ICT30113 Certificate III in Broadband and Wireless 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 tradesperson with a range of telecommunications skills who can:

- install and maintain access network cabling and equipment for high speed broadband as part of the national network
- install and maintain optical and wireless equipment for high speed internet broadband network infrastructure
- install and maintain telecommunications, data cabling and cabling products on customer premises according 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 voice and data telecommunications equipment
- install and maintain telecommunications access network cabling and infrastructure, systems and simple customer premises equipment.

This role includes assessing installation requirements, planning and performing installations, testing installed equipment and fault-finding. It involves a degree of autonomy and may include limited supervision of others.

This qualification also introduces the skills required for the broadband deployment using fibre optic devices.

Job Roles

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

- broadband installer
- optical broadband installer
- wireless broadband network installer
- broadband network infrastructure installer
- access network cabling installer
- installer of telecommunications aerial cable access network
- installer of telecommunications underground cable access network.

Prerequisite Units
The following unit within this qualification has a prerequisite. This is detailed as follows:

Code and title	Prerequisite unit required
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 ICT30113 Certificate III in Broadband and Wireless Networks Technology, candidates seeking to develop more specialised technical skills and knowledge, may select from a range of Certificate IV qualifications in the ICT10 Integrated Telecommunications Training Package.

Licensing/Regulatory Information

All training programs must be undertaken with 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	• documenting test methods and results • conveying information to clients, colleagues and other site personnel • completing job reports and compliance forms • interpreting plan as a set of functions to be implemented • confirming approval for time and method of site access with customers • documenting and communicating work-related information, including reporting of faults and problems • 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 likely causes of fault in order of probability to ensure a methodical approach to fault identification • 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

Employability Skill	Industry/enterprise requirements for this qualification include:
	• 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
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
Self-management	• identifying realistic short and long-term career objectives • identifying work to be completed • 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 • applying all related WHS requirements and work practices, including job safety analysis (JSA), protective clothing and personal safety items • 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

Employability Skill	Industry/enterprise requirements for this qualification include:
	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 • testing and measuring of broadband network infrastructure • installing and operating telecommunications equipment and products • installing and operating equipment and products • installing and configuring access network devices • identifying, replacing or repairing faulty parts and equipment

Packaging Rules

Total number of units = 15
6 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 minimum of five of these electives must be taken from Certificate III 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 accredited course at Certificate III or Certificate IV 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

BSBSUS301A Implement and monitor environmentally sustainable work practises
ICTBWN3205B Use optical and radio frequency measuring instruments
ICTCBL3015A Locate and identify cable system faults
ICTTEN2008A Use electrical skills in telecommunications work
ICTTEN2140B Use hand and power tools
ICTWHS2170B Follow work health and safety and environmental policies and procedures

ELECTIVE UNITS

Group A - Workplace elective units

BSBSMB305A Comply with regulatory, taxation and insurance requirements for the micro business
BSBSMB306A Plan a home based business
ICASAS305A Provide IT advice to clients
ICTEDU3053A Train customers in new technology
ICTWOR2141A Work effectively in a telecommunications technology team
ICTWOR3028A Organise resources
ICTWOR3035A Organise material supply
ICTWOR3041A Schedule resources
ICTWOR3093A Manage spare parts
ICTWOR3127A Supervise worksite activities

Group B - General elective units

Broadband and wireless networks

ICTBWN3082B Perform tests on optical communication system and components
ICTBWN3088B Install optical fibre splitters in fibre distribution hubs
ICTBWN3090B Install lead-in module and cable for fibre to the premises
ICTBWN3100B Work safely with live fibre to test and commission a fibre to the x installation

Cabling

ICTCBL2017B Alter services to existing cable system
ICTCBL2064A Haul underground cable
ICTCBL2065B Splice and terminate optical fibre cable for carriers and service providers
ICTCBL2066B Joint and terminate coaxial cable
ICTCBL2068A Install a telecommunications service to a building
ICTCBL2131A Install an above ground equipment enclosure
ICTCBL2132A Erect aerial cable supports
ICTCBL2133A Construct underground telecommunications infrastructure
ICTCBL2134A Fix aerial cable
ICTCBL2135A Joint metallic conductor cable in access network
ICTCBL2136B Install, maintain and modify customer premises communications cabling: ACMA Restricted Rule
ICTCBL2137B Install, maintain and modify customer premises communications cabling: ACMA Open Rule
ICTCBL2139B Apply safe technical work practices for cabling registration when configuring ADSL circuits
ICTCBL2163A Install a cable lead-in
ICTCBL3009B Install, terminate and certify structured cabling installation
ICTCBL3010B Install and terminate optical fibre cable on customer premises
ICTCBL3011B Install and terminate coaxial cable
ICTCBL3014A Hand over systems and equipment
ICTCBL3018A Install underground enclosures and conduit
ICTCBL3019A Install underground cable
ICTCBL3020A Construct aerial cable supports
ICTCBL3021A Install aerial cable
ICTCBL3067A Modify and cut over cable
ICTCBL3069A Install network cable equipment
ICTCBL3103A Maintain cable network

Occupational health and safety

ICTOHS2080A Provide telecommunications services safely on roofs
ICTOHS2153B Work safely near power infrastructure
CPCCOHS1001A Work safely in the construction industry

Radio frequency networks

ICTRFN3055A Install a radio communications antenna and feedline

ICTRFN3146A Install WiMAX customer premises equipment broadband wireless access equipment
ICTRFN4095A Conduct radio frequency measurements
ICTRFN4178A Maintain hybrid fibre coaxial broadband cable network

Telecommunications engineering networks

ICTTEN3056A Install telecommunications network equipment
ICTTEN3063A Locate, identify and rectify recurrent network faults

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.

Aerial cable installer

Core units plus one Group A workplace elective unit plus:

- ICTCBL2017B Alter services to existing cable system
- ICTCBL2065B Splice and terminate optical fibre cable for carriers and service providers
- ICTCBL2163B Install a cable lead-in
- ICTCBL3021A Install aerial cable
- four additional elective units from Group B general elective units, with a maximum of one those additional units from Group A workplace elective units as appropriate to the specific job role

Broadband network infrastructure installer

Core units plus one Group A workplace elective unit plus:

- ICTCBL2065B Splice and terminate optical fibre cable for carriers and service providers
- ICTCBL3009B Install, terminate and certify structured cabling installation
- ICTCBL3011B Install and terminate coaxial cable
- ICTCBL3069A Install network cable equipment
- four additional elective 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

Optical broadband network installer

Core units plus one Group A workplace elective unit plus:

- ICTBWN3082B Perform tests on optical communication system and components

- ICTBWN3088B Install optical fibre splitters in fibre distribution hubs
- ICTBWN3090B Install lead-in module and cable for fibre to the premises
- ICTBWN3100B Work safely with live fibre to test and commission a fibre to the x installation
- four additional elective 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

Underground cable installer

Core units plus one Group A workplace elective unit plus:

- ICTCBL2064A Haul underground cable
- ICTCBL2065B Splice and terminate optical fibre cable for carriers and service providers
- ICTCBL2133A Construct underground telecommunications infrastructure
- ICTCBL2163A Install a cable lead-in
- ICTCBL3018A Install underground enclosures and conduit
- ICTCBL3019A Install underground cable
- two additional elective units from Group B general elective units, with a maximum of one of those additional units from the Group A workplace elective units as appropriate to the specific job role

Wireless broadband network installer

Core units plus one Group A workplace elective unit plus:

- ICTRFN3055A Install a radio communications antenna and feedline
- ICTRFN3146A Install WiMAX customer premises equipment broadband wireless access equipment
- ICTRFN4095A Conduct radio frequency measurements
- ICTRFN4178A Maintain hybrid fibre coaxial broadband cable network
- four additional elective 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

ICT30213 Certificate III in Telecommunications

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 an operator in the telecommunications industry who can apply a broad range of competencies using a defined range of skills where some discretion and judgement is required in the selection, installation and configuration of equipment in convergence technologies that integrate radio, optical and internet protocol (IP) based applications.

This role includes assessing installation requirements, planning and performing installations, testing installed equipment and fault finding. It involves a degree of autonomy and may include some supervision of others involving known routines and procedures and some accountability for the quality of outcomes.

This qualification prepares an individual for entry to the industry into the mainstream of telecommunications convergence technologies of radio, optical, data and IP networks.

Job Roles

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

- telecommunications network equipment installer
- telecommunications voice and data equipment installer
- IP-based security alarms installer
- telecommunications equipment operator
- telecommunications tradesperson.
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Prerequisite units

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

Code and title	Prerequisite unit required
ICTCBL2137B Install, maintain and modify customer premises communications cabling: ACMA Open Rule	ICTCBL2136B Install, maintain and modify customer premises communications cabling: ACMA Restricted Rule
ICAICT304A Implement system software changes	ICAICT302A Install and optimise operating system software

Pathways Information

Pathways into the qualification

Preferred pathways for candidates considering this qualification include:

- after achieving a Certificate II qualification from this or another accredited Training Package or accredited course

or

- with substantial vocational experience but without a formal qualification.

Pathways from the qualification

After achieving ICT30213 Certificate III in Telecommunications, candidates seeking to develop more specialised technical skills and knowledge, may select from a range of Certificate IV qualifications in the ICT10 Integrated Telecommunications Training Package.

Licensing/Regulatory Information

All training programs must be undertaken with 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	- conveying information to clients, colleagues and other site personnel - completing job reports and compliance forms - communicating with customers to arrange time and access for the installation of systems and equipment - documenting and communicating work-related information, including reporting of faults and problems - providing feedback to customers on operating the equipment
Teamwork	- participating in a team structure by identifying team members, tasks and goals and recognising and responding positively to conflict - working with team members to work with clients and install equipment - relating personal role to the industry - 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	- 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 - ranking likely causes of fault in order of probability to ensure a methodical approach to fault identification
Initiative and enterprise	- 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

Employability Skill	Industry/enterprise requirements for this qualification include:
Planning and organising	• gathering data for the installation of systems and equipment • developing a plan for the recovery of equipment from customer premises • planning the installation of cable, taking into account technical, scheduling and financial considerations • interpreting design and relating to site characteristics • prioritising work according to organisation guidelines
Self-management	• 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 • applying all related WHS requirements and work practices, including job safety analysis (JSA), protective clothing and personal safety items • 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	• assessing customer's expertise and training needs and conducting training in the use of systems and equipment • making clients aware of opportunities that exist for system upgrades, additional services and training • seeking assistance from team members when necessary • giving and receiving feedback • providing suitable training and assessment opportunities for work team members • providing training to customers on system, product, product features and facilities
Technology	• installing and operating telecommunications broadband equipment and products • installing and operating CPE equipment and products • installing and configuring access network devices • checking tools and test equipment for accuracy • identifying, replacing or repairing faulty parts and equipment

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 III or Certificate IV 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

BSBSUS301A Implement and monitor environmentally sustainable work practices
ICTCBL3015A Locate and identify cable system faults
ICTTEN2008A Use electrical skills in telecommunications work
ICTTEN2140B Use hand and power tools
ICTTEN3056A Install telecommunications network equipment
ICTWHS2170B Follow work health and safety and environmental policies and procedures

ELECTIVE UNITS

Group A - Workplace elective units

BSBSMB305A Comply with regulatory, taxation and insurance requirements for the micro business
BSBSMB306A Plan a home based business
ICASAS305A Provide IT advice to clients
ICTEDU3053A Train customers in new technology
ICTSMB4160A Set up and operate a contractor business
ICTSMB4161A Operate a contractor business with employees
ICTWOR3028A Organise resources
ICTWOR3035A Organise material supply
ICTWOR3041A Schedule resources
ICTWOR3093A Manage spare parts
ICTWOR3127A Supervise worksite activities
ICTWOR3231A Resolve technical enquiries using multiple information systems
ICTWOR3232A Collect and analyse technical information

Group B - General elective units

Broadband and wireless networks

ICTBWN3082B Perform tests on optical communication system and components
ICTBWN3088B Install optical fibre splitters in fibre distribution hubs
ICTBWN3090B Install lead-in module and cable for fibre to the premises
ICTBWN3100B Work safely with live fibre to test and commission a fibre to the x installation
ICTBWN3205B Use optical and radio frequency measuring instruments

Cabling

ICTCBL2064A Haul underground cable
ICTCBL2065B Splice and terminate optical fibre cable for carriers and service providers
ICTCBL2136B Install, maintain and modify customer premises communications cabling: ACMA Restricted Rule (where ACMA Restricted Registration is necessary)
ICTCBL2137B Install, maintain and modify customer premises communications cabling: ACMA Open Rule
ICTCBL2139B Apply safe technical work practices for cabling registration when configuring ADSL circuits
ICTCBL3009B Install, terminate and certify structured cabling installation
ICTCBL3010B Install and terminate optical fibre cable on customer premises
ICTCBL3011B Install and terminate coaxial cable
ICTCBL3013A Perform cable and system test on customer premises
ICTCBL3014A Hand over systems and equipment
ICTCBL3018A Install underground enclosures and conduit
ICTCBL3019A Install underground cable
ICTCBL3020A Construct aerial cable supports
ICTCBL3021A Install aerial cable
ICTCBL3049A Install systems and equipment on customer premises
ICTCBL3052A Cut over new systems and equipment on customer premises
ICTCBL3067A Modify and cut over cable
ICTCBL3069A Install network cable equipment
ICTCBL3103A Maintain cable network

Digital reception technology

ICTDRE3156B Install digital reception equipment
ICTDRE3157B Locate and rectify digital reception equipment faults
ICTDRE3165A Install a complex digital reception system

ICT use

ICAICT302A Install and optimise operating system software
ICAICT303A Connect internal hardware components
ICAICT304A Implement system software changes
ICAICT306A Migrate to new technology
ICANWK305A Install and manage network protocols

ICASAS303A Care for computer hardware
ICASAS304A Provide basic system administration
ICASAS301A Run standard diagnostic tests

Occupational health and safety

CPCCOHS1001A Work safely in the construction industry
ICTOHS2153B Work safely near power infrastructure
ICTOHS2080A Provide telecommunications services safely on roofs

Radio frequency networks

ICTRFN3055A Install a radio communications antenna and feedline
ICTRFN3070A Install mobile telecommunications in motor vehicles
ICTRFN3146A Install WiMAX customer premises equipment broadband wireless access equipment
ICTRFN3155A Construct and test a radio communications device
ICTRFN3175A Operate and maintain radio communications technical instruments and field equipment

Telecommunications engineering networks

ICTTEN2219A Install and test internet protocol devices in convergence networks
ICTTEN3054B Provide infrastructure for telecommunications network equipment
ICTTEN3063A Locate, identify and rectify recurrent network faults
ICTTEN3074A Recover customer premises equipment
ICTTEN3075A Refurbish customer premises equipment
ICTTEN3077B Commission an electronic unit
ICTTEN3089A Repair and replace telecommunications network hardware
ICTTEN3104A Maintain an electronic system
ICTTEN4198A Install, configure and test an internet protocol network

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.

Broadband optical network installer

Core units plus one Group A workplace elective unit plus:

- ICTBWN3082B Perform tests on optical communication system and components
- ICTBWN3088B Install optical fibre splitters in fibre distribution hubs
- ICTBWN3090B Install lead-in module and cable for fibre to the premises
- ICTBWN3100B Work safely with live fibre to test and commission a fibre to the x installation

- one additional unit from Group B general elective units or Group A workplace elective units as appropriate to the specific job role

Broadband wireless network installer

Core units plus one Group A workplace elective unit plus:

- ICTRFN3055A Install a radio communications antenna and feedline
- ICTRFN3146A Install WiMAX customer premises equipment broadband wireless access equipment
- ICTRFN3175A Operate and maintain radio communications technical instruments and field equipment
- two 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 one Group A workplace elective unit plus:

- ICTDRE3156B Install digital reception equipment
- ICTDRE3157B Locate and rectify digital reception equipment faults
- ICTDRE3165A Install a complex digital reception system
- ICTTEN4198A Install, configure and test an internet protocol network
- one additional unit from Group B general elective units or Group A workplace elective units as appropriate to the specific job role

IP equipment installer

Core units plus one Group A workplace elective unit plus:

- ICAICT302A Install and optimise operating system software
- ICAICT304A Implement system software changes
- ICANWK305A Install and manage network protocols
- ICASAS301A Run standard diagnostic tests
- ICTTEN4198A Install, configure and test an internet protocol network

Network infrastructure installer

Core units plus one Group A workplace elective unit plus:

- ICTCBL3009B Install, terminate and certify structured cabling installation
- ICTCBL3011B Install and terminate coaxial cable
- ICTCBL3069A Install network cable equipment

- two additional units from Group B general elective units, with a maximum of one those additional units from Group A workplace elective units as appropriate to the specific job role

Technical support

Core units plus one Group A workplace elective unit plus:

- ICASAS304A Provide basic system administration
- ICASAS305A Provide IT advice to clients
- ICTWOR3231A Resolve technical enquiries using multiple information systems
- ICTWOR3232A Collect and analyse technical information
- one additional unit from Group B general elective units or Group A workplace elective units as appropriate to the specific job role

Voice and data installer

Core units plus one Group A workplace elective unit plus:

- ICTCBL3009B Install, terminate and certify structured cabling installation
- ICTCBL3010B Install and terminate optical fibre cable on customer premises
- ICTCBL3011B Install and terminate coaxial cable
- two 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

ICT30313 Certificate III in Telecommunications Cabling

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 an operator in the telecommunications industry who can apply a broad range of competencies in a varied work context from installation to operation of telecommunications equipment and products.

This qualification prepares an individual for entry to the industry.

Job Roles

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

- cabler and installer
- equipment installer
- security alarm installer
- telecommunications equipment operator
- telecommunications tradesperson.
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Prerequisite units

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

Code and title	Prerequisite unit required
ICTCBL2137B Install, maintain and modify customer premises communications cabling: ACMA Open Rule	ICTCBL2136B Install, maintain and modify customer premises communications cabling: ACMA Restricted Rule
ICAICT304A Implement system software changes	ICAICT302A Install and optimise operating system software

Pathways Information

Pathways into the qualification

Preferred pathways for candidates considering this qualification include:

- after achieving a Certificate II qualification from this or another accredited Training Package or accredited course

or

- with substantial vocational experience but without a formal qualification.

Pathways from the qualification

After achieving ICT30313 Certificate III in Telecommunications Cabling, candidates seeking to develop more specialised technical skills and knowledge, may select from a range of Certificate IV qualifications in the ICT10 Integrated Telecommunications Training Package.

Licensing/Regulatory Information

The completion of unit ICTWHS2170B and the four unit set ICTCBL2005B, ICTCBL2006B, ICTCBL2008B and ICTCMP2022B that meets the Australian Communications and Media Authority (ACMA) requirements for Cabling Provider Rules (CPR) restricted registration, is generally used as a part of a more specialised customer cabling qualification. This set is regarded as more suitable for new entrants where limited or no industry experience has been obtained and forms the major part of specialised qualifications, such as ICT20313 Certificate II in Telecommunications Cabling.

All training programs must be conducted with 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	- conveying information to clients, colleagues and other site personnel - completing job reports and compliance forms - interpreting plan as a set of functions to be implemented - confirming approval for time and method of site access with customers - documenting and communicating work-related information, including reporting of faults and problems - providing feedback to customers on operating the equipment
Teamwork	- 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	- 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 - ranking likely causes of fault in order of probability to ensure a methodical approach to fault identification
Initiative and enterprise	- 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

Employability Skill	Industry/enterprise requirements for this qualification include:
	guidelines
Planning and organising	• gathering data for the installation of systems and equipment • planning the installation of cable, taking into account technical, scheduling and financial considerations • interpreting design and relating to site characteristics • prioritising work according to organisation guidelines
Self-management	• 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 • applying all related WHS requirements and work practices, including job safety analysis (JSA), protective clothing and personal safety items • 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	• making clients aware of opportunities that exist for system upgrades, additional services and training • seeking assistance from team members when necessary • giving and receiving feedback • providing suitable training and assessment opportunities for work team members • providing training to customers on system, product, product features and facilities
Technology	• installing and operating telecommunications equipment and products • installing and operating CPE equipment and products • installing and configuring access network devices • checking tools and test equipment for accuracy • identifying, replacing or repairing faulty parts and equipment

Packaging Rules

Total number of units = 12
6 core units, plus
1 elective units 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 minimum of two of these electives must be taken from Certificate III 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 III or Certificate IV 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

BSBSUS301A Implement and monitor environmentally sustainable work practices
ICTCBL3015A Locate and identify cable system faults
ICTTEN2008A Use electrical skills in telecommunications work
ICTTEN2140B Use hand and power tools
ICTTEN3250A Provide infrastructure for telecommunications customer equipment
ICTWHS2170B Follow work health and safety and environmental policies and procedures

ELECTIVE UNITS

Group A - Workplace elective units

BSBSMB305A Comply with regulatory, taxation and insurance requirements for the micro business
BSBSMB306A Plan a home based business
ICASAS305A Provide IT advice to clients
ICTEDU3053A Train customers in new technology
ICTSMB4160A Set up and operate a contractor business
ICTSMB4161A Operate a contractor business with employees
ICTWOR3028A Organise resources
ICTWOR3035A Organise material supply
ICTWOR3041A Schedule resources
ICTWOR3093A Manage spare parts
ICTWOR3127A Supervise worksite activities
ICTWOR3231A Resolve technical enquiries using multiple information systems
ICTWOR3232A Collect and analyse technical information

Group B - General elective units

Broadband and wireless networks

ICTBWN3082B Perform tests on optical communication system and components
ICTBWN3088B Install optical fibre splitters in fibre distribution hubs
ICTBWN3090B Install lead-in module and cable for fibre to the premises
ICTBWN3100B Work safely with live fibre to test and commission a fibre to the x installation

Cabling

ICTCBL2017B Alter services to existing cable system
ICTCBL2065B Splice and terminate optical fibre cable for carriers and service providers
ICTCBL2136B Install, maintain and modify customer premises communications cabling: ACMA Restricted Rule
ICTCBL2137B Install, maintain and modify customer premises communications cabling: ACMA Open Rule
ICTCBL2139B Apply safe technical work practices for cabling registration when configuring ADSL circuits
ICTCBL3009B Install, terminate and certify structured cabling installation
ICTCBL3010B Install and terminate optical fibre cable on customer premises
ICTCBL3011B Install and terminate coaxial cable
ICTCBL3013A Perform cable and system test on customer premises
ICTCBL3014A Hand over systems and equipment
ICTCBL3018A Install underground enclosures and conduit
ICTCBL3019A Install underground cable
ICTCBL3020A Construct aerial cable supports
ICTCBL3021A Install aerial cable
ICTCBL3049A Install systems and equipment on customer premises
ICTCBL3052A Cut over new systems and equipment on customer premises
ICTCBL3067A Modify and cut over cable
ICTCBL3069A Install network cable equipment
ICTCBL3103A Maintain cable network

Digital reception technology

ICTDRE3156B Install digital reception equipment
ICTDRE3157B Locate and rectify digital reception equipment faults
ICTDRE3165A Install a complex digital reception system

ICT use

ICAICT302A Install and optimise operating system software
ICAICT303A Connect internal hardware components
ICAICT304A Implement system software changes
ICASAS301A Run standard diagnostic tests
ICASAS303A Care for computer hardware

ICASAS304A Provide basic system administration

Occupational health and safety

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

Telecommunications engineering networks

ICTTEN2219A Install and test internet protocol devices in convergence networks
ICTTEN3054B Provide infrastructure for telecommunications network equipment
ICTTEN3056A Install telecommunications network equipment
ICTTEN3063A Locate, identify and rectify recurrent network faults
ICTTEN3074A Recover customer premises equipment
ICTTEN3075A Refurbish customer premises equipment
ICTTEN3077B Commission an electronic unit
ICTTEN3104A Maintain an electronic system

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.

Access network installer

Core units plus one Group A workplace elective unit plus:

- ICTCBL3020A Construct aerial cable supports
- ICTCBL3021A Install aerial cable
- three 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

CPE installer

Core units plus one Group A workplace elective unit plus:

- ICTCBL3009B Install, terminate and certify structured cabling installation
- ICTCBL3010B Install and terminate optical fibre cable on customer premises
- ICTCBL3011B Install and terminate coaxial cable
- two additional units from Group B general elective units, with a maximum of one of those additional units from the workplace group as appropriate to the specific job role

Home network installer

Core units plus one workplace unit plus:

- ICTDRE3156B Install digital reception equipment
- ICTDRE3157B Locate and rectify digital reception equipment faults
- ICTDRE3165A Install a complex digital reception system
- two additional units from Group B general elective units, with a maximum of one of those additional units from the workplace group as appropriate to the specific job role

Network cable infrastructure installer

Core units plus one workplace unit plus:

- ICTCBL3009B Install, terminate and certify structured cabling installation
- ICTCBL3011B Install and terminate coaxial cable
- ICTCBL3069A Install network cable equipment
- two additional units from Group B general elective units, with a maximum of one of those additional units from the workplace group as appropriate to the specific job role

Optical broadband network installer

Core units plus one workplace unit plus:

- ICTBWN3082B Perform tests on optical communication system and components
- ICTBWN3088B Install optical fibre splitters in fibre distribution hubs
- ICTBWN3090B Install lead-in module and cable for fibre to the premises
- ICTBWN3100B Work safely with live fibre to test and commission a fibre to the x installation
- one additional unit from Group B general elective units or Group A workplace elective units as appropriate to the specific job role

Technical support

Core units plus one workplace unit plus:

- ICASAS304A Provide basic system administration
- ICASAS305A Provide IT advice to clients
- ICTWOR3231A Resolve technical enquiries using multiple information systems
- ICTWOR3232A Collect and analyse technical information
- one additional unit from Group B general elective units or Group A workplace elective units as appropriate to the specific job role.

ICT30413 Certificate III in Telecommunications Digital Reception 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.
Release 1	This version first released with *ICT10 Integrated Telecommunications Training Package Version 1.0.*

Description

This qualification reflects the role of an individual in the telecommunications industry who can apply a broad range of competencies in a varied work context of installation of a limited range of digital reception equipment for either a customer or an enterprise. Fault-finding skills on a range of digital reception equipment for Subscription TV and Free-to-air TV reception are acquired.

Any cabling at the customer premises must be carried out 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.

Job Roles

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

- audiovisual systems integrator
- field service technician – RF services
- free to air TV installers – multiple services
- subscription TV installer – multiple services.
-

Prerequisite units

The following unit within this qualification has a prerequisite. This is detailed as follows:

Code and title	Prerequisite unit required
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

Preferred pathways for candidates considering this qualification include:

- after achieving ICT20413 Certificate II in Telecommunications Digital Reception Technology or another relevant accredited Training Package qualification or relevant accredited course

or

- providing evidence of competency in the core units required for ICT20413 Certificate II in Telecommunications Digital Reception Technology or equivalent units with vocational experience

or

- with substantial vocational experience but without a formal qualification.

Pathways from the qualification

After achieving ICT30413 Certificate III in Telecommunications Digital Reception Technology, candidates seeking to develop more specialised technical skills and knowledge, may select from a range of Certificate IV qualifications in the ICT10 Integrated Telecommunications Training Package.

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).

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	• reading drawings and recognising drawing symbols • interpreting plan as a set of functions to be implemented • confirming approval for time and method of site access with customers • documenting and communicating work-related information, including reporting of faults and problems • providing correct literature to the customer, including explanatory booklets, manuals, training aids, user guides, equipment plans and configuration • providing feedback to customers on operating the equipment
Teamwork	• 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	• identifying faults or optimisation options • rectifying faults and adjusting system to optimal operation • determining cable routes and antenna siting taking into account building services, safety, industry codes and practices, and customer requirements • following up promptly on difficulties and known problem areas • ranking likely causes of fault in order of probability to ensure a methodical approach to fault identification
Initiative and enterprise	• adapting plan to suit specific features of site • identifying issues and possible solutions within established guidelines • providing customers with temporary or replacement equipment similar to existing equipment

Employability Skill	Industry/enterprise requirements for this qualification include:
Planning and organising	• interpreting design and relating to site characteristics • planning and organising installation and operation of TV equipment and products • prioritising work according to organisation guidelines
Self-management	• applying all related WHS requirements and work practices, including job safety analysis (JSA), protective clothing and personal safety items • 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	• seeking assistance from team members when necessary • giving and receiving feedback • providing suitable training and assessment opportunities for work team members • providing training to customers on system, product, product features and facilities
Technology	• installing and operating TV equipment and products • installing and configuring passive and active devices • checking tools and test equipment for accuracy • identifying, replacing or repairing faulty parts and equipment

Packaging Rules

Total number of units = 9
4 core units, plus
1 elective unit from Group A workplace units, plus
4 elective units from Group B general units

Units completed in ICT20413 Certificate II in Telecommunications Digital Reception Technology cannot be selected in this qualification.

Elective units must be relevant to the work outcome, local industry requirements and the qualification level. A minimum of 5 of these electives must be taken from Certificate III 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 any accredited course at Certificate III or Certificate IV level. The two units from Group B general elective units may be substituted with 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

BSBSUS301A Implement and monitor environmentally sustainable work practices
ICTDRE3165A Install a complex digital reception system
ICTRFN2163B Install a satellite antenna
ICTRFN2164B Install a terrestrial antenna

ELECTIVE UNITS

Group A - Workplace elective units

BSBSMB305A Comply with regulatory, taxation and insurance requirements for the micro business
BSBSMB401A Establish legal and risk management requirements of small business
BSBSMB405B Monitor and manage small business operations
BSBSMB407A Manage a small team
ICASAS305A Provide IT advice to clients
ICTSMB4161A Operate a contractor business with employees

Group B - General elective units

Cabling

ICTCBL2017B Alter services to existing cable system
ICTCBL2136B Install, maintain and modify customer premises communications cabling: ACMA Restricted Rule

ICTCBL2137B Install, maintain and modify customer premises communications cabling: ACMA Open Rule
ICTCBL2139B Apply safe technical work practices for cabling registration when configuring ADSL circuits
ICTCBL2163A Install a cable lead-in
ICTCBL3015A Locate and identify cable system faults

Broadband and wireless networks

ICTBWN3082B Perform tests on optical communication system and components
ICTBWN3205B Use optical and radio frequency measuring instruments

Digital reception technology

ICTDRE3156B Install digital reception equipment
ICTDRE3157B Locate and rectify digital reception equipment faults
ICTDRE3248A Design communications wiring systems for customer premises
ICTDRE3249A Develop integrated digital reception systems
ICTDRE4166A Integrate customer digital reception equipment
ICTDRE4167A Integrate data delivery modes
ICTTEN4126A Install and configure internet protocol TV in a home network

ICT use

ICAICT302A Install and optimise operating system software
ICAICT303A Connect internal hardware components

Occupational health and safety

CPCCOHS1001A Work safely in the construction industry
ICTOHS2080A Provide telecommunications services safely on roofs
ICTOHS2153B Work safely near power infrastructure

Radio frequency networks

ICTRFN4095A Conduct radio frequency measurements

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.

Audiovisual systems integrator – includes integration of diverse technologies including RF services, and telephony services in complex equipment systems

Core units plus one Group A workplace elective unit plus:

- ICTDRE3165A Install a complex digital reception system
- ICTDRE4166A Integrate customer digital reception equipment
- ICTDRE4167A Integrate data delivery modes
- two 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

Field service technician – ongoing maintenance of customer equipment

Core units plus one Group A workplace elective unit plus:

- ICTCBL3015A Locate and identify cable system faults
- ICTCBL2017B Alter services to existing cable system
- ICTRFN4095A Conduct radio frequency measurements
- two 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 one Group A workplace elective unit plus:

- ICTDRE3156B Install digital reception equipment
- ICTDRE3157B Locate and rectify digital reception equipment faults
- ICTDRE3165A Install a complex digital reception system
- ICTDRE3248A Design communications wiring systems for customer premises
- ICTDRE3249A Develop integrated digital reception systems
- ICTTEN4126A Install and configure internet protocol TV in a home network
- one additional unit from Group B general elective units or from Group A workplace elective units as appropriate to the specific job role

Installer of free-to-air TV

Core units plus one Group A workplace elective unit plus:

- ICTBWN3205B Use optical and radio frequency measuring instruments
- ICTDRE3165A Install a complex digital reception system
- ICTRFN4095A Conduct radio frequency measurements
- two 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

Installer – subscription TV (multiple services) – includes campus installations

Core units plus one Group A workplace elective unit plus:

- ICTDRE3165A Install a complex digital reception system
- ICTDRE4166A Integrate customer digital reception equipment
- three 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

Small to medium contracting business operator

Core units plus one Group A workplace elective unit plus:

- ICTSMB4161A Operate a contractor business with employees
- four additional units from Group B general elective units, with a maximum of two of those additional units from Group A workplace elective units as appropriate to the specific job role

ICT30513 Certificate III in Telecommunications Rigging Installation

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 qualification first released with *ICT10 Integrated Telecommunications Training Package Version 2.0.*

Description

This qualification reflects the role of an operator in the telecommunications industry who can apply a broad range of competencies in a varied work context from installation and maintenance of telecommunications equipment mounted on structures requiring rigging skills.

This role includes assessing installation requirements, planning and performing installations, testing installed equipment and fault-finding. It involves a degree of autonomy and may include some supervision of others involving known routines and procedures and some accountability for the quality of outcomes in a specialised area of installation of telecommunication equipment on high structures, including radio towers.

This qualification prepares an individual for entry to the industry into the mainstream of telecommunications convergence technologies of radio, optical, data and internet protocol (IP) networks.

An operator uses rigging skills to install and maintain radio antennas on radio towers and build and mount sections of radio masts for a complete radio structure.

Job roles

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

- installer of telecommunications network equipment on structures
- installer of radio equipment and cabling on radio towers
- maintainer and tester of telecommunications radio network equipment on structures
- telecommunications rigger technician.

Pathways Information

Pathways into the qualification

Preferred pathways for candidates considering this qualification include:

- after achieving the ICT20513 Certificate II in Telecommunications Rigging Installation or another relevant endorsed Training Package qualification or relevant endorsed course

or

- providing evidence of competency in the core units required for the ICT20513 Certificate II in Telecommunications Rigging Installation or equivalent units with vocational experience

or

- with substantial vocational experience but without a formal qualification.

Pathways from the qualification

After achieving the ICT30513 Certificate III in Telecommunications Rigging Installation, candidates seeking to develop more specialised technical skills and knowledge, may select from a range of Certificate IV qualifications in the ICT10 Integrated Telecommunications Training Package.

Licensing/Regulatory Information

Cabling

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

National Standard for Licensing Persons Performing High Risk Work

The National Standard for Licensing Persons Performing High Risk Work applies to persons performing dogging and rigging work. Completion of the following units is required for certification at either basic, intermediate or advanced levels.

- CPCCLDG3001A Licence to perform dogging
- CPCCLRG3001A Licence to perform rigging basic level
- CPCCLRG3002A Licence to perform rigging intermediate level
- CPCCLRG4001A Licence to perform rigging advanced level
-

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.

Volume of learning

The volume of learning of a Certificate III is typically 1-2 years.

Up to 4 years may be required to achieve the learning outcomes through a program of indentured training/employment.

Entry Requirements

There are no entry requirements for this qualification.

Employability Skills Summary

Employability skill	Industry/enterprise requirements for this qualification include:
Communication	• conveying information to clients, colleagues and other site personnel • completing job reports and compliance forms • communicating with customers to arrange time and access for the installation of systems and equipment • documenting and communicating work-related information, including reporting of faults and problems • providing feedback to customers on operating the equipment
Teamwork	• participating in a team structure by identifying team members, tasks and goals and recognising and responding positively to conflict • working with team members to work with clients and install equipment • relating personal role to the industry • 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	• 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 • ranking likely causes of fault in order of probability to ensure a methodical approach to fault identification
Initiative and enterprise	• identifying barriers to installation and developing strategies to overcome them within time and budget restrictions • adapting a plan to suit specific features of site • identifying issues and possible solutions within established

	guidelines
Planning and organising	• gathering data for the installation of systems and equipment • developing a plan for the recovery of equipment from customer premises • planning the installation of cable, taking into account technical, scheduling and financial considerations • interpreting design and relating to site characteristics • prioritising work according to organisation guidelines
Self-management	• 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 • applying all related OHS requirements and work practices, including job safety analysis (JSA), protective clothing and personal safety items • 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	• assessing customer's expertise and training needs and conducting training in the use of systems and equipment • making clients aware of opportunities that exist for system upgrades, additional services and training • seeking assistance from team members when necessary • giving and receiving feedback • providing suitable training and assessment opportunities for work team members • providing training to customers on system, product, product features and facilities
Technology	• installing and operating telecommunications broadband equipment and products • installing and operating CPE equipment and products • installing and configuring access network devices • checking tools and test equipment for accuracy • identifying, replacing or repairing faulty parts and equipment

Packaging Rules

Total number of units = 9
6 core units, *plus*
3 elective units, *of which*:

- **1 unit must be from Group A Workplace units**
- **2 units must be from Group B General elective units, up to 2 of which** may be substituted with units from elsewhere in this Training Package, another Training Package or accredited course at Certificate II, III or IV level.

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

Core units

CPCCLDG3001A Licence to perform dogging
CPCCLRG3001A Licence to perform rigging basic level
ICTBWN3205B Use optical and radio frequency measuring instruments
ICTTCR3191A Install radio plant and equipment on telecommunications structures
ICTTCR3192A Protect against electromagnetic radiation and system hazards when working on telecommunications radio sites
ICTWHS2170B Follow work health and safety and environmental policies and procedures

Elective units

Group A Workplace

BSBSMB305A Comply with regulatory, taxation and insurance requirements for the micro business
BSBSMB306A Plan a home based business
BSBSUS201A Participate in environmentally sustainable work practices
BSBSUS301A Implement and monitor environmentally sustainable work practices
ICASAS305A Provide IT advice to clients
ICTEDU3053A Train customers in new technology
ICTWOR3028A Organise resources
ICTWOR3035A Organise material supply
ICTWOR3041A Schedule resources
ICTWOR3093A Manage spare parts
ICTWOR3127A Supervise worksite activities

Group B General elective units

CPCCLRG3002A Licence to perform rigging intermediate level
CPCCLRG4001A Licence to perform rigging advanced level
CPCCOHS1001A Work safely in the construction industry
ICTCBL2017B Alter services to existing cable system
ICTCBL2065B Splice and terminate optical fibre cable for carriers and service providers

ICTCBL2068A Install a telecommunications service to a building
ICTCBL2136B Install, maintain and modify customer premises communications cabling: ACMA Restricted Rule
ICTCBL2137A Install, maintain and modify customer premises communications cabling: ACMA Open Rule
ICTCBL2139B Apply safe technical work practices for cabling registration
ICTCBL3010B Install and terminate optical fibre cable on customer premises
ICTCBL3011B Install and terminate coaxial cable
ICTCBL3013A Perform cable and system test on customer premises
ICTCBL3014A Hand over systems and equipment
ICTCBL3015A Locate and identify cable system faults
ICTCBL3020A Construct aerial cable supports
ICTCBL3021A Install aerial cable
ICTCBL3049A Install systems and equipment on customer premises
ICTCBL3052A Cut over new systems and equipment on customer premises
ICTCBL3069A Install network cable equipment
ICTCBL3103A Maintain cable network
ICTOHS2080A Provide telecommunications services safely on roofs
ICTOHS2153B Work safely near power infrastructure
ICTRFN3055A Install a radio communications antenna and feedline
ICTRFN3146A Install WiMAX customer premises equipment broadband wireless access equipment
ICTRFN3175A Operate and maintain radio communications technical instruments and field equipment
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
ICTTEN2008A Use electrical skills in telecommunications work
ICTTEN2140B Use hand and power tools
ICTTEN3054B Provide infrastructure for telecommunications network equipment
ICTTEN3056A Install telecommunications network equipment
ICTTEN3063A Locate, identify and rectify recurrent network faults
ICTTEN3077B Commission an electronic unit
ICTTEN3089A Repair and replace telecommunications network hardware
ICTTEN3104A Maintain an electronic system
ICTTEN3250B Provide infrastructure for telecommunications customer equipment

Prerequisite Units

The following units in this qualification have the prerequisite units detailed below.

Code and title	Prerequisite units required
CPCCLRG3002A Licence to perform rigging intermediate level	CPCCLRG3001A Licence to perform rigging basic level
CPCCLRG4001A Licence to perform rigging advanced level	CPCCLRG3002A Licence to perform rigging intermediate level
ICTCBL2137B Install, maintain and modify customer premises communications cabling: ACMA Open Rule	ICTCBL2136B Install, maintain and modify customer premises communications cabling: ACMA Restricted Rule
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

ICT30613 Certificate III in Broadband and Wireless Networks

Modification History

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

Description

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

- install and maintain access network cabling and equipment for high speed broadband as part of the national network
- install and maintain optical and wireless equipment for high speed internet broadband network infrastructure
- 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 voice and data telecommunications equipment
- install and maintain telecommunications access network cabling and infrastructure, systems and basic customer premises equipment.

This role includes assessing installation requirements, planning and performing installations, testing installed equipment and fault-finding. It involves a degree of autonomy and may include limited supervision of others.

This qualification also introduces the skills required for the broadband deployment using fibre optic devices.

Job Roles

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

- broadband installer
- optical broadband installer
- wireless broadband network installer
- broadband network infrastructure installer
- access network cabling installer
- installer of telecommunications and data cabling
- installer of telecommunications aerial cable access network
- installer of telecommunications underground cable access network.
-

Prerequisite units

The following unit within this qualification has a prerequisite. This is detailed as follows:

Code and title	Prerequisite unit required
ICTCBL2137B Install, maintain and modify customer premises	ICTCBL2136B Install, maintain and modify customer premises communications cabling:

communications cabling: ACMA Open Rule	ACMA Restricted Rule

Pathways Information

Pathways into the qualification

Preferred pathways for candidates considering this qualification include:

- after achieving a Certificate II qualification from this or another accredited Training Package or accredited course

or

- with substantial vocational experience but without a formal qualification.

Pathways from the qualification

After achieving ICT30613 Certificate III in Broadband and Wireless Networks, candidates seeking to develop more specialised technical skills and knowledge, may select from a range of Certificate IV qualifications in the ICT10 Integrated Telecommunications Training Package.

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	- documenting test methods and results - conveying information to clients, colleagues and other site personnel - completing job reports and compliance forms - interpreting plan as a set of functions to be implemented - confirming approval for time and method of site access with customers - documenting and communicating work-related information, including reporting of faults and problems - 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 likely causes of fault in order of probability to ensure a methodical approach to fault identification - 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

Employability Skill	Industry/enterprise requirements for this qualification include:
	• 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
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
Self-management	• identifying realistic short and long-term career objectives • identifying work to be completed • 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 • applying all related WHS requirements and work practices, including job safety analysis (JSA), protective clothing and personal safety items • 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

Employability Skill	Industry/enterprise requirements for this qualification include:
	• 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 • testing and measuring of broadband network infrastructure • installing and operating telecommunications equipment and products • installing and operating equipment and products • installing and configuring access network devices • identifying, replacing or repairing faulty parts and equipment

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 III or Certificate IV 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

BSBSUS301A Implement and monitor environmentally sustainable work practises
ICTBWN3205B Use optical and radio frequency measuring instruments
ICTCBL3015A Locate and identify cable system faults
ICTTEN2008A Use electrical skills in telecommunications work
ICTTEN2140B Use hand and power tools
ICTWHS2170B Follow work health and safety and environmental policies and procedures

ELECTIVE UNITS

Group A - Workplace elective units

BSBSMB305A Comply with regulatory, taxation and insurance requirements for the micro business
BSBSMB306A Plan a home based business
ICASAS305A Provide IT advice to clients
ICTEDU3053A Train customers in new technology
ICTWOR3028A Organise resources
ICTWOR3035A Organise material supply
ICTWOR3041A Schedule resources
ICTWOR3093A Manage spare parts
ICTWOR3127A Supervise worksite activities

Group B - General elective units

Broadband and wireless networks

ICTBWN3082B Perform tests on optical communication system and components

ICTBWN3088B Install optical fibre splitters in fibre distribution hubs
ICTBWN3090B Install lead-in module and cable for fibre to the premises
ICTBWN3100B Work safely with live fibre to test and commission a fibre to the x installation

Cabling

ICTCBL2017B Alter services to existing cable system
ICTCBL2064A Haul underground cable
ICTCBL2065B Splice and terminate optical fibre cable for carriers and service providers
ICTCBL2066B Joint and terminate coaxial cable
ICTCBL2131A Install an above ground equipment enclosure
ICTCBL2133A Construct underground telecommunications infrastructure
ICTCBL2136B Install, maintain and modify customer premises communications cabling: ACMA Restricted Rule
ICTCBL2137B Install, maintain and modify customer premises communications cabling: ACMA Open Rule
ICTCBL2139B Apply safe technical work practices for cabling registration when configuring ADSL circuits
ICTCBL2163A Install a cable lead-in
ICTCBL3009B Install, terminate and certify structured cabling installation
ICTCBL3010B Install and terminate optical fibre cable on customer premises
ICTCBL3011B Install and terminate coaxial cable
ICTCBL3013A Perform cable and system test on customer premises
ICTCBL3014A Hand over systems and equipment
ICTCBL3018A Install underground enclosures and conduit
ICTCBL3019A Install underground cable
ICTCBL3020A Construct aerial cable supports
ICTCBL3021A Install aerial cable
ICTCBL3049A Install systems and equipment on customer premises
ICTCBL3067A Modify and cut over cable
ICTCBL3069A Install network cable equipment
ICTCBL3103A Maintain cable network

ICT use

ICAICT302A Install and optimise operating system software
ICAICT303A Connect internal hardware components

Occupational health and safety

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

Radio frequency networks

ICTRFN3055A Install a radio communications antenna and feedline

ICTRFN3146A Install WiMAX customer premises equipment broadband wireless access equipment
ICTRFN3175A Operate and maintain radio communications technical instruments and field equipment
ICTRFN4095A Conduct radio frequency measurements
ICTRFN4178A Maintain hybrid fibre coaxial broadband cable network

Telecommunications engineering networks

ICTTEN2219A Install and test internet protocol devices in convergence networks
ICTTEN3063A Locate, identify and rectify recurrent network faults
ICTTEN3074A Recover customer premises equipment
ICTTEN3075A Refurbish customer premises equipment
ICTTEN3077B Commission an electronic unit
ICTTEN3104A Maintain an electronic system

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.

Aerial cable installer

Core units plus one Group A workplace elective unit plus:

- ICTCBL2017B Alter services to existing cable system
- ICTCBL2065B Splice and terminate optical fibre cable for carriers and service providers
- ICTCBL2163B Install a cable lead-in
- ICTCBL3021A Install aerial cable
- one additional unit from Group B general elective units or Group A workplace elective units as appropriate to the specific job role

Broadband Network Infrastructure Installer

Core units plus one Group A workplace elective unit plus:

- ICTCBL2065B Splice and terminate optical fibre cable for carriers and service providers
- ICTCBL3009B Install, terminate and certify structured cabling installation
- ICTCBL3011B Install and terminate coaxial cable
- ICTCBL3069A Install network cable equipment
- one additional unit from Group B general elective units or Group A workplace elective units as appropriate to the specific job role

Optical broadband network installer

Core units plus one Group A workplace elective unit plus:

- ICTBWN3082B Perform tests on optical communication system and components
- ICTBWN3088B Install optical fibre splitters in fibre distribution hubs
- ICTBWN3090B Install lead-in module and cable for fibre to the premises
- ICTBWN3100B Work safely with live fibre to test and commission a fibre to the x installation
- one additional unit from Group B general elective units or Group A workplace elective units as appropriate to the specific job role

Underground cable installer

Core units plus one Group A workplace elective unit plus:

- ICTCBL2065B Splice and terminate optical fibre cable for carriers and service providers
- ICTCBL2133A Construct underground telecommunications infrastructure
- ICTCBL2163B Install a cable lead-in
- ICTCBL3018A Install underground enclosures and conduit
- ICTCBL3019A Install underground cable

Wireless broadband network Installer

Core units plus one Group A workplace elective unit plus:

- ICTRFN3055A Install a radio communications antenna and feedline
- ICTRFN3146A Install WiMAX customer premises equipment broadband wireless access equipment
- ICTRFN4095A Conduct radio frequency measurements
- ICTRFN4178A Maintain hybrid fibre coaxial broadband cable network
- one additional unit from Group B general elective units or Group A workplace elective units as appropriate to the specific job role

ICT30713 Certificate III in National Broadband Network Construction

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 qualification first released with *ICT10 Integrated Telecommunications Training Package Version 2.0.*

Description

This qualification has been designed as a pathway for specialised work on the National Broadband Network (NBN).

This qualification provides students with skills and knowledge to enhance employment prospects in apprenticeships and traineeships in a range of specialised NBN industry occupations specifically for the national rollout of the high speed broadband infrastructure.

In conjunction with safe working practices, one of two specialist streams is to be undertaken as described:

Telecommunications linesworker/Installer

This stream reflects the role of operators in performing equipment and system installation work on customer network to enable efficient access and interconnection to the NBN services. This includes diagnosing and rectifying complex cable system faults to maximise benefits of the high speed broadband connection.

Telecommunications Fibre Splicer

This stream reflects the role of operators in applying optical fibre handling skills to splicing, testing and fault finding on live fibre cable in the fibre distribution network for NBN.

Job roles

Job roles and titles are dependent on the stream completed, possible job titles relevant to a pathway for this qualification include:

- Telecommunications installer
- Broadband network linesworker
- Broadband network fibre splicer
- Telecommunications customer network cable installer.

Pathways Information

Pathways into the qualification

Preferred pathways for candidates considering this qualification include:

- after achieving the ICT20613 Certificate II in National Broadband Network Installation or equivalent qualification from this or another endorsed Training Package or endorsed course

or

- with substantial vocational experience but without a formal qualification.

Pathways from the qualification

After achieving the ICT30713 Certificate III in National Broadband Network Construction, candidates seeking to develop more specialised technical skills and knowledge, may select from a range of Certificate IV qualifications in the ICT10 Integrated Telecommunications Training Package.

Licensing/Regulatory Information

The completion of unit ICTWHS2170B, ICTWHS2170A or ICTOHS2170A and the unit set of ICTCBL2136B and ICTCBL2137B meets the ACMA requirements for Cabling Provider Rules (CPR) open registration.

All training programs are undertaken with reference to the regulatory regime of the prevailing statutory authority (currently ACMA).

National Code of Practice for Induction for Construction Work

Much of the NBN installation work falls within the definition of construction work in the context of infrastructure provisioning. If so, anyone entering the construction site is 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 as part of the core group of this qualification fulfils this requirement.

Note: ICTOHS2153A Work safely near power infrastructure should be included in the qualification packaging where there is a likelihood of working near power infrastructure. If state or territory law requires a licence to operate an elevated work platform (EWP), TLILIC2005A Licence to operate a boom-type elevating work platform (boom length 11 metres or more) should be completed concurrently with ICTOHS2153A.

Volume of Learning

The volume of learning of a Certificate III is typically 1-2 years.

Up to 4 years may be required to achieve the learning outcomes through a program of indentured training/employment.

Entry Requirements

There are no entry requirements for this qualification.

Employability Skills Summary

Employability skill	Industry/enterprise requirements for this qualification include:
Communication	- communicating benefits of high speed broadband to community for successful NBN rollout - notifying any safety aspects to supervisor - documenting test methods and results - completing cable and equipment labelling and records in cabinets and distribution hubs - interpreting plan as a set of basic functions to be implemented - conveying information to clients, colleagues and other site personnel - completing job reports and compliance forms - communicating with customers to arrange time and access for the installation of systems and equipment - documenting and communicating work-related information, including reporting of faults and problems - providing feedback to customers on operating the equipment
Teamwork	- continually fostering effective teamwork for effective NBN rollout - identifying members and roles of team between management and workforce, between cable and network equipment teams and between installation and testing teams - participating in a team structure by identifying team members, tasks and goals and recognising and responding positively to conflict - working with team members to work with clients and install equipment - relating personal role to the industry - 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 sequences of operations from planning to site preparation to cabling to equipment installation in order to ensure a methodical and effective approach to NBN rollout
	• working out contingencies in event of problems arising
	• ensuring compatibility of technologies deployed by NBN rollout
	• 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
	• ranking likely causes of fault in order of probability to ensure a methodical approach to fault identification
Initiative and enterprise	• continually suggesting of ways for improving practices to suit specific site of NBN infrastructure rollout
	• 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
Planning and organising	• preparing project specifications for deployment of NBN access network
	• organising work schedules for deployment of access network architectures
	• developing NBN rollout plans to ensure minimal disruption to the workplace and the public
	• identifying realistic short and long-term career objectives
	• planning and provisioning to meet key milestones
	• gathering data for the installation of systems and equipment
	• developing a plan for the recovery of equipment from customer premises
	• planning the installation of ribbon fibre cable, taking into

	account technical, scheduling and financial considerations • interpreting design and relating to site characteristics • prioritising work according to organisation guidelines
Self-management	• managing personal time to assist effective rollout • identifying work to be completed • identifying and setting realistic short and long-term career objectives • 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 • personally applying all related OHS requirements and work practices, including job safety analysis (JSA), protective clothing and personal safety items • 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	• learning from previous experiences in order to improve future practices in NBN rollout • learning of methodologies of new ribbon fibre splicing and adapting to current practices • assessing customer's expertise and training needs and conducting training in the use of systems and equipment • making clients aware of opportunities that exist for with higher broadband speed offered by NBN and offering training • seeking assistance from team members when necessary • giving and receiving feedback to assist in meeting team and organisation goals • seeking assistance from team members when necessary • providing suitable training and assessment opportunities for work team members on NBN technologies by equipment suppliers • providing training to customers on system, product, product features and facilities • relating current or intended role to career objectives in a

	positive manner
Technology	• familiarising with new ribbon fibre technologies for NBN deployment • ensuring that range of technologies used in NBN infrastructure rollout are effectively and efficiently deployed to manufacturers specifications • checking that advanced tools and equipment are in safe working order and adjusted to manufacturer specifications • testing and measuring of broadband network infrastructure • installing, configuring and operating NBN equipment and products • identifying, replacing or repairing faulty parts and equipment • ensuring compatibility and interoperability between newly deployed NBN infrastructure and existing customer network • providing solutions for improved compatibility • identifying, replacing or repairing faulty parts and equipment

Packaging Rules

Total number of units = 14
9 core units *plus*
5 elective units, *of which*:

- **2 units must be from Group A Linesworker/installer or Group B Fibre splicer**
- **3 units from Group C General elective units or** from elsewhere in this Training Package, another Training Package or endorsed course at Certificate II, III or IV level.

Elective units chosen must be relevant to the work and industry context for project practice.

This qualification meets the requirements for the NBN infrastructure rollout and has been developed for specific occupational outcomes. Due to the specialised technical nature of the work, there is provision for choice of specialisation but there is no allowance for substitution of elective units in the specialised group. However, remaining elective units from Group C can be selected to meet relevant work outcome, local industry requirements and the qualification level.

Core units

CPCCOHS1001A Work safely in the construction industry
ICTBWN3088B Install optical fibre splitters in fibre distribution hubs
ICTBWN3205B Use optical and radio frequency measuring instruments
ICTCBL2065B Splice and terminate optical fibre cable for carriers and service providers
ICTCBL3018A Install underground enclosures and conduit
ICTTEN2008A Use electrical skills in telecommunications work
ICTTEN3056A Install telecommunications network equipment
ICTWHS2170B Follow work health and safety and environmental policies and procedures
ICTWOR3127A Supervise worksite activities

Elective units

Group A Linesworker/installer

ICTBWN3090B Install lead-in module and cable for fibre to the premises
ICTCBL3019A Install underground cable

Group B Fibre splicer

ICTBWN3100B Work safely with live fibre to test and commission a fibre to the x installation
ICTCBL3240B Install ribbon fibre cable in the FTTX distribution network

Group C General elective units

BSBSUS201A Participate in environmentally sustainable work practices
HLTAID001 Provide cardiopulmonary resuscitation

ICTBWN3090B Install lead-in module and cable for fibre to the premises
ICTCBL2131A Install an above ground equipment enclosure
ICTCBL2133A Construct underground telecommunications infrastructure
ICTCBL2134A Fix aerial cable
ICTCBL2136A Install, maintain and modify customer premises communications cabling: ACMA Restricted Rule
ICTCBL2137B Install, maintain and modify customer premises communications cabling: ACMA Open Rule
ICTCBL2162B Install a cable lead-in
ICTCMP2239B Perform restricted customer premises broadband cabling work: ACMA Restricted Rule
ICTOHS2153B Work safely near power infrastructure
ICTTEN2219A Install and test an internet protocol device in convergence networks
ICTTEN2140B Use hand and power tools
TLILIC2005A Licence to operate a boom-type elevating work platform (boom length 11 metres or more)

Prerequisite Units

The following units in this qualification have the prerequisite units detailed below.

Code and title	Prerequisite units required
ICTCBL3240B Install ribbon fibre cable in the FTTX distribution network	ICTCBL2065B Splice and terminate optical fibre cable for carriers and service providers
ICTCBL2137B Install, maintain and modify customer premises communications cabling: ACMA Open Rule	ICTCBL2136B Install, maintain and modify customer premises communications cabling: ACMA Restricted Rule
ICTCMP2239B Perform restricted customer premises broadband cabling work: ACMA Restricted Rule	ICTCBL2136B Install, maintain and modify customer premises communications cabling: ACMA Restricted Rule

ICT30813 Certificate III in Telecommunications Fixed Wireless Installation

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 qualification first released with *ICT10 Integrated Telecommunications Training Package Version 2.0.*

Description

This qualification reflects the role of an operator in the telecommunications industry who can apply a broad range of competencies using a defined range of skills where some discretion and judgement is required in the selection, installation and configuration of equipment in convergence technologies that integrate radio, optical and internet protocol (IP) based applications.

This role includes assessing installation requirements, planning and performing installations, testing installed equipment and fault finding. It involves a degree of autonomy and may include some supervision of others involving known routines and procedures and some accountability for the quality of outcomes.

This qualification prepares an individual for entry to the industry into the mainstream of telecommunications convergence technologies of radio, optical, data and IP networks.

An operator uses skills to install and maintain radio antennas on domestic and commercial buildings for fixed wireless broadband services and install and maintain Network Terminal Devices in domestic and commercial premises connected to the radio antennas.

Job roles

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

- telecommunications fixed wireless network equipment installer
- telecommunications voice and data equipment installer
- telecommunications tradesperson.

Pathways Information

Pathways into the qualification

Preferred pathways for candidates considering this qualification include:

- after achieving a Certificate II qualification from this or another endorsed Training Package or endorsed course

or

- with substantial vocational experience but without a formal qualification.

Pathways from the qualification

After achieving the ICT30813 Certificate III in Telecommunications Fixed Wireless Installation, candidates seeking to develop more specialised technical skills and knowledge, may select from a range of Certificate IV qualifications in the ICT10 Integrated Telecommunications Training Package.

Licensing/Regulatory Information

The completion of units ICTWHS2170B, ICTWHS2170A or ICTOHS2170A and ICTCBL136B meets the ACMA requirements for Cabling Provider Rules (CPR) restricted registration.

For cablers with restricted CPR qualifications there will be a requirement for the specialised unit ICTCMP2239B Perform restricted customer premises broadband cabling work: ACMA Restricted Rule, to be achieved when working on specialised broadband cabling.

All training programs must be undertaken with 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.

Note: ICTOHS2153A Work safely near power infrastructure should be included in the qualification packaging where there is a likelihood of working near power infrastructure. If state or territory law requires a licence to operate an elevated work platform (EWP), TLILIC2005A Licence to operate a boom-type elevating work platform (boom length 11 metres or more) should be completed concurrently with ICTOHS2153A.

Volume of Learning

The volume of learning of a Certificate III is typically 1-2 years.

Up to 4 years may be required to achieve the learning outcomes through a program of indentured training/employment.

Entry Requirements

There are no entry requirements for this qualification.

Employability Skills Summary

Employability skill	Industry/enterprise requirements for this qualification include:
Communication	- conveying information to clients, colleagues and other site personnel - completing job reports and compliance forms - communicating with customers to arrange time and access for the installation of systems and equipment - documenting and communicating work-related information, including reporting of faults and problems - providing feedback to customers on operating the equipment
Teamwork	- participating in a team structure by identifying team members, tasks and goals and recognising and responding positively to conflict - working with team members to work with clients and install equipment - relating personal role to the industry - 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	- 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 - ranking likely causes of fault in order of probability to ensure a methodical approach to fault identification
Initiative and enterprise	- identifying barriers to installation and developing strategies to overcome them within time and budget restrictions - adapting a plan to suit specific features of site - identifying issues and possible solutions within established

	guidelines
Planning and organising	• gathering data for the installation of systems and equipment • developing a plan for the recovery of equipment from customer premises • planning the installation of cable, taking into account technical, scheduling and financial considerations • interpreting design and relating to site characteristics • prioritising work according to organisation guidelines
Self-management	• 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 • applying all related OHS requirements and work practices, including job safety analysis (JSA), protective clothing and personal safety items • 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	• assessing customer's expertise and training needs and conducting training in the use of systems and equipment • making clients aware of opportunities that exist for system upgrades, additional services and training • seeking assistance from team members when necessary • giving and receiving feedback • providing suitable training and assessment opportunities for work team members • providing training to customers on system, product, product features and facilities
Technology	• installing and operating telecommunications broadband equipment and products • installing and operating CPE equipment and products • installing and configuring access network devices • checking tools and test equipment for accuracy • identifying, replacing or repairing faulty parts and equipment

Packaging Rules

Total number of units = 12
5 core units, *plus*
7 elective units, *of which*:

- 1 unit must be from Group A Workplace
- 3 units must be from Group B Fixed wireless installer, one of which may be substituted with a Group A unit if required by a specific job role
- 3 units must be from Group C General elective units, up to two of which may be from elsewhere in this Training Package, another Training Package or endorsed course at Certificate II, III or IV level.

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

Core units

ICTBWN3205A Use optical and radio frequency measuring instruments
ICTTEN2008A Use electrical skills in telecommunications work
ICTTEN2140B Use hand and power tools
ICTTEN3056A Install telecommunications network equipment
ICTWHS2170B Follow work health and safety and environmental policies and procedures

Elective units

Group A Workplace

BSBSMB305A Comply with regulatory, taxation and insurance requirements for the micro business
BSBSMB306A Plan a home based business
BSBSUS201A Participate in environmentally sustainable work practices
BSBSUS301A Implement and monitor environmentally sustainable work practices
ICASAS305A Provide IT advice to clients
ICTEDU3053A Train customers in new technology
ICTSMB4160A Set up and operate a contractor business
ICTSMB4161A Operate a contractor business with employees
ICTWOR3028A Organise resources
ICTWOR3035A Organise material supply
ICTWOR3127A Supervise worksite activities

Group B Fixed wireless installer

ICTDRE3156B Install digital reception equipment
ICTDRE3157B Locate and rectify digital reception equipment faults
ICTDRE3165A Install a complex digital reception system
ICTRFN3055A Install a radio communications antenna and feedline

Group C General elective units

CPCCOHS1001A Work safely in the construction industry
ICAICT302A Install and optimise operating system software
ICAICT303A Connect internal hardware components
ICANWK305A Install and manage network protocols
ICANWK417A Build an enterprise wireless network
ICASAS301A Run standard diagnostic tests
ICTBWN3082B Perform tests on optical communication system and components
ICTBWN3088B Install optical fibre splitters in fibre distribution hubs
ICTBWN3090B Install lead-in module and cable for fibre to the premises
ICTBWN3100A Work safely with live fibre to test and commission a fibre to the x
installation
ICTCBL2064A Haul underground cable
ICTCBL2065B Splice and terminate optical fibre cable for carriers and service providers
ICTCBL2136B Install, maintain and modify customer premises communications cabling:
ACMA Restricted Rule (where ACMA Restricted Registration is necessary)
ICTCBL2137B Install, maintain and modify customer premises communications cabling:
ACMA Open Rule
ICTCBL2139B Apply safe technical work practices for cabling registration
ICTCBL3009B Install, terminate and certify structured cabling installation
ICTCBL3010B Install and terminate optical fibre cable on customer premises
ICTCBL3011B Install and terminate coaxial cable
ICTCBL3013A Perform cable and system test on customer premises
ICTCBL3014A Hand over systems and equipment
ICTCBL3015A Locate and identify cable system faults
ICTCBL3018A Install underground enclosures and conduit
ICTCBL3019A Install underground cable
ICTCBL3020A Construct aerial cable supports
ICTCBL3021A Install aerial cable
ICTCBL3049A Install systems and equipment on customer premises
ICTCBL3052A Cut over new systems and equipment on customer premises
ICTCBL3067A Modify and cut over cable
ICTCBL3069A Install network cable equipment
ICTCMP2022B Organise and monitor cabling to ensure compliance with regulatory and
industry standards
ICTCMP2239B Perform restricted customer premises broadband cabling work: ACMA
Restricted Rule
ICTOHS2080A Provide telecommunications services safely on roofs
ICTOHS2153B Work safely near power infrastructure
ICTRFN3146A Install WiMAX customer premises equipment broadband wireless access
equipment
ICTRFN3155A Construct and test a radio communications device
ICTRFN3175A Operate and maintain radio communications technical instruments and field
equipment
ICTTEN2219A Install and test an internet protocol device in convergence networks
ICTTEN3054B Provide infrastructure for telecommunications network equipment
ICTTEN3063A Locate, identify and rectify recurrent network faults

ICTTEN3074A Recover customer premises equipment
ICTTEN3075A Refurbish customer premises equipment
ICTTEN3077B Commission an electronic unit
ICTTEN4198A Install, configure and test an internet protocol network
TLILIC2005A Licence to operate a boom-type elevating work platform (boom length 11 metres or more).

Prerequisite Units

The following unit in this qualification has the prerequisite unit detailed below.

Code and title	Prerequisite unit required
ICTCBL2137B Install, maintain and modify customer premises communications cabling: ACMA Open Rule	ICTCBL2136B Install, maintain and modify customer premises communications cabling: ACMA Restricted Rule
ICTCMP2239B Perform restricted customer premises broadband cabling work: ACMA Restricted Rule	ICTCBL2136B Install, maintain and modify customer premises communications cabling: ACMA Restricted Rule

ICT40110 Certificate IV in Optical Networks

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 a technician with a range of telecommunications skills who can:

- install and maintain switching and transmission optical equipment in the enterprise network
- install and maintain optical and wireless equipment for high speed broadband network infrastructure
- 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 internet protocol (IP) based network telecommunications equipment
- install and maintain telecommunications access network cabling and infrastructure, systems and basic customer premises equipment using optical networking technology
- assess installation requirements of converging voice, video and data IP networks
- plan and perform installations
- test installed equipment and fault find.

This role also 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 equipment installer
- IP based network installer
- optical network infrastructure installer
- optical network technician
- secure IT network installer
- telecommunications technician.
-

Prerequisite requirements
There are no prerequisite requirements for individual units of competency.

Pathways Information

Pathways into the qualification

Preferred pathways for candidates considering this qualification include:

- after achieving the ICT30110 Certificate III in Broadband and Wireless Networks Technology or ICT30210 Certificate III in Telecommunications or ICT30310 Certificate III in Telecommunications Cabling or ICT30610 Certificate III in Broadband and Wireless Networks or another relevant accredited Training Package qualification or relevant accredited course

or

- providing evidence of competency in the core units required for the ICT30110 Certificate III in Broadband and Wireless Networks Technology or ICT30210 Certificate III in Telecommunications or ICT30310 Certificate III in Telecommunications Cabling or ICT30610 Certificate III in Broadband and Wireless Networks or equivalent units with vocational experience

or

- with substantial vocational experience but without a formal qualification.

Pathways from the qualification

After achieving the ICT40110 Certificate IV in Optical Networks, candidates may undertake the ICT50110 Diploma of Optical Networks, 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 and Plumbing Services Integrated Framework Training Package fulfils this requirement.

Prerequisite requirements

There are no prerequisite requirements for individual units of competency.

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

Packaging Rules

Total number of units = 11
6 core units, plus
1 elective unit from Group A workplace units, plus
4 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 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

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
ICTPMG4152A Manage the delivery of network infrastructure
ICTSUS4185A Install and test power management software
ICTTEN4081A Locate, diagnose and rectify faults

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

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

Occupational health and safety

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

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

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

ICT40210 Certificate IV 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 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 perform installations
- test installed equipment and fault find.

This role also 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.
-

Prerequisite requirements
There are no prerequisite requirements for individual units of competency.

Pathways Information

Qualification Pathways
Pathways into the qualification
Preferred pathways for candidates considering this qualification include:

- after achieving the ICT30110 Certificate III in Broadband and Wireless Networks Technology or ICT30210 Certificate III in Telecommunications or ICT30310 Certificate III in Telecommunications Cabling or ICT30610 Certificate III in Broadband and Wireless Networks or another relevant accredited Training Package qualification or relevant accredited course

or

- providing evidence of competency in the core units required for the ICT30110 Certificate III in Broadband and Wireless Networks Technology or ICT30210 Certificate III in Telecommunications or ICT30310 Certificate III in Telecommunications Cabling or ICT30610 Certificate III in Broadband and Wireless Networks or equivalent units with vocational experience

or

- with substantial vocational experience but without a formal qualification.

Pathways from the qualification
After achieving the ICT40210 Certificate IV in Telecommunications Network Engineering, candidates may undertake the 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

Licensing, legislative, regulatory or certification considerations
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 and Plumbing Services Integrated Framework 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 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

Packaging Rules

Total number of units = 11
3 core units, plus
1 elective unit from Group A workplace units, plus
7 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

ICTPMG4152A Manage the delivery of network infrastructure
ICTTEN4081A Locate, diagnose and rectify faults
ICTSUS4185A Install and test power management software

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

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
ICANWK410A Install network hardware to a network
ICANWK411A Install software to networked computers
ICANWK416A Build security into virtual private networks
ICANWK417A Build an enterprise wireless network
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

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
- 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

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
- three 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

Emerging technology installer

Core units plus one Group A workplace elective unit plus:

- ICTTEN4050A Install and configure a wireless mesh network
- ICTTEN4126A Install and configure internet protocol TV in a home network
- ICTTEN4198A Install, configure and test an internet protocol network
- ICTTEN4202A Install and test a radio frequency identification system
- ICTTEN4229B Design, install and configure a customer smart technology network
- two 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 one Group A workplace elective unit plus:

- ICTTEN4126A Install and configure internet protocol TV in a home network
- ICTDRE4166A Integrate customer digital reception equipment
- ICTDRE4167A Integrate data delivery modes
- ICTTEN4198A Install, configure and test an internet protocol network
- ICTTEN4229B Design, install and configure a customer smart technology network
- two 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

Optical network equipment installer

Core units plus one 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
- three 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

Network Security equipment installer

Core units plus one 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
- three 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

RFID system installer

Core units plus one Group A workplace elective unit plus:

- ICANWK411A Install software to networked computers
- ICTTEN4078A Commission an electronic system
- ICTTEN4198A Install, configure and test an internet protocol network
- ICTTEN4202A Install and test a radio frequency identification system
- three 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

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
- three 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

Sustainability network equipment installer

Core units plus one 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
- 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 LAN installer

Core units plus one Group A workplace elective unit plus:

- ICANWK416A Build security into virtual private networks
- ICANWK417A Build an enterprise wireless network
- ICANWK411A Install software to networked computers
- ICTTEN4198A Install, configure and test an internet protocol network
- three 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 one Group A workplace elective unit plus:

- 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 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

ICT40313 Certificate IV in Telecommunications Radio Communications

Modification History

Release	Comments
Release 2	This version first released with *ICT10 Integrated Telecommunications Training Package Version 3.0*. ICTWOR2141 Work effectively in a telecommunications technology team moved to elective bank. Elective unit requirement increased by one.
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 digital radio telecommunications equipment
- conduct field operations of radio networks
- install and maintain worldwide interoperability for microwave access (WiMAX) and wireless fidelity (WiFi) networks for high speed broadband network infrastructure
- monitor radio frequency (RF) operation and conduct field audits for compliance.
-

Job Roles

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

- radio communications technician
- radio frequency technician
- radio frequency field technician
- radio frequency compliance officer
- radio frequency auditor
- telecommunications radio technician
- WiMAX or WiFi system installer
- wireless system installer.
-

Prerequisite requirements

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

Code and title	Prerequisite unit required
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 ICT40313 Certificate IV in Telecommunications Radio Communications, 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

Employability Skill	Industry/enterprise requirements for this qualification include:
	• determining radio interference problems and conducting compliance audits • 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 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

Employability Skill	Industry/enterprise requirements for this qualification include:
	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 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

Packaging Rules

Total number of units = 17
9 core units, plus
8 elective units

Elective units must be relevant to the work outcome, local industry requirements and the qualification level. All these electives must be taken from Certificate IV level.

A maximum of three 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.

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

ICTCBL2066B Joint and terminate coaxial cable
ICTRFN3055A Install a radio communications antenna and feedline
ICTRFN3155A Construct and test a radio communications device
ICTSUS4185A Install and test power management software
ICTTEN2008A Use electrical skills in telecommunications work
ICTTEN2140B Use hand and power tools
ICTTEN3104A Maintain an electronic system
ICTTEN4081A Locate, diagnose and rectify faults
ICTWHS2170B Follow work health and safety and environmental policies and procedures

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
ICTCBL4004B Schedule and supply cabling installation
ICTCBL4099A Remotely locate and identify cable network faults

Compliance

ICTCMP5176A Undertake radio communications site audit

Customer Service

BSBCUS402B Address customer needs

First aid

HLTAID003 Provide first aid

ICT use

IP networks

ICANWK410A Install network hardware to a network

Occupational health and safety

CPCCOHS1001A Work safely in the construction industry
CPPSEC3034A Operate information gathering equipment
ICTOHS2153B Work safely near power infrastructure

Project management

ICTPMG4048B Schedule installation of customer premises equipment
ICTPMG4152A Manage the delivery of network infrastructure

Radio frequency networks

ICTRFN3146A Install WiMAX customer premises equipment broadband wireless access
equipment
ICTRFN3175A Operate and maintain radio communications technical instruments and field
equipment
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
ICTRFN5148A Test and measure cellular phone and network equipment performance

Telecommunications engineering networks

ICTTEN3054B Provide infrastructure for telecommunications network equipment
ICTTEN3056A Install telecommunications network equipment
ICTTEN3077B Commission an electronic unit
ICTTEN3089A Repair and replace telecommunications network hardware
ICTTEN3104A Maintain an electronic system
ICTTEN4001B Identify requirements for customer telecommunications equipment
ICTTEN4003B Estimate and quote for customer telecommunications equipment installation
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
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

Small and micro business

BSBSMB401A Establish legal and risk management requirements of small business
BSBSMB405B Monitor and manage small business operations
BSBSMB407A Manage a small team

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

Workplace effectiveness

ICTWOR2141A Work effectively in a telecommunications technology team
ICTWOR4032A Undertake a civil site survey
ICTWOR4079A Schedule equipment maintenance

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.

Radio Installation

Core units plus:

- ICTTEN3056A Install telecommunications network equipment
- ICTTEN3077B Commission an electronic unit
- ICTTEN3089A Repair and replace telecommunications network hardware
- ICTTEN4078A Commission an electronic system
- ICTTEN4102A Repair telecommunication system faults
- two additional units from elective units as appropriate to the specific job role

Radio field operations

Core units plus:

- CPPSEC3034A Operate information gathering equipment
- HLTFA311A Apply first aid
- BSBCUS402B Address customer needs
- four additional units from elective units as appropriate to the specific job role

Field monitoring and compliance

Core units plus:

- ICTCMP5176A Undertake radio communications site audit
- ICTRFN3175A Operate and maintain radio communications technical instruments and field equipment
- ICTRFN4174A Undertake radio communications signals monitoring
- four additional units from elective units as appropriate to the specific job role

Wireless network equipment installer

Core units:

- ICTRFN3146A Install WiMAX customer premises equipment broadband wireless access equipment
- ICTRFN4158A Select an antenna system for radio communications
- ICTRFN4159A Test and repair cellular network equipment
- ICTRFN4177A Install radio communications base station equipment
- three additional units from elective units as appropriate to the specific job role

ICT40410 Certificate IV in Radio Frequency Networks

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 a technician with a range of telecommunications skills who can:

- install and maintain switching and transmission radio frequency (RF) equipment in the enterprise network
- install and maintain RF and wireless equipment for high speed broadband network infrastructure
- 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 internet protocol (IP) based network telecommunications equipment
- install and maintain telecommunications access network cabling and infrastructure, systems and basic customer premises equipment using optical networking technology
- assess installation requirements of converging voice, video and data IP networks
- plan and perform installations
- test installed equipment and fault find.

This role also 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 equipment installer
- IP based network installer
- RF network infrastructure installer
- RF network technician secure IT network installer
- telecommunications radio technician
-

Prerequisite requirements

There are no prerequisite requirements for individual units of competency.

Pathways Information

Preferred pathways for candidates considering this qualification include:

- after achieving ICT30113 Certificate III in Broadband and Wireless Networks Technology or ICT30213 Certificate III in Telecommunications or ICT30313 Certificate III in Telecommunications Cabling or ICT30613 Certificate III in Broadband and Wireless Networks or another relevant accredited Training Package qualification or relevant accredited course

or

- providing evidence of competency in the core units required for ICT30113 Certificate III in Broadband and Wireless Networks Technology or ICT30213 Certificate III in Telecommunications or ICT30313 Certificate III in Telecommunications Cabling or ICT30613 Certificate III in Broadband and Wireless Networks or equivalent units with vocational experience

or

- with substantial vocational experience but without a formal qualification.

Pathways from the qualification
After achieving ICT40410 Certificate IV in Radio Frequency Networks, candidates may undertake ICT50410 Diploma of Radio Frequency Networks, 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 and Plumbing Services Integrated Framework 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 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 coaxial and optical fibre 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

Packaging Rules

Total number of units = 11
5 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 any 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
ICTPMG4152A Manage the delivery of network infrastructure
ICTRFN4095A Conduct radio frequency measurements
ICTRFN4158A Select an antenna system for radio communications
ICTSUS4185A Install and test power management software
ICTTEN4081A Locate, diagnose and rectify faults

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
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

Occupational health and safety

ICTOHS2153B Work safely near power infrastructure

CPCCOHS1001A Work safely in the construction industry

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
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
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

ICT40510 Certificate IV in Telecommunications Network Planning

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 a technician with a range of telecommunications skills and extensive knowledge of the core and access network capabilities of the service provider who can:

- plan the development of the customer access network infrastructure
- plan the development of the core network for the service provider and asst owner
- plan network capacity for new technology in products and services
- analyse demand data and evaluate network growth and impact on the network.

This qualification prepares an individual for entry in planning and 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 planning.

Job Roles

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

- access network planner
- telecommunications technician planner.
-

Prerequisite requirements

There are no prerequisite requirements for individual units of competency.

Pathways Information

Pathways into the qualification

Preferred pathways for candidates considering this qualification include:

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

or

- with substantial vocational experience but without a formal qualification.

Pathways from the qualification

After achieving the ICT40510 Certificate IV in Telecommunications Network Planning, candidates may undertake the ICT50513 Diploma of Telecommunications Planning and Design, 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).

Entry Requirements

There are no entry requirements for this qualification.

Employability Skills Summary

Employability Skill	Industry/enterprise requirements for this qualification include:
Communication	• liaising with market research to determine existing capacity and capability of network • liaising with survey researchers to determine potential network growth • documenting survey methods and results • reading, interpreting and using statistical network reports • conveying information to clients, colleagues and other site personnel • providing feedback to customers on market research surveys
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 planning 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	• 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

Packaging Rules

Total number of units = **11**
6 core units, **plus**
1 elective unit from Group A workplace units, **plus**
2 elective units from Group B specialist units, **plus**
2 elective units from Group C 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 C 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 C 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

BSBINM302A Utilise a knowledge management system
ICTNPL4107A Apply business acumen to network planning
ICTNPL4114A Produce planning specifications for end to end service delivery
ICTNPL4150A Apply knowledge of regulation and legislation for the telecommunications industry
ICTPMG4152A Manage the delivery of network infrastructure
ICTSUS4185A Install and test power management software

ELECTIVE UNITS

Group A - Workplace elective units

BSBMGT401A Show leadership in the workplace
BSBWOR401A Establish effective workplace relationships
BSBWOR4032A Undertake a civil site survey

Group B - Specialist elective units

ICTNPL4108A Plan the deployment of access network architectures
ICTNPL4109A Evaluate the capability of access networks
ICTNPL4110A Evaluate the planning requirements for provisioning a telecommunications building facility
ICTNPL4111A Develop provisioning of telecommunications building works project
ICTNPL4112A Evaluate core network architectures
ICTNPL4113A Plan the deployment of core network
ICTNPL4151A Plan the telecommunications access network for an estate

Group C - General Elective Units

Project management

BSBSMB407A Manage a small team
ICTPMG4048B Schedule installation of customer premises equipment

Telecommunications engineering networks
ICTTEN4040A Assign a transmission path
ICTTEN4085A Monitor, analyse and action telecommunications network alarms

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.

Access Network

Core units plus one Group A workplace elective unit plus:

- ICTNPL4108A Plan the deployment of access network architectures
- ICTNPL4109A Evaluate the capability of access networks
- two additional units from Group C 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.

Building Infrastructure

Core units plus one workplace unit plus:

- ICTNPL4110A Evaluate the planning requirements for provisioning a telecommunications building facility
- ICTNPL4111A Develop provisioning of telecommunications building works project
- two additional units from Group C 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.

Core Network

Core units plus one Group A workplace elective unit plus:

- ICTNPL4112A Evaluate Core Network architectures
- ICTNPL4113A Plan the deployment of Core Network

- two additional units from Group C 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.

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.
-

Prerequisite requirements

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

Code and title	Prerequisite unit required

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

Employability Skill	Industry/enterprise requirements for this qualification include:
	• 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 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

Employability Skill	Industry/enterprise requirements for this qualification include:
	• 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 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

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

ICT40713 Certificate IV in Telecommunications Network Design

Modification History

Release	Comments
Release 1	This version first released with *ICT10 Integrated Telecommunications Training Package Version 3.0.*

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.
-

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 |

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	• 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	• 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	• 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

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 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	• 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	• relating current or intended role to career objectives in a positive manner • giving and receiving feedback to assist in meeting team and

Employability Skill	Industry/enterprise requirements for this qualification include:
	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	• checking that tools and equipment are in safe working order and are adjusted to manufacturer specifications • 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 internetwork
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