Australian Government

ICT51015 Diploma of Telecommunications Engineering

Release: 1

INDUSTRY SKILLS COUNCILS
Creating Australia's Future

ICT51015 Diploma of Telecommunications Engineering

Modification History

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

Qualification Description

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

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

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

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

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

Entry Requirements

Entry to this qualification is limited to those individuals who:

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

or

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

or

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

or

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

Packaging Rules

Total number of units = 12
5 core units plus
7 electives units

The electives consist of:

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

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

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

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

Core Units
BSBSUS501 Develop workplace policy and procedures for sustainability
BSBWHS501 Ensure a safe workplace
ICTPMG503 Prepare a project brief
ICTPMG504 Prepare project specifications
ICTTEN516 Produce technical solutions from business specifications

Elective Units

Group A General administration
BSBPMG522 Undertake project work
ICTICT508 Evaluate vendor products and equipment
ICTEDU501 Develop and deliver training associated with new and modified products
ICTPRO501 Develop training, marketing and sales resources for telecommunications products
ICTSUS501 Implement server virtualisation for a sustainable ICT system
ICTTEN502 Design a telecommunications project

Group B General ICT
ICTNWK516 Determine best-fit topology for a local network
ICTCMP501 Undertake radio communications site audit
ICTICT516 Test telecommunications network using virtual instruments
ICTPMG502 Develop customer premises equipment installation project plans
ICTTEN503 Design an electronic system for a telecommunications network
ICTTEN504 Acceptance test new systems and equipment

ICTTEN505 Commission telecommunications network equipment
ICTTEN506 Integrate new systems and equipment into the telecommunications network
ICTTEN507 Cut over new and replacement network equipment
ICTTEN508 Locate, diagnose and rectify complex faults
ICTTEN509 Provide expert advice and support on complex faults
ICTTEN510 Undertake planned outage management
ICTTEN511 Administer a data communications network
ICTTEN512 Design and implement an enterprise voice over internet protocol and a unified communications network
ICTTEN515 Dimension and design a radio frequency identification system
ICTTEN517 Plan a wireless mesh network

Group C Radio communications
ICTRFN501 Test cellular handset enhancements and international roaming agreements
ICTRFN502 Test and measure cellular phone and network equipment performance
ICTRFN503 Evaluate and analyse radio frequency signal coverage plots
ICTRFN601 Monitor the capacity of and recommend changes to the cellular mobile network
ICTRFN602 Produce and evaluate architecture designs for WiMAX networks

Group D Network engineering and management
ICTNPL503 Apply service measures and demand forecasting to products and services planning

Group E Optical and network engineering
ICTOPN501 Plan and configure dense wavelength division multiplexing systems
ICTOPN502 Perform acceptance and commissioning tests on optical network
ICTOPN503 Plan for an optical system upgrade and cut over
ICTOPN504 Test and commission a dense wavelength division multiplexing transmission system
ICTOPN505 Test the performance of specialised optical devices
ICTOPN506 Analyse and integrate specialised optical devices in the network

Group F Management
BSBDES501 Implement design solutions
BSBDES502 Establish, negotiate and refine a design brief
BSBDES601 Manage design realisation
BSBDES602 Research global design trends
BSBFIM501 Manage budgets and financial plans
BSBPMG521 Manage project integration
BSBWHS504 Manage WHS risks
ICTNPL401 Apply business acumen to network planning
ICTNPL409 Apply knowledge of regulation and legislation for the telecommunications industry
ICTPMG610 Develop a project management plan

Group G Network engineering
ICTNPL501 Develop planning strategies for core network design
ICTNPL502 Develop planning strategies for access network design

ICTNPL504 Develop planning strategies for building environment design
ICTTEN501 Provide consultancy and technical support in the customer premises equipment sector
ICTTEN513 Install, configure and test a local area network switch
ICTTEN514 Install, configure and test a server

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

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

Management
Select the following 5 units:

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

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

Network Engineering
Select the following 4 units:

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

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

Optical Network
Select the following 5 units:

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

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

Radio Communications
Select the following 5 units:

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

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

Qualification Mapping Information

Code and title current version	Code and title previous version	Comments	Equivalence status
ICT51015 Diploma of Telecommunications Engineering	ICT50110 Diploma of Optical Networks ICT50210 Diploma of Telecommunications Network Engineering ICT50310 Diploma of Telecommunications Management ICT50410 Diploma of Radio Frequency Networks	Updated to meet Standards for Training Packages. Changes to core units and packaging rules. Increased total number of units required.	No equivalent qualification

Links

Companion volumes are available from the IBSA website - http://companion_volumes.vetnet.education.gov.au/Pages/TrainingPackage.aspx?pid=18