection of appropriate electives for particular outcomes at this level but they are in no way prescriptive.

Customer computer system installer

Core units plus one Group A workplace elective unit plus:

- ICAICT405A Develop detailed technical design
- ICTTEN4076A Complete equipment and software upgrades
- ICTTEN4198A Install, configure and test an internet protocol network
- five additional units from Group B general elective units, with a maximum of one of those additional units from Group A workplace elective units as appropriate to the specific job role

Customer premises equipment installer

Core units plus one Group A workplace elective unit plus:

- ICTTEN4051A Install configuration programs on PC based customer equipment
- ICTTEN4072A Effect changes to existing customer premises equipment systems and equipment
- ICTTEN4073A Cut over customer premises equipment major upgrades
- ICTTEN4078A Commission an electronic system
- four additional units from Group B general elective units, with a maximum of one of those additional units from Group A workplace elective units as appropriate to the specific job role

Home network installer

Core units plus Group A workplace elective unit plus:

- ICTDRE4166A Integrate customer digital reception equipment
- ICTDRE4167A Integrate data delivery modes
- ICTTEN4126A Install and configure internet protocol TV in a home network
- ICTTEN4198A Install, configure and test an internet protocol network
- ICTTEN4229B Design, install and configure a customer smart technology network
- three additional units Group B general elective units, with a maximum of one of those additional units from Group A workplace elective units as appropriate to the specific job role

Network security equipment installer

Core units plus Group A workplace elective unit plus:

- ICANWK406A Install, configure and test network security
- ICANWK416A Build security into virtual private networks
- ICTTEN4198A Install, configure and test an internet protocol network

- ICTTEN4199A Install, configure and test a router
- four additional units Group B general elective units, with a maximum of one of those additional units from Group A workplace elective units as appropriate to the specific job role

Optical network equipment installer

Core units plus Group A workplace elective unit plus:

- ICTOPN4115B Install and test a dense wavelength division multiplexing system
- ICTOPN4116A Use advanced optical test equipment
- ICTOPN4117A Prepare activity plans and specifications for a fibre to the x installation
- ICTRFN4178A Maintain hybrid fibre coaxial broadband cable network
- four additional units Group B general elective units, with a maximum of one of those additional units from Group A workplace elective units as appropriate to the specific job role

RFID System installer

Core units plus Group A workplace elective unit plus:

- ICANWK411A Install software to networked computers
- ICTTEN4202A Install and test a radio frequency identification system
- ICTTEN4198A Install, configure and test an internet protocol network
- ICTTEN4078A Commission an electronic system
- four additional units Group B general elective units, with a maximum of one of those additional units from Group A workplace elective units as appropriate to the specific job role

SME network installer

Core units plus one Group A workplace elective unit plus:

- ICTTEN4210A Implement and troubleshoot enterprise routers and switches
- ICTTEN4211A Design, install and configure an internetwork
- ICTTEN4212A Apply advanced routing protocols to network design
- ICTTEN4213A Configure and troubleshoot advanced network switching
- four additional units Group B general elective units, with a maximum of one of those additional units from Group A workplace elective units as appropriate to the specific job role

Sustainability Network equipment installer

Core units plus Group A workplace elective unit plus:

- ICTSUS4183A Install and test renewable energy system for ICT networks
- ICTSUS4184A Install and test power saving hardware
- ICTSUS4186A Install thin client applications for power over ethernet
- five additional units from Group B general elective units, with a maximum of one of those additional units from Group A workplace elective units as appropriate to the specific job role

Wireless LAN installer

Core units plus Group A workplace elective unit plus:

- ICANWK411A Install software to networked computers
- ICANWK416A Build security into virtual private networks
- ICANWK417A Build an enterprise wireless network
- ICTTEN4198A Install, configure and test an internet protocol network
- four additional units from Group B general elective units, with a maximum of one of those additional units from Group A workplace elective units as appropriate to the specific job role

Wireless network equipment installer

Core units plus Group A workplace elective unit plus:

- ICTRFN4095A Conduct radio frequency measurements
- ICTRFN4158A Select an antenna system for radio communications
- ICTRFN4159A Test and repair cellular network equipment
- ICTRFN4177A Install radio communications base station equipment
- four additional units Group B general elective units, with a maximum of one of those additional units from Group A workplace elective units as appropriate to the specific job role