



Australian Government

ICT40713 Certificate IV in Telecommunications Network Design

Release 1

ICT40713 Certificate IV in Telecommunications Network Design

Modification History

Release	Comments
Release 1	This version first released with <i>ICT10 Integrated Telecommunications Training Package Version 3.0</i> .

Description

This qualification reflects the role of a technician with a range of telecommunications skills and extensive knowledge of the access, building and core networks and client capabilities of the service provider, who can:

- design the customer access network
- design the building network
- design the core network for the service provider and asset owner
- design carrier equipment infrastructure.

This qualification prepares an individual for entry into design for network additions and implementations to accommodate network growth and new technologies within the industry. This is required for the national broadband infrastructure network design.

Job Roles

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

- access, building or core network designer
- telecommunications technician designer
- estimator, surveyor (scoper), or design draftsman.
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Prerequisite units

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

Code and title	Prerequisite units required
ICTTCR3062A Build a telecommunications radio structure	ICTTCR2188A Use rigging practices and systems on telecommunications network structures ICTTCR2189A Use operational safety in a telecommunications rigging environment ICTTCR2190A Use safe rigging practices to climb and perform rescues on telecommunications network structures
ICTTCR3191A Install radio plant and equipment on telecommunications structures	ICTTCR2188A Use rigging practices and systems on telecommunications network structures ICTTCR2189A Use operational safety in a telecommunications rigging environment ICTTCR2190A Use safe rigging practices to

	climb and perform rescues on telecommunications network structures
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Pathways Information

Pathways into the qualification

Preferred pathways for candidates considering this qualification include:

- after achieving a Certificate III in Telecommunications qualification from this Training Package or accredited course

or

- with vocational experience and completion of units ICTCBL2133A, ICTCBL2136B, ICTCBL2137B, ICTCBL3021A and ICTBWN3090B

or

- with substantial vocational experience but without a formal qualification.

Pathways from the qualification

After achieving ICT40713 Certificate IV in Telecommunications Network Design, candidates may undertake ICT50513 Diploma of Telecommunications Planning and Design, a qualification for those seeking to enter management or 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	<ul style="list-style-type: none"> • liaising with client, suppliers and consultants for the supply of non-standard services and materials • negotiating with land and premises owners for the location of plant and equipment • negotiating with land and premises owners for the timing and location of installation and activities • negotiating with constructors on installation requirements • documenting survey methods and results • reading, interpreting and using statistical network reports • conveying information to clients, colleagues and other site personnel
Teamwork	<ul style="list-style-type: none"> • identifying members and roles of team • identifying and contributing to team tasks and goals • 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	<ul style="list-style-type: none"> • 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 design scenarios or optimisation options • determining transmission routes, taking into account building services, safety, industry codes and practices, and customer requirements • following up promptly on difficulties and known problem areas
Initiative and enterprise	<ul style="list-style-type: none"> • 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

Employability Skill	Industry/enterprise requirements for this qualification include:
	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • identifying non-standard or special order services and materials • planning timing and installation activities to meet client and other stakeholder requirements • planning to meet key dates and milestones • gathering data for the installation of systems and equipment • planning the design of fibre cable, taking into account technical, scheduling and financial considerations • interpreting design and relating to site characteristics • prioritising work according to organisational guidelines • running a test of network security arrangements
Self-management	<ul style="list-style-type: none"> • 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 specifications • 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	<ul style="list-style-type: none"> • 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 for work team members • providing training to customers on system, product, product features and facilities
Technology	<ul style="list-style-type: none"> • checking that tools and equipment are in safe working order and are adjusted to manufacturer specifications

Employability Skill	Industry/enterprise requirements for this qualification include:
	<ul style="list-style-type: none">• converging many integrated and emerging technologies• testing and measuring broadband network infrastructure• installing and operating telecommunications equipment and products• installing and operating equipment and products• identifying, replacing and repairing faulty parts and equipment• undertaking relevant acceptance tests and analysing results against specified performance criteria

Packaging Rules

Total number of units = 12

6 core units, plus

1 elective unit from Group A workplace units, plus

5 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 two units from Group B general elective units may be substituted with two units of competency from any endorsed Training Package or accredited course at Certificate IV or Diploma level. One of those two 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

CPCCOHS1001A Work safely in the construction industry

ICTTEN4241A Design network projects

ICTTEN4242A Conduct site surveys to identify carrier installation requirements

ICTTEN4243A Prepare design drawings and specifications for telecommunications installations

ICTTEN4244A Estimate and quote for carrier telecommunications equipment installations

ICTWHS2170B Follow work health and safety and environmental policies and procedures

ELECTIVE UNITS

Group A - Workplace elective units

BSBMGT401A Show leadership in the workplace

BSBWOR401A Establish effective workplace relationships

ICAICT401A Determine and confirm client business requirements

Group B – General elective units

Broadband and wireless networks

ICTBWN3090B Install lead-in module and cable for fibre to the premises

Network Planning

ICTNPL4111A Develop provisioning of telecommunications building works project

ICTNPL4112A Evaluate core network architectures

ICTNPL4113A Plan the deployment of core network

ICTNPL4247A Apply compliance requirements to telecommunications work
ICTNPL4151A Plan the telecommunications access network for an estate

Radio frequency networks

ICTRFN4095A Conduct radio frequency measurements
ICTRFN4158A Select an antenna system for radio communications
ICTRFN4174A Undertake radio communications signals monitoring
ICTRFN4178A Maintain hybrid fibre coaxial broadband cable network
ICTRFN5148A Test and measure cellular phone and network equipment performance

Optical networks

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

Project management

BSBSMB407A Manage a small team
ICTPMG4048B Schedule installation of customer premises equipment
ICTPMG4152A Manage the delivery of network infrastructure

Sustainability

BSBSUS201A Participate in environmentally sustainable work practices
BSBSUS301A Implement and monitor environmentally sustainable work practices
CPCSUS4001A Implement and monitor environmentally sustainable work practices

Workplace Effectiveness

ICTWOR4032A Undertake a civil site survey

Telecommunications rigging installation

ICTTCR2188A Use rigging practices and systems on telecommunications network structures
ICTTCR2189A Use operational safety in a telecommunications rigging environment
ICTTCR2190A Use safe rigging practices to climb and perform rescues on telecommunications network structures
ICTTCR3062A Build a telecommunications radio structure
ICTTCR3191A Install radio plant and equipment on telecommunications structures

Telecommunications engineering networks

ICTTEN4001B Identify requirements for customer telecommunications equipment
ICTTEN4003B Estimate and quote for customer telecommunications equipment installation
ICTTEN4040A Assign a transmission path
ICTTEN4072A Effect changes to existing customer premises equipment systems and equipment

ICTTEN4073A Cut over customer premises equipment major upgrades
ICTTEN4198A Install, configure and test an internet protocol network
ICTTEN4199A Install, configure and test a router
ICTTEN4211A Design, install and configure an internet network
ICTTEN4212A Apply advanced routing protocols to network design
ICTTEN4229B Design, install and configure a customer smart technology network
ICTTEN4245A Design infrastructure for telecommunications network installations
ICTTEN4246A Design dense wavelength digital multiplexing installations

ICT use

ICAICT405A Develop detailed technical design