Australian Government

ICT70110 Graduate Certificate in Telecommunications Network Engineering

Release: 2

INDUSTRY
SKILLS
COUNCILS
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ICT70110 Vocational Graduate Certificate in Telecommunications Network Engineering

Modification History

Release	Comments
Release 2	This version first released with *ICT10 Integrated Telecommunications Training Package Version 3.0.* Units updated to current versions.
Release 1	This version first released with *ICT10 Integrated Telecommunications Training Package Version 1.0.*

Description

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

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

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

- system engineer
- solutions architect
- applications technology specialist
- network technology specialist
- network testing specialist
- requirements manager.
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Prerequisite units

There are no prerequisite requirements for individual units of competency.

Pathways Information

Pathways into the qualification

Candidates may enter this qualification through a number of entry points demonstrating potential to undertake study at graduate level, including from:

- the ICT60110 Advanced Diploma of Optical Networks or the ICT60210 Advanced Diploma of Telecommunications Network Engineering or another relevant accredited Training Package qualification or relevant accredited course

or

- a relevant Advanced Diploma or Diploma, or a relevant Certificate IV or Certificate III together with significant relevant vocational practice

or

- a higher education qualification, together with relevant vocational practice

or

- relevant extensive vocational practice, without formal qualifications.

Pathways from the qualification

After achieving the ICT70110 Vocational Graduate Certificate of Telecommunications Network Engineering, candidates seeking to develop more specialised technical skills and knowledge may undertake the ICT80110 Vocational Graduate Diploma of Telecommunications Network Engineering qualification or seek articulation into a university program.

Licensing/Regulatory Information

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

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 organisation 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

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 OHS 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 organisation 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	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 = 6
3 core units, plus
3 elective units

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

A maximum of two elective units may be substituted with two units of competency from any currently endorsed Training Package or accredited course at Vocational Graduate Certificate or Vocational Graduate Diploma level.

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

ICTPMG7145B Undertake a telecommunications project
ICTPMG8142A Manage telecommunications workplace
ICTSUS7235A Use ICT to improve sustainability outcomes

ELECTIVE UNITS

IT use

(IP networks)

ICTITU7106B Manage automated ICT system applications using Unix

Project management

ICTPMG8143B Manage a telecommunications project

Sustainability

ICTSUS7236A Manage improvements in ICT sustainability

Radio frequency networks

ICTRFN7182B Produce a radio link budget

Telecommunications engineering networks

ICTTEN7193B Plan a transmission network
ICTTEN7219A Manage alignment of systems with product and technology strategy

ICTTEN7220A Translate domain and solution architectures into platform requirements and designs
ICTTEN7221A Manage end to end architectural solutions across multiple domains
ICTTEN7222A Manage solution architecture and impacts in line with organisational processes
ICTTEN7223A Manage application layer solutions
ICTTEN7224A Manage voice, data and internet protocol network solutions
ICTTEN7225A Manage network testing strategies
ICTTEN7226A Manage development and application of testing artefacts
ICTTEN7227B Analyse business specifications to produce technical solutions
ICTTEN7228A Manage project requirements and process implementations
ICTTEN7230A Scope project requirements and process solutions

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.

Systems engineer

Core units plus:

- ICTTEN7219A Manage alignment of systems with product and technology strategy
- ICTTEN7220A Translate domain and solution architectures into platform requirements and designs
- one additional unit from elective units as appropriate to the specific job role.

Solutions architect

Core units plus:

- ICTTEN7221A Manage end to end architectural solutions across multiple domains
- ICTTEN7222A Manage solution architecture and impacts in line with organisational processes
- one additional unit from elective units as appropriate to the specific job role.

Technology specialist (application)

Core units plus:

- ICTTEN7223A Manage application layer solutions
- ICTTEN7227B Analyse business specifications to produce technical solutions
- one additional unit from elective units as appropriate to the specific job role.

Technology specialist (network)

Core units plus:

- ICTTEN7224A Manage voice, data and internet protocol network solutions
- ICTTEN7227B Analyse business specifications to produce technical solutions
- one additional unit from elective units as appropriate to the specific job role.

Network testing specialist

Core units plus:

- ICTTEN7225A Manage network testing strategies
- ICTTEN7226A Manage development and application of testing artefacts
- one additional unit from elective units as appropriate to the specific job role.

Requirements manager

Core units plus:

- ICTTEN7228A Manage project requirements and process implementations
- ICTTEN7230A Scope project requirements and process solutions
- one additional unit from elective units as appropriate to the specific job role.

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