Australian Government

Department of Education, Employment and Workplace Relations

ICT10 Integrated Telecommunications Training Package

Release: 1.0

ISC INDUSTRY SKILLS COUNCILS
Creating Australia's Future

CONTENTS

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Modification History

Version Modification History

The version details of this endorsed Training Package are in the table below. The latest information is at the top of the table.

Version	Release Date	Comments
Version 1	15 June 2010	Primary release

Imprint

ICT10 Integrated Telecommunications Training Package

Preliminary Information

Important Note to Users

Training Packages are not static documents; they are amended periodically to reflect the latest industry practices and are version controlled. It is essential that the latest version is always used.

Check the version number before commencing training or assessment

This Training Package is Version - check whether this is the latest version by going to the National Training Information Service (www.ntis.gov.au) and locating information about the Training Package. Alternatively, contact Innovation and Business Industry Skills Council at http://www.ibsa.org.au to confirm the latest version number.

Explanation of version number conventions

The primary release Training Package is Version 1. When changes are made to a Training Package, sometimes the version number is changed and sometimes it is not, depending on the extent of the change. When a Training Package is reviewed it is considered to be a new Training Package for the purposes of version control, and is Version 1. Do not confuse the version number with the Training Packages national code (which remains the same during its period of endorsement).

History

ICT10 Integrated Telecommunications Training Package is a revision of the ICT02 Telecommunications Training Package which was developed in 2002.

ICT02 Version 1 was endorsed in December 2002 and was a complete revision to replace the original ICT97

ICT02 Version 2 was a minor upgrade to include some additional units.

ICT02 Version 3 introduced new qualifications in Digital Reception Technology, Telecommunications Networks, Telecommunications Computer Telephony Integration, Telecommunications Radio Communications and the Broadcast Technology from the CUF07 TP. Many new additional units were included as part of the new qualifications. Additionally, the Customer Contact qualifications and associated units were deleted from this Training Package and moved to the BSB07 Training Package.

ICT10 has involved many changes to the Training Package to bring it to the forefront with industry requirements.

With the Federal Government driving the agenda with a number of initiatives including the National Broadband Network (NBN), Digital Education Revolution (DER) and sustainability practices to reduce carbon emissions and greenhouse effects on the environment there has been major work to refresh this Training Package to meet the needs of the Australian industry and the community.

The emerging technologies coupled with convergence of many industry sectors has been the reason for the traditional name change of this Training Package.

The major changes introduced in ICT10 are the inclusion of qualification streams in:

- Broadband and Wireless Technology
- Digital Reception Technology
- Optical Networks
- Radio Frequency Networks
- Rigging Installation
- Telecommunications Network Engineering.

Qualifications include:

- Planning and Design
- Telecommunications Technology for VET in schools program
- Telecommunications Management
- Vocational Graduate Certificate in Telecommunications Network Engineering
- Vocational Graduate Diploma of Telecommunications Network Engineering.

In reviewing ICT02, 111 new units have been added to ICT10 Integrated Telecommunications Training Package.

List of AQF Qualifications

List of AQF Qualifications

Qualification Code	Title
ICT20110	Certificate II in Telecommunications Technology
ICT20210	Certificate II in Telecommunications
ICT20310	Certificate II in Telecommunications Cabling
ICT20410	Certificate II in Telecommunications Digital Reception Technology
ICT20510	Certificate II in Telecommunications Rigging Installation
ICT30110	Certificate III in Broadband and Wireless Networks Technology
ICT30210	Certificate III in Telecommunications
ICT30310	Certificate III in Telecommunications Cabling
ICT30410	Certificate III in Telecommunications Digital Reception Technology

Qualification Code	Title
ICT30510	Certificate III in Telecommunications Rigging Installation
ICT30610	Certificate III in Broadband and Wireless Networks
ICT40110	Certificate IV in Optical Networks
ICT40210	Certificate IV in Telecommunications Network Engineering
ICT40310	Certificate IV in Telecommunications Radio Communications
ICT40410	Certificate IV in Radio Frequency Networks
ICT40510	Certificate IV in Telecommunications Network Planning
ICT40610	Certificate IV in Telecommunications Networks Technology
ICT50110	Diploma of Optical Networks
ICT50210	Diploma of Telecommunications Network Engineering
ICT50310	Diploma of Telecommunications Management
ICT50410	Diploma of Radio Frequency Networks
ICT50510	Diploma of Telecommunications Planning and Design
ICT60110	Advanced Diploma of Optical Networks
ICT60210	Advanced Diploma of Telecommunications Network Engineering
ICT70110	Vocational Graduate Certificate in Telecommunications Network Engineering
ICT80110	Vocational Graduate Diploma of Telecommunications Network Engineering

List of ALL Units within Training Package

List of ALL Units within Training Package

Summary of Units of Competency in ICT10 Integrated Telecommunications Training Package and their Prerequisite Requirements		
Code	Title	Prerequisite Units

ICTBWN3082A	Perform tests on optical communication system and components	
ICTBWN3088A	Install optical fibre splitters in fibre distribution hubs	
ICTBWN3090A	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	ICTOHS2170A
ICTBWN3205A	Use optical and radio frequency measuring instruments	
ICTCBL2005A	Install customer cable support systems	
ICTCBL2006A	Place and secure customer cable	
ICTCBL2008A	Terminate metallic conductor customer cable	
ICTCBL2012A	Install functional and protective telecommunications earthing system	
ICTCBL2016A	Joint metallic conductor cable on customer premises	
ICTCBL2017A	Alter services to existing cable system	
ICTCBL2064A	Haul underground cable	
ICTCBL2065A	Splice and terminate optical fibre cable for carriers and service providers	
ICTCBL2066A	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	

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ICTCBL2135A	Joint metallic conductor cable in access network	
ICTCBL2136A	Install, maintain and modify customer premises communications cabling: ACMA Restricted Rule	
ICTCBL2137A	Install, maintain and modify customer premises communications cabling: ACMA Open Rule	ICTCBL2136A
ICTCBL2138A	Install, maintain and modify customer premises communications cabling: ACMA Lift Rule	
ICTCBL2139A	Apply safe technical work practices for cabling registration	
ICTCBL2162A	Install a cable lead-in	
ICTCBL3009A	Install, terminate and certify structured cabling installation	
ICTCBL3010A	Install and terminate optical fibre cable on customer premises	
ICTCBL3011A	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	
ICTCBL3103A	Maintain cable network	
ICTCBL4002A	Prepare design drawings and specification for a cable installation	
ICTCBL4004A	Schedule and supply cabling installation	
ICTCBL4023A	Supervise cabling project	
ICTCBL4057A	Test cable bearers	
ICTCBL4099A	Remotely locate and identify cable network faults	
ICTCMP2022A	Organise and monitor cabling to ensure compliance with regulatory and industry standards	
ICTCMP5176A	Undertake radio communications site audit	
ICTDRE3156A	Install digital reception equipment	
ICTDRE3157A	Locate and rectify digital reception equipment faults	
ICTDRE3165A	Install a complex digital reception system	
ICTDRE4166A	Integrate customer digital reception equipment	
ICTDRE4167A	Integrate data delivery modes	
ICTEDU3053A	Train customers in new technology	
ICTEDU5025A	Develop and deliver training associated with new and modified products	
ICTITU5144A	Test telecommunications network using virtual instruments	
ICTITU7106A	Manage automated ICT system applications using unix	
ICTNPL4107A	Apply business acumen to network	

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	planning	
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	
ICTNPL4114A	Produce planning specifications for end to end service delivery	
ICTNPL4150A	Apply knowledge of regulation and legislation for the telecommunications industry	
ICTNPL4151A	Plan the telecommunications access network for an estate	
ICTNPL5071A	Develop planning strategies for core network design	
ICTNPL5096A	Develop planning strategies for access network design	
ICTNPL5101A	Apply service measures and demand forecasting to products and services planning	
ICTNPL5154A	Develop planning strategies for building environment design	
ICTNPL6029A	Plan the development and growth of the telecommunications network	
ICTNPL6030A	Forecast service demand	
ICTNPL6046A	Undertake network performance analysis	

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ICTOHS2080A	Provide telecommunications services safely on roofs	
ICTOHS2153A	Work safely near power infrastructure	
ICTOHS2170A	Follow Occupational Health and Safety and environmental policy and procedures	
ICTOPN4115A	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	
ICTOPN5118A	Plan and configure dense wavelength division multiplexing systems	
ICTOPN5119A	Perform acceptance and commissioning tests on optical network	
ICTOPN5120A	Plan for an optical system upgrade and cut over	
ICTOPN5121A	Test and commission a dense wavelength division multiplexing transmission system	
ICTOPN5122A	Test the performance of specialised optical devices	
ICTOPN5123A	Analyse and integrate specialised optical devices in the network	
ICTOPN6124A	Manage optical ethernet transmission	
ICTOPN6125A	Manage dense wavelength division multiplexing transmission system	
ICTOPN6128A	Design a dense wavelength division multiplexing system	
ICTOPN6129A	Analyse optical transmission systems	
ICTPMG2130A	Prepare site for support installation	
ICTPMG2173A	Plan, organise and undertake work activities	

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ICTPMG4048A	Schedule installation of customer premises equipment	
ICTPMG4152A	Manage the delivery of network infrastructure	
ICTPMG5027A	Develop customer premises equipment installation project plans	
ICTPMG5031A	Prepare a project brief	
ICTPMG5039A	Prepare project specifications	
ICTPMG6033A	Develop a project management plan	
ICTPMG6034A	Prepare a detailed design brief	
ICTPMG7145A	Undertake a telecommunications project	
ICTPMG8142A	Manage a telecommunications workplace	
ICTPMG8143A	Manage a telecommunications project	
ICTPMG8149A	Evaluate and use telecommunications management networks	
ICTPRO5026A	Develop training, marketing and sales resources for telecommunications products	
ICTRFN2163A	Install a satellite antenna	
ICTRFN2164A	Install a terrestrial antenna	
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	

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	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	
ICTRFN5097A	Test cellular handset enhancements and international roaming agreements	
ICTRFN5148A	Test and measure cellular phone and network equipment performance	
ICTRFN5179A	Evaluate and analyse radio frequency signal coverage plots	
ICTRFN6098A	Monitor the capacity of and recommend changes to the cellular mobile network	
ICTRFN6171A	Produce and evaluate architecture designs for WiMAX networks	
ICTRFN7182A	Produce a radio link budget	
ICTRFN8180A	Analyse a cellular mobile network system	
ICTRFN8181A	Analyse a satellite communications system	
ICTSMB4160A	Set up and operate a contractor business	
ICTSMB4161A	Operate a contractor business with employees	
ICTSUS4183A	Install and test renewable energy system for ICT networks	

ICTSUS4184A	Install and test power saving hardware	
ICTSUS4185A	Install and test power management software	
ICTSUS4186A	Install thin client applications for power over ethernet	
ICTSUS5187A	Implement server virtualisation for a sustainable ICT system	
ICTSUS6233A	Integrate sustainability in ICT planning and design projects	
ICTSUS6234A	Establish a business case for sustainability and competitive advantage in ICT projects	
ICTSUS7235A	Use ICT to improve sustainability outcomes	
ICTSUS7236A	Manage improvements in ICT sustainability	
ICTSUS8237A	Lead applied research in ICT sustainability	
ICTSUS8238A	Conduct and manage a life cycle assessment for sustainability	
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	ICTTCR2188A ICTTCR2189A ICTTCR2190A
ICTTCR3191A	Install radio plant and equipment on telecommunications structures	ICTTCR2188A ICTTCR2189A ICTTCR2190A
ICTTCR3192A	Protect against electromagnetic radiation	

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	and system hazards when working on telecommunications radio sites	
ICTTEN2007A	Use electrical skills in telecommunications work	
ICTTEN2105A	Install and test an internet protocol device in convergence networks	
ICTTEN2140A	Use hand and power tools	
ICTTEN2207A	Install and configure a home or small office network	
ICTTEN2208A	Install and configure a small to medium business network	
ICTTEN2209A	Build and maintain a secure network	
ICTTEN2218A	Operate new media software packages	
ICTTEN3054A	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	
ICTTEN3077A	Commission an electronic unit	
ICTTEN3089A	Repair and replace telecommunications network hardware	
ICTTEN3104A	Maintain an electronic system	
ICTTEN4001A	Identify requirements for customer telecommunications equipment	
ICTTEN4003A	Estimate and quote for customer telecommunications equipment installation	
ICTTEN4040A	Assign a transmission path	

ICTTEN4050A	Install and configure a wireless mesh network	
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	
ICTTEN4081A	Locate, diagnose and rectify faults	
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	
ICTTEN4126A	Install and configure internet protocol TV in a home network	
ICTTEN4198A	Install, configure and test an internet protocol network	
ICTTEN4199A	Install, configure and test a router	
ICTTEN4202A	Install and test a radio frequency identification system	
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	
ICTTEN4215A	Install and configure internet protocol TV in a service provider network	
ICTTEN4229A	Design, install and configure a customer smart grid network	
ICTTEN5024A	Provide consultancy and technical support in the customer premises equipment sector	
ICTTEN5037A	Design a telecommunications project	
ICTTEN5038A	Design an electronic system for a telecommunications network	
ICTTEN5058A	Acceptance test new systems and equipment	
ICTTEN5059A	Commission telecommunications network equipment	
ICTTEN5060A	Integrate new systems and equipment into the telecommunications network	
ICTTEN5061A	Cut over new and replacement network equipment	
ICTTEN5083A	Locate, diagnose and rectify complex faults	
ICTTEN5084A	Provide expert advice and support on complex faults	
ICTTEN5092A	Undertake planned outage management	
ICTTEN5147A	Administer a data communications network	
ICTTEN5168A	Design and implement an enterprise voice over internet protocol and a unified communications network	

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ICTTEN5200A	Install, configure and test a local area network switch	
ICTTEN5201A	Install, configure and test a server	
ICTTEN5203A	Dimension and design a radio frequency identification system	
ICTTEN5204A	Produce technical solutions from business specifications	
ICTTEN5217A	Plan a wireless mesh network	
ICTTEN6036A	Undertake qualification testing of new or enhanced equipment and systems	
ICTTEN6042A	Undertake system administration	
ICTTEN6043A	Undertake network traffic management	
ICTTEN6044A	Coordinate fault rectification and restoration of service following network outages	
ICTTEN6045A	Implement planned network changes with minimal impact to the customer	
ICTTEN6047A	Manage a common channel signalling network	
ICTTEN6091A	Analyse and organise repair of highly complex telecommunications network faults	
ICTTEN6094A	Verify new software and hardware releases	
ICTTEN6169A	Produce and evaluate architecture designs for convergent cellular mobile networks	
ICTTEN6172A	Design and configure an IP-MPLS network with virtual private network tunnelling	
ICTTEN6206A	Produce an ICT network architecture design	
ICTTEN6216A	Design and manage internet protocol TV in a service provider network	

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ICTTEN7193A	Plan a transmission network	
ICTTEN7219A	Manage alignment of systems with product and technology strategy	
ICTTEN7220A	Translate domain and solution architectures into platform requirements and designs	
ICTTEN7221A	Manage end to end architectural solutions across multiple domains	
ICTTEN7222A	Manage solution architecture and impacts in line with organisational processes	
ICTTEN7223A	Manage application layer solutions	
ICTTEN7224A	Manage voice, data and internet protocol network solutions	
ICTTEN7225A	Manage network testing strategies	
ICTTEN7226A	Manage development and application of testing artefacts	
ICTTEN7227A	Analyse business specifications to produce technical solutions	
ICTTEN7228A	Manage project requirements and process implementations	
ICTTEN7230A	Scope project requirements and process solutions	
ICTTEN8194A	Investigate the application of cloud networks in telecommunications switching	
ICTTEN8195A	Evaluate and apply network security	
ICTTEN8196A	Evaluate and apply digital signal processing to communications system	
ICTTEN8197A	Produce engineering solutions using numerical computations and simulation	
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	
ICTWOR3231A	Resolve technical enquiries using multiple information systems	
ICTWOR3232A	Collect and analyse technical information	
ICTWOR4032A	Undertake a civil site survey	
ICTWOR4079A	Schedule equipment maintenance	

List of Imported Units

List of Imported Units

Code Title	Pre-requisite Unit/s	Origin
BSBCUS201A Deliver a service to customers		BSB07 Business Services Training Package
BSBCUS402A Address customer needs		BSB07 Business Services Training Package
BSBFIM501A Manage budgets and financial plans		BSB07 Business Services Training Package
BSBINM302A Utilise a knowledge management system		BSB07 Business Services Training Package
BSBMGT401A Show leadership in the workplace		BSB07 Business Services Training Package
BSBOHS505B Manage hazards in the work environment		BSB07 Business Services Training Package

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Code Title	Pre-requisite Unit/s	Origin
BSBOHS507B Facilitate the application of principles of occupational health to control OHS risk		BSB07 Business Services Training Package
BSBOHS509A Ensure a safe workplace		BSB07 Business Services Training Package
BSBPMG501A Manage application of project integrative processes		BSB07 Business Services Training Package
BSBPMG510A Manage projects		BSB07 Business Services Training Package
BSBSMB305A Comply with regulatory, taxation and insurance requirements for the micro business		BSB07 Business Services Training Package
BSBSMB306A Plan a home based business		BSB07 Business Services Training Package
BSBSMB401A Establish legal and risk management requirements of small business		BSB07 Business Services Training Package
BSBSMB405A Monitor and manage small business operations		BSB07 Business Services Training Package
BSBSMB407A Manage a small team		BSB07 Business Services Training Package
BSBSUS201A Participate in environmentally sustainable work practices		BSB07 Business Services Training Package
BSBSUS301A Implement and monitor environmentally sustainable work practices		BSB07 Business Services Training Package
BSBSUS501A Develop workplace policy and		BSB07

Code Title	Pre-requisite Unit/s	Origin
procedures for sustainability		Business Services Training Package
BSBWOR401A Establish effective workplace relationships		BSB07 Business Services Training Package
CPCCOHS1001A Work safely in the construction industry		CPC08 Construction and Plumbing Services Integrated Framework Training Package
CPCCLDG3001A Licence to perform dogging		CPC08 Construction and Plumbing Services Integrated Framework Training Package
CPCCLRG3001A Licence to perform rigging basic level		CPC08 Construction and Plumbing Services Integrated Framework Training Package
CPCCLRG3002A Licence to perform rigging intermediate level		CPC08 Construction and Plumbing Services Integrated Framework Training Package
CPCCLRG4001A Licence to perform rigging advanced level		CPC08 Construction and Plumbing Services Integrated Framework Training Package
CPPSEC3034A Operate information gathering equipment		CPP07 Property Services Training Package
FNSICORG517B Prepare financial forecasts and projections		FNS04 Financial Services Training Package
HLTFA301B Apply first aid		HLT07 Health Training Package
ICAA4041C Determine and confirm client business expectations and needs		ICA05 Information and Communications Technology Training Package
ICAA5056B Prepare disaster recovery and contingency plans		ICA05 Information and Communications Technology Training Package
ICAA5144B Determine best-fit topology for a		ICA05 Information and Communications

Code Title	Pre-requisite Unit/s	Origin
local network		Technology Training Package
ICAA5145B Identify best-fit topology for a wide area network		ICA05 Information and Communications Technology Training Package
ICAA5150C Evaluate vendor products and equipment		ICA05 Information and Communications Technology Training Package
ICAA5241C Design an enterprise wireless local area network		ICA05 Information and Communications Technology Training Package
ICAB4059B Develop detailed technical design		ICA05 Information and Communications Technology Training Package
ICAB4235B Build basic perimeter security into a network		ICA05 Information and Communications Technology Training Package
ICAB4236B Build security into a virtual private network		ICA05 Information and Communications Technology Training Package
ICAB4240C Build an enterprise wireless network		ICA05 Information and Communications Technology Training Package
ICAB5237B Build a high performance security perimeter		ICA05 Information and Communications Technology Training Package
ICAB5238B Build a highly secure firewall		ICA05 Information and Communications Technology Training Package
ICAI2015B Install software applications		ICA05 Information and Communications Technology Training Package
ICAI3020B Install and optimise operating system software		ICA05 Information and Communications Technology Training Package
ICAI3021B		ICA05

Code Title	Pre-requisite Unit/s	Origin
Connect internal hardware components		Information and Communications Technology Training Package
ICAI3101B Install and manage network protocols		ICA05 Information and Communications Technology Training Package
ICAI3110C Implement system software changes	ICAI3020B Install and optimise operating system software	ICA05 Information and Communications Technology Training Package
ICAI4029C Install network hardware to a network		ICA05 Information and Communications Technology Training Package
ICAI4030B Install software to networked computers		ICA05 Information and Communications Technology Training Package
ICAI5152B Implement risk management processes		ICA05 Information and Communications Technology Training Package
ICAI5196B Implement secure encryption technologies		ICA05 Information and Communications Technology Training Package
ICAI5197B Install and maintain valid authentication processes		ICA05 Information and Communications Technology Training Package
ICAS2014B Connect hardware peripherals		ICA05 Information and Communications Technology Training Package
ICAS3024B Provide basic system administration		ICA05 Information and Communications Technology Training Package
ICAS3031B Provide advice to clients		ICA05 Information and Communications Technology Training Package
ICAS3234B Care for computer hardware		ICA05 Information and Communications Technology Training Package

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Code Title	Pre-requisite Unit/s	Origin
ICAT3025B Run standard diagnostic tests		ICA05 Information and Communications Technology Training Package
ICAU3019B Migrate to new technology		ICA05 Information and Communications Technology Training Package

Mapping to Previous Training Package

Mapping to Previous Training Package

Summary mapping of ICT10 Integrated Telecommunications Training Package Version 1 to ICT02 Te Training Package Version 3.0

Mapping of Qualifications Key: E = equivalent, N = not equivalent

Qualification code and title (insert new TP code)	Qualification code and title (insert old TP code)	Comments
ICT20110 Certificate II in Telecommunications Technology	NA	New qualification
ICT20210 Certificate II in Telecommunications	ICT20208 Certificate II in Telecommunications	ICT20208 deleted and re broader and flexible qua Vocational outcomes de Change in core units, req the qualification and ran choices to include new t
ICT20310 Certificate II in Telecommunications Cabling	ICT20308 Certificate II in Telecommunications Cabling	ICT20308 deleted and re broader and flexible qua Vocational outcomes de Change in core units, req the qualification and ran choices to include new t
ICT20310 Certificate II in Telecommunications Cabling	ICT20408 Certificate II in Telecommunications Access Network Cabling	ICT20408deleted and re broader and flexible qua Vocational outcomes de equivalent.

Mapping to Previous Training Package

		Substantial change in co requirements for the qua range of elective choices technologies.
ICT20410 Certificate II in Telecommunications Digital Reception Technology	ICT20508 Certificate II in Telecommunications Digital Reception Technology	ICT20508 deleted and re updated qualification. Vocational outcomes de Change in core units, rec the qualification and ran choices to include new t
ICT20510 Certificate II in Telecommunications Rigging Installation	NA	New qualification
ICT30110 Certificate III in Broadband and Wireless Networks Technology	NA	New qualification
ICT30210 Certificate III in Telecommunications	ICT30208 Certificate III in Telecommunications	ICT30208 deleted and re broader and flexible qua Vocational outcomes de Change in core units, rec the qualification and ran choices to include new t
ICT30210 Certificate III in Telecommunications	CUF30207 Certificate III in Broadcast Technology	CUF30207 has been rem resides in the CUF07 Sc Training Package. No support for inclusion ICT30210 can be used a qualification in ICT10. Vocational outcomes de equivalent.
ICT30310 Certificate III in Telecommunications Cabling	ICT30302 Certificate III in Telecommunications Cabling & CPE	ICT30302 deleted and re broader and flexible qua Vocational outcomes de Change in core units, rec the qualification and ran

Mapping to Previous Training Package

		choices to include new t
ICT30310 Certificate III in Telecommunications Cabling	ICT30408 Certificate III in Telecommunications Access & Associated Services	ICT30408 deleted and re broader and flexible qua Vocational outcomes de equivalent. New core units, change for the qualification and choices to include new t
ICT30410 Certificate III in Telecommunications Digital Reception Technology	ICT30508 Certificate III in Telecommunications Digital Reception Technology	ICT30508 deleted and re updated qualification. Vocational outcomes de Change in core units, re the qualification and ran choices to include new t
ICT30510 Certificate III in Telecommunications Rigging Installation	NA	New qualification
ICT30610 Certificate III in Broadband and Wireless Networks	NA	New qualification
ICT40110 Certificate IV in Optical Networks	NA	New qualification
ICT40210 Certificate IV in Telecommunications Network Engineering	ICT40208 Certificate IV in Telecommunications Engineering	ICT40208 deleted and re broader and flexible qua Vocational outcomes de equivalent. Substantial change in co in requirements for the q range of elective choices technologies.
ICT40210 Certificate IV in Telecommunications Network Engineering	ICT40302 Certificate IV in Telecommunications Computer Systems	ICT40302 deleted and re broader and flexible qua Vocational outcomes de equivalent. New core units, change for the qualification and

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Mapping to Previous Training Package

		choices to include new t
ICT40210 Certificate IV in Telecommunications Network Engineering	ICT40508 Certificate IV in Telecommunications Networks	ICT40508 deleted and re broader and flexible qua Vocational outcomes de equivalent. New core units, change for the qualification and choices to include new t
ICT40210 Certificate IV in Telecommunications Network Engineering	CUF40307 Certificate IV in Broadcast Technology	CUF40307 has been rem resides in the CUF07 Sc Training Package. No support for inclusion ICT40210 can be used a qualification in ICT10. Vocational outcomes de equivalent.
ICT40310 Certificate IV in Telecommunications Radio Communications	ICT40708 Certificate IV in Telecommunications Radio Communications	ICT40708 deleted and re updated qualification. Vocational outcomes de Change in core units, re the qualification and ran choices to include new t
ICT40410 Certificate IV in Radio Frequency Networks	CUF40307 Certificate IV in Broadcast Technology	New qualification CUF40307 has been rem resides in the CUF07 Sc Training Package. No support for inclusion ICT40410 can be used a qualification in ICT10. Vocational outcomes de equivalent.
ICT40510 Certificate IV in Telecommunications Network Planning	ICT40408 Certificate IV in Telecommunications Network Planning	ICT40408 deleted and re broader and flexible qua Vocational outcomes de

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Mapping to Previous Training Package

		equivalent. Substantial change in co in requirements for the q range of elective choices technologies.
ICT40610 Certificate IV in Telecommunications Networks Technology	ICT40608 Certificate IV in Telecommunications Computer Telephony Integration	New Qualification ICT40608 deleted and re broader and flexible qua Vocational outcomes de equivalent. Substantial change in co in requirements for the q range of elective choices technologies.
ICT50110 Diploma of Optical Networks	ICT50402 Diploma of Telecommunications Photonics	ICT50402 deleted and re broader and flexible qua Vocational outcomes de equivalent. New core units, change for the qualification and choices to include new t
ICT50210 Diploma of Telecommunications Network Engineering	ICT50202 Diploma of Telecommunications Engineering	ICT50202 deleted and re broader and flexible qua Vocational outcomes de equivalent. Substantial change in co in requirements for the q range of elective choices technologies.
ICT50210 Diploma of Telecommunications Network Engineering	ICT50302 Diploma of Telecommunications Computer Systems	ICT50302 deleted and re broader and flexible qua Vocational outcomes de equivalent. New core units, change for the qualification and choices to include new t
ICT50210 Diploma of	ICT50508 Diploma of	ICT50508 deleted and re

Mapping to Previous Training Package

Telecommunications Network Engineering	Telecommunications Networks	broader and flexible qua Vocational outcomes de equivalent. Substantial change in co in requirements for the q range of elective choices technologies.
ICT50210 Diploma of Telecommunications Network Engineering	CUF50307 Diploma of Broadcast Technology	New qualification CUF50307 has been rem resides in the CUF07 Sc Training Package. No support for inclusion ICT50210 can be used a qualification in ICT10. Vocational outcomes de equivalent.
ICT50310 Diploma of Telecommunications Management	NA	New qualification
ICT50410 Diploma of Radio Frequency Networks	NA	New qualification
ICT50410 Diploma of Radio Frequency Networks	CUF50307 Diploma of Broadcast Technology	New qualification CUF50307 has been rem resides in the CUF07 Sc Training Package. No support for inclusion ICT50410 can be used a qualification in ICT10. Vocational outcomes de equivalent.
ICT50510 Diploma of Telecommunications Planning and Design	NA	New qualification

Mapping to Previous Training Package		
ICT60110 Advanced Diploma of Optical Networks	NA	New qualification
ICT60210 Advanced Diploma of Telecommunications Network Engineering	ICT60202 Advanced Diploma of Telecommunications Engineering	ICT60202 deleted and re broader and flexible qua Vocational outcomes de equivalent. Substantial change in co in requirements for the q range of elective choices technologies.
ICT60210 Advanced Diploma of Telecommunications Network Engineering	ICT60302 Advanced Diploma of Telecommunications Computer Systems	ICT60302 deleted and re broader and flexible qua Vocational outcomes de equivalent. New core units, change for the qualification and choices to include new t
ICT60210 Advanced Diploma of Telecommunications Network Engineering	ICT60408 Advanced Diploma of Telecommunications Network	ICT60408 deleted and re broader and flexible qua Vocational outcomes de Change in core units, re the qualification and ran choices to include new t
ICT70110 Vocational Graduate Certificate in Telecommunications Network Engineering	NA	New qualification
ICT80110 Vocational Graduate Diploma of Telecommunications Network Engineering	NA	New qualification

Overview

What is a Training Package?

A Training Package is an integrated set of nationally endorsed competency standards, assessment guidelines and Australian Qualifications Framework (AQF) qualifications for a specific industry, industry sector or enterprise.

Each Training Package:

• provides a consistent and reliable set of components for training, recognising and assessing peoples skills, and may also have optional support materials
• enables nationally recognised qualifications to be awarded through direct assessment of workplace competencies
• encourages the development and delivery of flexible training which suits individual and industry requirements
• encourages learning and assessment in a work-related environment which leads to verifiable workplace outcomes.

How do Training Packages fit within the National Skills Framework?

The National Skills Framework applies nationally, is endorsed by the Ministerial Council for Vocational and Technical Education, and comprises the Australian Quality Training Framework 2007 (AQTF 2007), and Training Packages endorsed by the National Quality Council (NQC).

How are Training Packages developed?

Training Packages are developed by Industry Skills Councils or enterprises to meet the identified training needs of specific industries or industry sectors. To gain national endorsement of Training Packages, developers must provide evidence of extensive research, consultation and support within the industry area or enterprise.

How do Training Packages encourage flexibility?

Training Packages describe the skills and knowledge needed to perform effectively in the workplace without prescribing how people should be trained.

Training Packages acknowledge that people can achieve vocational competency in many ways by emphasising what the learner can do, not how or where they learned to do it. For example, some experienced workers might be able to demonstrate competency against the units of competency, and even gain a qualification, without completing a formal training program.

With Training Packages, assessment and training may be conducted at the workplace, off-the-job, at a training organisation, during regular work, or through work experience, work placement, work simulation or any combination of these.

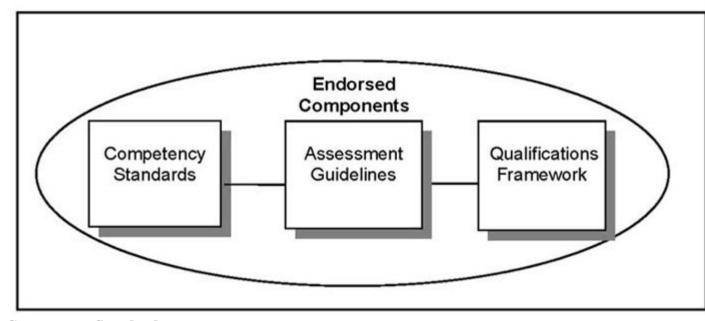**Who can deliver and assess using Training Packages?**

Training and assessment using Training Packages must be conducted by a Registered Training Organisation (RTO) that has the qualifications or specific units of competency on its scope of registration, or that works in partnership with another RTO, as specified in the AQTF 2007.

Training Package Components

Training Packages are made up of mandatory components endorsed by the NQC, and optional support materials.
Training Package Endorsed Components

The nationally endorsed components include the Competency Standards, Assessment Guidelines and Qualifications Framework. These form the basis of training and assessment in the Training Package and, as such, they must be used.

Competency Standards

Each unit of competency identifies a discrete workplace requirement and includes the knowledge and skills that underpin competency as well as language, literacy and numeracy; and occupational health and safety requirements. The units of competency must be adhered to in training and assessment to ensure consistency of outcomes.

Assessment Guidelines

The Assessment Guidelines provide an industry framework to ensure all assessments meet industry needs and nationally agreed standards as expressed in the Training Package and the AQTF 2007. The Assessment Guidelines must be followed to ensure the integrity of assessment leading to nationally recognised qualifications.
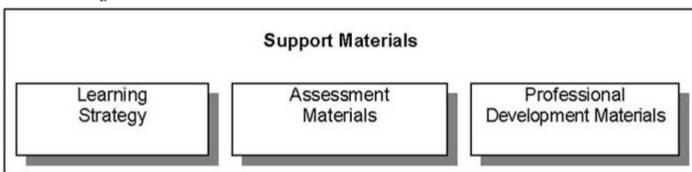
Qualifications Framework

Each Training Package provides details of those units of competency that must be achieved to award AQF qualifications. The rules around which units of competency can be combined to make up a valid AQF qualification in the Training Package are referred to as the "packaging rules". The packaging rules must be followed to ensure the integrity of nationally recognised qualifications issued.

Training Package Support Materials

The endorsed components of Training Packages are complemented and supported by optional support materials that provide for choice in the design of training and assessment to meet the needs of industry and learners.

Training Package support materials can relate to single or multiple units of competency, an industry sector, a qualification or the whole Training Package. They tend to fall into one or more of the categories illustrated below.

Training Package support materials are produced by a range of stakeholders such as RTOs, individual trainers and assessors, private and commercial developers and Government agencies.

Where such materials have been quality assured through a process of "noting" by the NQC, they display the following official logo. Noted support materials are listed on the National Training Information Service (NTIS), together with a detailed description and information on the type of product and its availability < www.ntis.gov.au>

It is not compulsory to submit support materials for noting; any resources that meet the requirements of the Training Package can be used.

Training Package, Qualification and Unit of Competency Codes

There are agreed conventions for the national codes used for Training Packages and their components. Always use the correct codes, exactly as they appear in the Training Package, **and with the code always before the title**.

Innovation and Business Skills Australia

Training Package Codes

Each Training Package has a unique five-character national code assigned when the Training Package is endorsed, for example ICT10. The first three characters are letters identifying the Training Package industry coverage and the last two characters are numbers identifying the year of endorsement.

Qualification Codes

Within each Training Package, each qualification has a unique eight-character code, for example ICT20110. Qualification codes are developed as follows:

• the first three letters identify the Training Package;
• the first number identifies the qualification level (noting that, in the qualification titles themselves, arabic numbers are **not** used);
• the next two numbers identify the position in the sequence of the qualification at that level; and
• the last two numbers identify the year in which the qualification was endorsed. (Where qualifications are added after the initial Training Package endorsement, the last two numbers may differ from other Training Package qualifications as they identify the year in which those particular qualifications were endorsed.)

Unit of Competency Codes

Within each Training Package, each unit of competency has a unique code. Unit of competency codes are assigned when the Training Package is endorsed, or when new units of competency are added to an existing endorsed Training Package. Unit codes are developed as follows:

• a typical code is made up of 12 characters, normally a mixture of uppercase letters and numbers, as in ICTBWN3082A;
• the first three characters signify the Training Package - ICT10 - in the above example and up to eight characters, relating to an industry sector, function or skill area, follow;
• the last character is always a letter and identifies the unit of competency version. An "A" at the end of the code indicates that this is the original unit of competency. "B", or another incremented version identifier means that minor changes have been made. Typically this would mean that wording has changed in the range statement or evidence guide, providing clearer intent; and
• where changes are made that alter the outcome, a new code is assigned and the title is changed.

Training Package, Qualification and Unit of Competency Titles

There are agreed conventions for titling Training Packages and their components. Always use the correct titles, exactly as they appear in the Training Package, and with the code always placed before the title.

Training Package Titles

The title of each endorsed Training Package is unique and relates the Training Packages broad industry coverage.

Qualification Titles

The title of each endorsed Training Package qualification is unique. Qualification titles use the following sequence:

• first, the qualification is identified as either Certificate I, Certificate II, Certificate III, Certificate IV, Diploma, Advanced Diploma, Vocational Graduate Certificate, or Vocational Graduate Diploma;
• this is followed by the words "in" for Certificates I to IV, and "of" for Diploma, Advanced Diploma, Vocational Graduate Certificate and Vocational Graduate Diploma;
• then, the industry descriptor, for example Telecommunications; and
• then, if applicable, the occupational or functional stream in brackets, for example (Computer Systems).

For example:

•   ICT20110 Certificate II in Telecommunications Technology
Unit of Competency Titles

Each unit of competency title is unique. Unit of competency titles describe the competency outcome concisely, and are written in sentence case.

For example:

•   ICTBWN3082A Perform tests on optical communication system and components

Historical and General Information

The 2010 Version 1 update of the ICT02 Version 3.0 has resulted in a new Training Package code and title namely ICT10 Integrated Telecommunications Training Package to reflect the convergence and integration of new and emerging technologies using internet protocol (IP) platforms. The industry coverage has expanded to cover the convergence of technologies across a number of industry areas, including telecommunications, sustainable networks, IP networks, optical and radio networks, mesh networks, cloud networks, information technology and digital media.

With the deployment of the National Broadband Network (NBN) and sustainability initiative from the Federal Government, many new qualifications, skill sets and units have been developed to help the industry with skills to meet these objectives.

ICT10
Version 1 has new qualifications for rigging installations, broadband and wireless networks, radio networks, optical networks, network planning and design and telecommunications network engineering.

Innovation and Business Skills Australia

Revision of ICT02 units of competency was undertaken to include new technologies and complement the new units that have been produced.

State requirements regarding occupational health and safety (OHS) issues have also resulted in the review of some qualification structures and the updating of the rules relating to importing of units of competency from other endorsed Training Packages.

The ICT10 Version 1 has included a school-based entry qualification (ICT20110 Certificate II in Telecommunications Technology), two apprenticeship qualifications (ICT30110 Certificate III in Broadband and Wireless Networks Technology and ICT40610 Certificate IV in Telecommunications Networks Technology) with direct entry and a workplace learning recognition for Telecommunications Network Planning (ICT40510 Certificate IV in Telecommunications Network Planning) for experienced participants in ICT practices to gain skills in planning of telecommunications networks.

Background

It is generally accepted, and inescapably true, that the existing telecommunications industry workforce is ageing. Retirement of a growing number of existing employees will create a shortfall in the workforce and it is imperative to train new entrants to the industry particularly with the NBN deployment.

Compounding these factors is the changing nature of the industry, increasing convergence of the 'T' and 'IT' sectors, the integration between optical and radio frequency (RF) networks and the rapid introduction of new IP technologies.

The 1997 and 2002 revision of the Training Package:

- addressed the issue of emerging technologies prevalent at that time
- partly addressed the convergence of the telecommunications industry with the IT sector
- provided for the increased provision of publicly funded and fee-for-service programs
- supported the delivery of the Training Package in a wider cross-section of RTOs
- reflected more accurately the needs of both existing industry employees and new entrants.

ICT10 Key revisions

Qualifications

The structure of the qualifications now includes the following benefits for RTOs and industry:

- smaller number of core units with better range of electives units allows for better flexibility to package a qualification to meet industry needs and changes
- inclusion of sustainability units in all qualifications to meet Federal Government initiatives
- introduction of IP skills in the entry-level Certificate II qualifications for migration to new technologies
- new unit coding to facilitate easy identification of AQF level and category (e.g. Optical Unit at AQF 4)
- packaging rules customise the qualification requirements with elective unit selection and importation of units.

Unit of competency selection

When an RTO is selecting the elective units of competency for a qualification, some units can be imported from other Training Packages as outlined in the requirements of the individual qualifications. This gives RTOs more flexibility to create innovative programs, which can be better adapted to customer needs, local industry and the changing nature of the industry.

Imported units

When substituting units from other Training Packages, the units selected should be appropriate to the level and integrity of the qualification and to the workplace outcomes it is designed to meet.

Learning and assessment pathways

Three pathways have been identified: formal, workplace and recognition. These are reflected in both the Assessment Guidelines and the Qualifications Framework. These pathways clarify where and when learning and assessment can take place, giving RTOs more confidence especially when delivering off-the-job programs.

New technologies

As with many other sectors, technological convergence is affecting the way people work in the telecommunications industries. The convergence of the voice, data and video networks are having a major effect on the telecommunication industry. In the past, telecommunications network and information technology infrastructures were built on separate technologies and methodologies with little commonality. The historic telecommunications industry structure encouraged the development of vertical business structures to support fixed voice, mobile voice, data, and media services using very different sets of technologies. This resulted in a large number of disparate and unique implementations.

The dramatic rise of technology integration and convergence of internet and the use of IP based networks in telecommunications industry have provided a natural infrastructure for the introduction of new services utilising the move from analog technologies to digital IP based networks in the areas of voice, video, television and other media services.

Significant shifts to these technologies including a greater application of:

- networks (using wireless for data and voice) and overlay of Broadband
- IP based communications, broadcasting, switching and transmission
- enhancements to content and network management capabilities
- unified communications and collaborations
- asymmetrical digital subscriber line (ADSL) and very high data rate digital subscriber line (VDSL)
- IP access networks for voice over internet (VoIP) and internet protocol TV (IPTV)
- Multiprotocol label switching (MPLS) and transmission networks overlaying existing IP networks for Next Generation Network (NGN) technology
- wireless systems (mobiles, wireless fidelity (WiFi), worldwide interoperability for microwave access (WiMAX), Bluetooth and satellite)
- mesh and cloud networks
- smart grids for sustainable home and small to medium enterprise (SME) networks
- optical systems and networks (including fibre to the node (FTTN), fibre to the home (FTTH) and fibre to the x (FTTx))
- diverse physical infrastructure with specialist equipment knowledge and maintenance
- green technology requirements.

The current telecommunication industries are now incorporating these new technologies into their work organisation and job profiling.

Broadcast technology
Extensive consultation with industry during the two national consultation meetings conducted in all states and territories did not support a separate stream of qualifications specialising in broadcast technologies. The IP convergence with all technologies including broadcast means that the mainstream Telecommunications Network Engineering or the Radio Frequency Network stream would more adequately cover the requirements of broadcasting particularly with the emergence of IPTV as a pervasive technology.

The qualifications CUF30207 Certificate III in Broadcast Technology, CUF40307 Certificate IV in Broadcast Technology and CUF50307 Diploma of Broadcast Technology will therefore continue to reside in CUF07 Screen and Media Training Package and not be listed in the ICT10 Integrated Telecommunications Training Package.

Telecommunications regulator
The telecommunications regulator is the Australian Communications and Media Authority (ACMA). The legislation covering ACMA activities involves a broad range of national activities from carrier licensing to use of radio spectrum and the most relevant issue for ICT10 qualifications is the ACMA Cabling Provider Rules Registration.

Australian Communications and Media Authority Building Cabling Regulation CPR Registration – Ex-Licensing
The Cabling Provider Rules (CPR) benchmark units of competency ICTCBL2136A, ICTCBL2137A and ICTCBL2138A meet the ACMA requirements for a cabler 'registration' system involving accredited registrars.

ICTCBL2138A applies only to lift cabling for elevator industry, where other qualifications in 'electrical' are also needed. To be permitted to work with lift cabling, cablers are required to have completed the relevant Electrotechnology qualification such as the Certificate III in Electrotechnology Electrician or equivalent.'

In accordance with the ACMA policy, these are in ICT10 Integrated Telecommunications Training Package qualifications and are not treated as a completely separate requirement, as is often the case in some industries with licensing and registration.

Relationship between units linked to ACMA CPR requirements

Completion of the following six cabling units ICTCBL2005A, ICTCBL2006A, ICTCBL2008A, ICTCBL2012A, ICTCBL2017A and ICTCMP2022A exceeds the requirements of the benchmark units ICTCBL2136A and ICTCBL2137A. These two benchmark units are used in telecommunications for the purpose of registering with an accredited registrar of the telecommunications regulator ACMA, as a CPR registered cabler. All of these units appear in relevant qualifications in the ICT10 Integrated Telecommunications Training Package in accordance with Training Package guidelines.

An official reference document called 'Pathways to ACMA Cabling Provider Rules Cabler Registration – May 2007' sets out the competency-based and other alternative ACMA authorised pathways. ACMA and registrars can provide access to this document, which is also available at www.acma.gov.au and www.citt.com.au.

ICTCBL2136A and ICTCBL2137A benchmark standards fulfil the requirements for ACMA Cabling Provider Rules Open Cabling registration and are generally regarded in the industry as a 'fast track' option to gain ACMA CPR registration for participants with some industry experience.

ICTCBL2136A Install, maintain and modify customer premises communications cabling: ACMA Restricted Rule is the prerequisite unit for ICTCBL2137A. ICTCBL2136A must be obtained before ICTCBL2137A can be credited. However, in some circumstances, assessment may be concurrent.

State/territory arrangements

The six unit of competency set ICTCBL2005A, ICTCBL2006A, ICTCBL2008A, ICTCBL2012A, ICTCBL2017A and ICTCMP2022A that meets the ACMA requirements for CPR registration, is generally used as part of a more specialised customer cabling qualification. This set is usually regarded as more suitable for new entrants where limited industry experience has been obtained and forms the major part of specialised qualifications such as ICT20310 Certificate II in Telecommunications Cabling. When these six units are delivered as a set within state/territory funding approved programs, the two benchmark CPR units are not required.

NOTE ON CPR ENDORSEMENTS: gaining the ACMA CPR registration requirements by either the CPR benchmark units ICTCBL2136A and ICTCBL2137A, or the six unit set (ICTCBL2005A, ICTCBL2006A, ICTCBL2008A, ICTCBL2012A, ICTCBL2017A and ICTCMP2022A) which were the AUSTEL base cabling licence requirements, does not grant industry competency for specialised cabling activities known as 'endorsements', such as coaxial, optical fibre and structured cabling. The separate units for specialised cabling activities are outlined in this Training Package.

Introduction to the Industry

Acting on behalf of the Australian government, and working within the scope of vocational education and training (VET), the Department of Education, Employment and Workplace Relations (DEEWR) works to ensure that Australian industries have access to the people and skills they need, both to maintain existing operations, and to achieve competitive and opportunity-led change.

In July 2004, the then Australian National Training Authority (ANTA) established the Innovation and Business Industry Skills Council (which trades as Innovation and Business Skills Australia, or IBSA) to assist industry and governments to identify and coordinate activities directed towards meeting the people and skill needs of six key industry sectors of the Australian economy. These industry sectors include:

- business services
- cultural industries
- education
- financial services
- information and communication technologies (ICT)
- printing and graphic arts.

The telecommunications industry comprises of cabling, wireless, switching, transmission, RF and optical communications, media and IP networks.
Advances in digital and IP networking technologies have had a dramatic effect on the demand for better, faster and more bandwidth for ICT communications to serve the Australian economy and community.

These include:

- escalating use of social networking applications such as facebook, wikis and twitter
- smart homes and home integration technologies.
- increasing use of IP technologies such as VoIP, IPTV and smart phones
- IP Core and Access Networks replacing traditional ICT networks.
- Cloud computing and Smart Grid technologies becoming the way the ICT industry is adapting globally
- the proliferation of home networks equipped with computer networks, home entertainment and smart home technologies
- SME and teleworkers using more elaborate teleconference facilities (telepresence) to work from home and reduce transport costs and improve efficiency
- Superior and more advanced broadband networks from Federal Government initiatives to boost Australian economy and improved ways of operating such as eHealth, eEducation, eTravel and hospitality
- a decline in sales of physical products, such as CDs, countered by a dramatic rise in digital sales through outlets such as iTunes and mobile phone companies
- new approaches to media distribution through the internet
- entry of new participants in the telecommunications mobile phone industry such as Google and Microsoft.

Qualifications Framework

The Australian Qualifications Framework

What is the Australian Qualifications Framework?

A brief overview of the Australian Qualifications Framework (AQF) follows. For a full explanation of the AQF, see the *AQF Implementation Handbook*. The 2007 version of the *AQF Implementation Handbook* is expected to be available on the Australian Qualifications Framework Advisory Board (AQFAB) website www.aqf.edu.au during September 2007, and in print in October 2007 (obtain the hard copy by contacting AQFAB on phone 03 9639 1606 or email at aqfab@curriculum.edu.au).

The AQF provides a comprehensive, nationally consistent framework for all qualifications in post-compulsory education and training in Australia. In the vocational education and training (VET) sector it assists national consistency for all trainees, learners, employers and providers by enabling national recognition of qualifications and Statements of Attainment.

Training Package qualifications in the VET sector must comply with the titles and guidelines of the AQF. Endorsed Training Packages provide a unique title for each AQF qualification which must always be reproduced accurately.

Qualifications

Training Packages can incorporate the following eight AQF qualifications.

• Certificate I in ...

- Certificate II in ...
- Certificate III in ...
- Certificate IV in ...
- Diploma of ...
- Advanced Diploma of ...
- Vocational Graduate Certificate of ...
- Vocational Graduate Diploma of ...

On completion of the requirements defined in the Training Package, a Registered Training Organisation (RTO) may issue a nationally recognised AQF qualification. Issuance of AQF qualifications must comply with the advice provided in the *AQF Implementation Handbook* and the AQTF 2007 *Essential Standards for Registration*.

Statement of Attainment

A Statement of Attainment is issued by a Registered Training Organisation when an individual has completed one or more units of competency from nationally recognised qualification(s)/courses(s). Issuance of Statements of Attainment must comply with the advice provided in the current *AQF Implementation Handbook* and the AQTF 2007 *Essential Standards for Registration*.

Under the AQTF 2007, RTOs must recognise the achievement of competencies as recorded on a qualification or Statement of Attainment issued by other RTOs. Given this, recognised competencies can progressively build towards a full AQF qualification.

AQF Guidelines and Learning Outcomes

The *AQF Implementation Handbook* provides a comprehensive guideline for each AQF qualification. A summary of the learning outcome characteristics and their distinguishing features for each VET related AQF qualification is provided below.

Certificate I

Characteristics of Learning Outcomes
Breadth, depth and complexity of knowledge and skills would prepare a person to perform a defined range of activities most of which may be routine and predictable.
Applications may include a variety of employment related skills including preparatory access and participation skills, broad-based induction skills and/or specific workplace skills. They may also include participation in a team or work group.
Distinguishing Features of Learning Outcomes
Do the competencies enable an individual with this qualification to:

- demonstrate knowledge by recall in a narrow range of areas;
- demonstrate basic practical skills, such as the use of relevant tools;
- perform a sequence of routine tasks given clear direction
- receive and pass on messages/information.

Certificate II

Characteristics of Learning Outcomes

Breadth, depth and complexity of knowledge and skills would prepare a person to perform in a range of varied activities or knowledge application where there is a clearly defined range of contexts in which the choice of actions required is usually clear and there is limited complexity in the range of operations to be applied.

Performance of a prescribed range of functions involving known routines and procedures and some accountability for the quality of outcomes.

Applications may include some complex or non-routine activities involving individual responsibility or autonomy and/or collaboration with others as part of a group or team.

Distinguishing Features of Learning Outcomes

Do the competencies enable an individual with this qualification to:

- demonstrate basic operational knowledge in a moderate range of areas;
- apply a defined range of skills;
- apply known solutions to a limited range of predictable problems;
- perform a range of tasks where choice between a limited range of options is required;
- assess and record information from varied sources;
- take limited responsibility for own outputs in work and learning.

Certificate III

Characteristics of Learning Outcomes

Breadth, depth and complexity of knowledge and competencies would cover selecting, adapting and transferring skills and knowledge to new environments and providing technical advice and some leadership in resolution of specified problems. This would be applied across a range of roles in a variety of contexts with some complexity in the extent and choice of options available.

Performance of a defined range of skilled operations, usually within a range of broader related activities involving known routines, methods and procedures, where some discretion and judgement is required in the section of equipment, services or contingency measures and within known time constraints.

Applications may involve some responsibility for others. Participation in teams including group or team co-ordination may be involved.

Distinguishing Features of Learning Outcomes

Do the competencies enable an individual with this qualification to:

- demonstrate some relevant theoretical knowledge
- apply a range of well-developed skills
- apply known solutions to a variety of predictable problems
- perform processes that require a range of well-developed skills where some discretion and judgement is required
- interpret available information, using discretion and judgement
- take responsibility for own outputs in work and learning
- take limited responsibility for the output of others.

Certificate IV

Characteristics of Learning Outcomes

Breadth, depth and complexity of knowledge and competencies would cover a broad range of varied activities or application in a wider variety of contexts most of which are complex and non-routine. Leadership and guidance are involved when organising activities of self and others as well as contributing to technical solutions of a non-routine or contingency nature. Performance of a broad range of skilled applications including the requirement to evaluate and analyse current practices, develop new criteria and procedures for performing current practices and provision of some leadership and guidance to others in the application and planning of the skills. Applications involve responsibility for, and limited organisation of, others.

Distinguishing Features of Learning Outcomes
Do the competencies enable an individual with this qualification to:

- demonstrate understanding of a broad knowledge base incorporating some theoretical concepts
- apply solutions to a defined range of unpredictable problems
- identify and apply skill and knowledge areas to a wide variety of contexts, with depth in some areas
- identify, analyse and evaluate information from a variety of sources
- take responsibility for own outputs in relation to specified quality standards
- take limited responsibility for the quantity and quality of the output of others.

Diploma

Characteristics of Learning Outcomes
Breadth, depth and complexity covering planning and initiation of alternative approaches to skills or knowledge applications across a broad range of technical and/or management requirements, evaluation and co-ordination.
The self directed application of knowledge and skills, with substantial depth in some areas where judgment is required in planning and selecting appropriate equipment, services and techniques for self and others.
Applications involve participation in development of strategic initiatives as well as personal responsibility and autonomy in performing complex technical operations or organising others. It may include participation in teams including teams concerned with planning and evaluation functions. Group or team co-ordination may be involved.
The degree of emphasis on breadth as against depth of knowledge and skills may vary between qualifications granted at this level.
Distinguishing Features of Learning Outcomes
Do the competencies or learning outcomes enable an individual with this qualification to:

- demonstrate understanding of a broad knowledge base incorporating theoretical concepts, with substantial depth in some areas
- analyse and plan approaches to technical problems or management requirements
- transfer and apply theoretical concepts and/or technical or creative skills to a range of situations
- evaluate information, using it to forecast for planning or research purposes
- take responsibility for own outputs in relation to broad quantity and quality parameters
- take some responsibility for the achievement of group outcomes.

Advanced Diploma

Characteristics of Learning Outcomes
Breadth, depth and complexity involving analysis, design, planning, execution and evaluation across a range of technical and/or management functions including development of new criteria or applications or knowledge or procedures.
The application of a significant range of fundamental principles and complex techniques across a wide and often unpredictable variety of contexts in relation to either varied or highly specific functions. Contribution to the development of a broad plan, budget or strategy is involved and accountability and responsibility for self and others in achieving the outcomes is involved.
Applications involve significant judgement in planning, design, technical or leadership/guidance functions related to products, services, operations or procedures.
The degree of emphasis on breadth as against depth of knowledge and skills may vary between qualifications granted at this level.
Distinguishing Features of Learning Outcomes
Do the competencies or learning outcomes enable an individual with this qualification to:

- demonstrate understanding of specialised knowledge with depth in some areas
- analyse, diagnose, design and execute judgements across a broad range of technical or management functions
- generate ideas through the analysis of information and concepts at an abstract level
- demonstrate a command of wide-ranging, highly specialised technical, creative or conceptual skills
- demonstrate accountability for personal outputs within broad parameters
- demonstrate accountability for personal and group outcomes within broad parameters.

Vocational Graduate Certificate

Characteristics of competencies or learning outcomes

- The self-directed development and achievement of broad and specialised areas of knowledge and skills, building on prior knowledge and skills.
- Substantial breadth and complexity involving the initiation, analysis, design, planning, execution and evaluation of technical and management functions in highly varied and highly specialised contexts.
- Applications involve making significant, high-level, independent judgements in major broad or planning, design, operational, technical and management functions in highly varied and specialised contexts. They may include responsibility and broad-ranging accountability for the structure, management and output of the work or functions of others.
- The degree of emphasis on breadth, as opposed to depth, of knowledge and skills may vary between qualifications granted at this level.

Distinguishing features of learning outcomes

- Demonstrate the self-directed development and achievement of broad and specialised areas of knowledge and skills, building on prior knowledge and skills.
- Initiate, analyse, design, plan, execute and evaluate major broad or technical and management functions in highly varied and highly specialised contexts.
- Generate and evaluate ideas through the analysis of information and concepts at an abstract level.
- Demonstrate a command of wide-ranging, highly specialised technical, creative or conceptual skills in complex contexts.
- Demonstrate responsibility and broad-ranging accountability for the structure, management and output of the work or functions of others.

Vocational Graduate Diploma

Characteristics of competencies or learning outcomes

- The self-directed development and achievement of broad and specialised areas of knowledge and skills, building on prior knowledge and skills.
- Substantial breadth, depth and complexity involving the initiation, analysis, design, planning, execution and evaluation of major functions, both broad and highly specialised, in highly varied and highly specialised contexts.
- Further specialisation within a systematic and coherent body of knowledge.
- Applications involve making high-level, fully independent, complex judgements in broad planning, design, operational, technical and management functions in highly varied and highly specialised contexts. They may include full responsibility and accountability for all aspects of work and functions of others, including planning, budgeting and strategy development.
- The degree of emphasis on breadth, as opposed to depth, of knowledge and skills may vary between qualifications granted at this level.

Distinguishing features of learning outcomes

- Demonstrate the self-directed development and achievement of broad and highly specialised areas of knowledge and skills, building on prior knowledge and skills.
- Initiate, analyse, design, plan, execute and evaluate major functions, both broad and within highly varied and highly specialised contexts.
- Generate and evaluate complex ideas through the analysis of information and concepts at an abstract level.
- Demonstrate an expert command of wide-ranging, highly specialised, technical, creative or conceptual skills in complex and highly specialised or varied contexts.
- Demonstrate full responsibility and accountability for personal outputs.

Demonstrate full responsibility and accountability for all aspects of the work or functions of others, including planning, budgeting and strategy

Qualification Pathways

The following pathways charts are provided to show the types of pathways into and from qualifications that are possible with this Training Package. For more information about qualifications and pathways contact Innovation and Business Industry Skills Council (http://www.ibsa.org.au).

Innovation and Business Skills Australia

ICT10 Integrated Telecommunications Skill Sets

Skill Sets

Definition

Skill sets are defined as single units of competency, or combinations of units of competency from an endorsed Training Package, which link to a licence or regulatory requirement, or defined industry need.

Wording on Statements of Attainment

Skill sets are a way of publicly identifying logical groupings of units of competency which meet an identified need or industry outcome. Skill sets are not qualifications.

Where skill sets are identified in a Training Package, the Statement of Attainment can set out the competencies a person has achieved in a way that is consistent and clear for employers and others. This is done by including the wording "these competencies meet [insert skill set title or identified industry area] need" on the Statement of Attainment. This wording applies only to skill sets that are formally identified as such in the endorsed Training Package. See the 2007 edition of the AQF Implementation Handbook for advice on wording on Statements of Attainmentthe updated version is expected to be available on the AQFAB website www.aqf.edu.au during September 2007 and in print in October 2007.

Skill Set List

Skill sets are designed to be available to industry to train participants in a particular skill set that contains units of competency that will be awarded with a Statement of Attainment and are able to be counted towards a qualification.

Readers should ensure that they have also read the part of the Training Package that outlines licensing and regulatory requirements.

- Cabler Registration Skill Set

Target Group	This skill set is for customer premises cablers working in the telecommunications industry.
Units	ICTCBL2136A Install, maintain and modify customer premises communications cabling: ACMA Restricted Rule ICTCBL2137A Install, maintain and modify customer premises communications cabling: ACMA Open Rule ICTCBL2139A Apply safe technical work practices for Cabling Registration ICTOHS2170A Follow OHS and environmental policy and procedures

	ICTTEN2140A Use hand and power tools
Pathway	This skill set provides credit towards ICT20210 Certificate II in Telecommunications.
Suggested form of words for Statement of Attainment	These units of competency meet the Australian Communications and Media Authority (ACMA) requirements for registration as a cabler. Cablers work on installation of telecommunications copper cable, optical fibre and coaxial cable on customer premises.

-
- Radio Technician Skill Set

Target Group	This skill set is for new entrants learning radio fundamentals.
Units	ICTOHS2170A Follow OHS and environmental policy and procedures ICTRFN3055A Install a radio communications antenna and feedline ICTRFN3155A Construct and test a radio communications device ICTTEN2007A Use electrical skills in telecommunications work ICTTEN3056A Install telecommunications network equipment ICTTEN4081A Locate and diagnose electronic faults ICTTEN4102A Repair communication system faults
Pathway	This skill set provides credits towards ICT40310 Certificate IV in Telecommunications Radio Communications.
Suggested form of words for Statement of Attainment	These units of competency meet industry requirements in applying radio communications technician fundamentals. They can install and maintain basic radio communications networks for a range of industries

-
- Access Network Skill Set

Target Group	This skill set is for carriers and contractors in the access network performing core work on both sides of the network boundary.
Units	ICTCBL2008A Terminate metallic conductor customer cable ICTCBL2017A Alter services to existing cable system ICTCBL2136A Install, maintain and modify customer premises communications cabling: ACMA Restricted Rule ICTCBL2137A Install, maintain and modify customer premises communications cabling: ACMA Open Rule

	ICTCBL2139A Apply safe technical work practices for cabling registration ICTOHS2170A Follow OHS and environmental policy and procedures ICTTEN3056A Install telecommunications network equipment ICTTEN3104A Maintain an electronic system
Pathway	This skill set provides credit towards ICT20310 Certificate II in Telecommunications Cabling and the ICT30310 Certificate III in Telecommunications Cabling.
Suggested form of words for Statement of Attainment	These units of competency meet industry requirements for understanding telecommunications network principles. Cabler installers work on installation and maintenance of telecommunications copper cable, optical fibre and coaxial cable and associated access network equipment on both sides of the network boundary.

- Digital Reception Technology Skill Set
-

Target Group	This skill set prepares individuals for entry into the digital and subscription TV and related sectors of the telecommunications industry.
Units	ICTTEN2140A Use hand and power tools ICTDRE3156A Install digital reception equipment ICTDRE3157A Locate and rectify digital reception equipment faults ICTOHS2170A Follow OHS and environmental policy and procedures
Pathway	This skill set provides credit towards ICT20410 Certificate II in Telecommunications Digital Reception Technology.
Suggested form of words for Statement of Attainment	These units of competency meet industry requirements for installation of a limited range of digital reception equipment for either a customer or an enterprise. They install and maintain equipment for free to air or subscription TV in the customer environment.

- Broadband Skill Set
-

TargetGroup	This skill set is for cablers who have an open ACMA Cabler Provider Registration wanting to work in the telecommunications industry dealing with broadband implementation.
Units	ICTCBL2068A Install a telecommunications service to a building

	ICTCBL3010A Install and terminate optical fibre cable on customer premises ICTCBL3013A Perform cable and system test on customer premises ICTOHS2170A Follow OHS and environmental policy and procedures ICTOHS2153A Work safely near power infrastructure ICTRFN3055A Install a radio communications antenna and feedline ICTCBL2065A Splice and terminate optical fibre cable for carriers and service providers
Pathway	This skill set provides credit towards ICT20310 Certificate II in Telecommunications Cabling and the ICT30310 Certificate III in Telecommunications Cabling.
Suggested form of words for Statement of Attainment	These units of competency meet telecommunications industry requirements for installers providing infrastructure in broadband services on the carrier and customer side of the network boundary. This person works on optical fibre or coaxial cable from the pole or pit to the ONT and on satellite dish connections and into the customer premises

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- Wireless LAN and IP Network installation Skill Set

Target Group	• This skill set is for experienced personnel in the installation of modern ICT networks using converging technologies of wireless and IT networks.
Units	ICAB4235B Build basic perimeter security into a network ICAB4240C Build an enterprise wireless network ICTOHS2170A Follow OHS and environmental policy and procedures ICTTEN3056A Install telecommunications network equipment ICTTEN4198A Install, configure and test an internet protocol network ICTTEN4199A Install, configure and test a router
Pathway	This skill set provides credit towards ICT40210 Certificate IV in Telecommunications Network Engineering qualification.
Suggested form of words for Statement of Attainment	These units of competency meet industry requirements for work in the installation of a wireless local area network (LAN) with IP security and associated networking elements in the practical application of converging technologies.

- Domestic Digital Television Antenna Installation Skill Set
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Target Group	This skill set is for personnel wanting to install basic terrestrial antenna system in single dwelling installation for the digital reception telecommunications industry. This set of units has been approved by the Department of Broadband, Communications and the Digital Economy for the antenna installer endorsement.
Units	ICTCBL3011A Install and terminate coaxial cable ICTDRE3156A Install digital reception equipment ICTOHS2170A Follow OHS and environmental policy and procedures ICTRFN2164A Install a terrestrial antenna ICTRFN4095A Conduct radio frequency measurements ICTTEN2140A Use hand and power tools
Pathway	This skill set provides credit towardsICT20410 Certificate II in Telecommunications Digital Reception Technology and the ICT30410 Certificate III in Telecommunications Digital Reception Technology qualifications.
Suggested form of words for Statement of Attainment	These units of competency meet industry requirements for antenna installation and prepare the participant in the practical application of providing digital reception services. They install and maintain digital reception equipment for free to air and subscription TV in customer and enterprise networks.

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- Commercial Digital Television Antenna Systems Installation Skill Set
-

Target Group	This skill set is for experienced personnel wanting to install commercial antenna installation for the digital reception telecommunications industry. The more complex antenna installations include Master Antenna TV (MATV) and Communal Antenna TV (CATV) systems This set of units has been approved by the Department of Broadband, Communications and the Digital Economy for the antenna installer endorsement.
Units	ICTCBL2017A Alter services to existing cable system ICTCBL3015A Locate and identify cable system faults ICTDRE3165A Install a complex digital reception system
Pathway	This skill set provides credit towards ICT20410 Certificate II in Telecommunications Digital Reception Technology and the ICT30410 Certificate III in Telecommunications Digital Reception Technology qualifications.

Suggested form of words for Statement of Attainment	These units of competency meet industry requirements for antenna installation and prepare the participant in the practical application of providing digital reception services. They install and maintain digital reception equipment for free to air and subscription TV in customer and enterprise networks.

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- Satellite Digital Television Antenna Installation Skill Set

Target Group	This skill set is for experienced personnel in the installation of free-to air satellite antenna systems for the digital reception telecommunications industry. This unit has been approved by the Department of Broadband, Communications and the Digital Economy for the antenna installer endorsement.
Units	ICTRFN2163A Install a satellite antenna
Pathway	This skill set provides credit towards ICT20410 Certificate II in Telecommunications Digital Reception Technology and the ICT30410 Certificate III in Telecommunications Digital Reception Technology qualifications.
Suggested form of words for Statement of Attainment	This unit of competency meets industry requirements for antenna installation and prepare the participant in the practical application of providing digital reception services. They install and maintain digital reception equipment for free-to air and subscription TV in customer and enterprise networks.

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- Fibre To The Premises (FTTP) Installation Skill Set (Base level installers)

Target Group	This skill set is for personnel in the installation of optical fibre to the x (FTTx) network equipment for national broadband implementation.
Units	ICTBWN3088A Install optical fibre splitters in fibre distribution hubs ICTBWN3090A 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 ICTCBL2017A Alter services to existing cable system ICTOHS2170A Follow OHS and environmental policy and Procedures
Pathway	This skill set provides credit towards ICT30110 Certificate III in Broadband and Wireless Networks Technology and ICT30610 Certificate III in Broadband and Wireless Networks qualifications.
Suggested form of words for Statement of Attainment	These units of competency meet industry requirements for base level installers in the installation of fibre to the premises (FTTP) equipment. It prepares the participant to work in the practical application of optical technologies for the NBN implementation from the carrier network to the ONT at the network

	boundary.

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- Fibre To The Premises (FTTP) Test and Commission Skill Set (Advanced level installers)
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Target Group	This skill set is designed to develop relevant experienced personnel in the testing and commissioning of optical fibre to the x (FTTx) network equipment for national broadband implementation.
Units	ICTBWN3082A Perform tests on optical communication system and components

ICTBWN3100A Work safely with live fibre to test and commission a fibre to the x installation

ICTCBL2017A Alter services to existing cable system

ICTOHS2170A Follow OHS and environmental policy and procedures

ICTOPN4115A Install and test a dense wavelength division multiplexing system |
| **Pathway** | This skill set provides credit towards ICT30110 Certificate III in Broadband and Wireless Networks Technology and ICT30610 Certificate III in Broadband and Wireless Networks qualifications. |
| **Suggested form of words for Statement of Attainment** | These units of competency meet industry requirements for the end to end testing/commissioning from exchange/headend to FDH and FDH to ONT of FTTP equipment. It prepares the participant to work in the practical application of optical technologies for the NBN implementation from the carrier network to the ONT. |

- Installing NBN Wireless and infrastructure Skill Set

Target Group	This skill set is for experienced personnel in the installation of optical fibre to the x (FTTx) network and wireless equipment for national broadband implementation in the carrier access network.
Units	ICTBWN3088A Install optical fibre splitters in fibre distribution hubs

ICTBWN3090A 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

ICTCBL2017A Alter services to existing cable system

ICTOHS2153A Work safely near power infrastructure |

	ICTOHS2170A Follow OHS and environmental policy and procedures ICTRFN3055A Install a radio communications antenna and feedline ICTRFN3146A Install WiMAX customer premises equipment broadband wireless access equipment
Pathway	This skill set provides credit towards ICT30110 Certificate III in Broadband and Wireless Networks Technology and ICT30610 Certificate III in Broadband and Wireless Networks qualifications.
Suggested form of words for Statement of Attainment	These units of competency meet industry requirements for the installation of fibre to the premises (FTTP) equipment and prepare the participant to work in the practical application of optical and wireless broadband technologies for the NBN implementation of carrier network.

-
- Basic Telecommunications Rigging Installation Skill Set

Target Group	This skill set is designed for personnel to work in the installation of telecommunications network infrastructure on structures.
Units	ICTCBL2065A Splice and terminate optical fibre cable for carriers and service providers

ICTRFN2163A Install a satellite antenna

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

ICTTEN2105A Install and test an internet protocol device in convergence networks |
| **Pathway** | This skill set provides credit towards ICT20510 Certificate II in Telecommunications Rigging Installation qualification. |
| **Suggested form of words for Statement of Attainment** | These units of competency meet industry requirements for the installation of a limited range of telecommunications network equipment and prepare the participant to work in the practical application of installing radio network equipment for carriers on structures. |

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- Advanced Telecommunications Rigging Installation Skill Set

Target Group	•	This skill set is for experienced personnel in basic rigging practices and the installation of telecommunications network infrastructure on structures.

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Units	ICTTCR3062A Build a telecommunications radio structure ICTTCR3191A Install radio plant and equipment on telecommunications structures ICTTCR3192A Protect against electromagnetic radiation and system hazards when working on telecommunications radio sites ICTTEN3056A Install telecommunications network equipment
Pathway	This skill set provides credit towards ICT30510 Certificate III in Telecommunications Rigging Installation qualification.
Suggested form of words for Statement of Attainment	These units of competency meet industry requirements for the installation of a more advanced range of telecommunications network equipment and prepare the participant to work in the practical application of radio network equipment for carriers on structures.

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- IP Convergence installations for home and SME Skill Set

Target Group	This skill set is to develop personnel to work in the installation of modern telecommunications networks using internet protocol (IP) converging technologies in small to medium enterprises.
Units	ICTTEN2105A Install and test an internet protocol device in convergence networks ICTTEN2207A Install and configure a home or small office network ICTTEN2208A Install and configure a small to medium business network ICTTEN2209A Build and maintain a secure network ICTTEN2218A Operate new media software packages
Pathway	This skill set provides credit towards ICT20210 Certificate II in Telecommunications qualification.
Suggested form of words for Statement of Attainment	These units of competency meet industry requirements for the installation of IP networking telecommunications equipment. Participants can work in the practical application of converging technologies to install and maintain IP networks with security in the home and small to medium enterprise networks.

- Convergent Technology installations for home and SME Skill Set

Target Group	This skill set is for experienced personnel in the installation of modern ICT networks using internet protocol (IP) converging technologies in home and small to medium enterprises.
Units	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 (RFID)
	system ICTTEN4229A Design, install and configure a customer smart grid network
Pathway	This skill set provides credit towards ICT40210 Certificate IV in Telecommunications Network Engineering qualification.
Suggested form of words for Statement of Attainment	These units of competency meet industry requirements for the installation of IP networking telecommunications equipment. Participants can work in the practical technology convergence application to install and maintain emerging technology networks in the home and small to medium enterprises

- Basic ICT Sustainability Skill Set
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Target Group	This skill set is for experienced personnel in the installation of modern ICT networks using technologies to reduce energy consumption for sustainability.
Units	ICTSUS4183A Install and test renewable energy system for ICT networks ICTSUS4184A Install and test power saving hardware. ICTSUS4185A Install and test power management software
Pathway	This skill set provides credit towards ICT40210 Certificate IV in Telecommunications Network Engineering qualification.
Suggested form of words for Statement of Attainment	These units of competency meet industry requirements for the installation of a limited range of ICT network equipment. It prepares the participant to work in the practical application of technologies for sustainability in reducing energy consumption of ICT networks.

- Advanced ICT Sustainability Skill Set
-

Target Group	This skill set is for experienced personnel in the installation of modern ICT networks using IP convergence and virtualisation technologies.
Units	ICTSUS4186A Install thin client applications for power over ethernet ICTSUS5187A Implement server virtualisation for a sustainable ICT system BSBSUS501A Develop workplace policy and procedures for sustainability
Pathway	This skill set provides credit towards ICT50210 Diploma of Telecommunications Network Engineering qualification.
Suggested form of words for Statement of Attainment	These units of competency meet industry requirements for the installation of specialised ICT network equipment. It prepares the participant to work in the practical application of technologies for sustainability in virtualisation of ICT networks.

- ICT Sustainability Planning and Designing Skill Set

Target Group	This skill set is for experienced personnel who want to integrate sustainability in the planning and design of ICT networks
Units	ICTSUS6233A Integrate sustainability in ICT planning and design projects ICTSUS6234A Establish a business case for sustainability and competitive advantage in ICT projects ICTSUS7235A Use ICT to improve sustainability outcomes ICTSUS7236A Manage improvements in ICT sustainability
Pathway	This skill set provides credit towards, ICT60110 Advanced Diploma of Optical Networks, ICT60210 Advanced Diploma of Telecommunications Network Engineering and ICT70110 Vocational Graduate Certificate in Telecommunications Network Engineering qualifications.
Suggested form of words for Statement of Attainment	These units of competency meet industry requirements for the integration of sustainability practices in the planning and design of ICT networks. It prepares the participant to justify and plan practical applications of sustainability in ICT network design in a competitive and innovative environment.

- Technical Help Desk Support Skill Set
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Target Group	This skill set is for experienced personnel in the installation and maintenance of customer access networks and customer infrastructure including equipment and cabling.
Units	ICAS3031B Provide advice to clients

ICTWOR3231A Resolve technical enquiries using multiple information systems

ICTWOR3232A Collect and analyse technical information |
| Pathway | This skill set provides credit towards ICT30210 Certificate III in Telecommunications and ICT30310 Certificate III in Telecommunications Cabling qualifications. |
| Suggested form of words for Statement of Attainment | These units of competency meet industry requirements for the installation and maintenance of specialised telecommunications network equipment and cabling. It prepares the participant to work in the practical application of technical support of ICT networks. |

Industry Requirements for Employability Skills

Employability Skills

Employability Skills replacing Key Competency information from 2006

In May 2005, the approach to incorporate Employability Skills within Training Package qualifications and units of competency was endorsed. As a result, from 2006 Employability Skills will progressively replace Key Competency information in Training Packages.

Background to Employability Skills

Employability Skills are also sometimes referred to as generic skills, capabilities or Key Competencies. The Employability Skills discussed here build on the Mayer Committee's Key Competencies, which were developed in 1992 and attempted to describe generic competencies for effective participation in work.

The Business Council of Australia (BCA) and the Australian Chamber of Commerce and Industry (ACCI), produced the Employability Skills for the Future report in 2002 in consultation with other peak employer bodies and with funding provided by the Department of Education, Science and Training (DEST) and the Australian National Training Authority (ANTA). Officially released by Dr Nelson (Minister for Education, Science and Training) on 23 May 2002, copies of the report are available from the DEST website at: http://www.dest.gov.au/archive/ty/publications/employability_skills/index.htm.

The report indicated that business and industry now require a broader range of skills than the Mayer Key Competencies Framework and featured an Employability Skills Framework identifying eight Employability Skills*:
• communication
• teamwork
• problem solving
• initiative and enterprise
• planning and organising
• self-management
• learning
• technology.

The report demonstrated how Employability Skills can be further described for particular occupational and industry contexts by sets of facets. The facets listed in the report are the aspects of the Employability Skills that the sample of employers surveyed identified as being important work skills. These facets were seen by employers as being dependent both in their nature and priority on an enterprise's business activity.

*Personal attributes that contribute to employability were also identified in the report but are not part of the Employability Skills Framework.

Employability Skills Framework

The following table contains the Employability Skills facets identified in the report Employability Skills for the Future.

Skill	Facets
	Aspects of the skill that employers identify as important. The nature and application of these facets will vary depending on industry and job type.
Communication that contributes to productive	• listening and understanding • speaking clearly and directly
and harmonious relations across employees and customers	• writing to the needs of the audience • negotiating responsively • reading independently • empathising • using numeracy effectively • understanding the needs of internal and external customers • persuading effectively • establishing and using networks • being assertive • sharing information • speaking and writing in languages other than English
Teamwork that contributes	• working across different ages irrespective of gender, race, religion or

to productive working relationships and outcomes	political persuasion • working as an individual and as a member of a team • knowing how to define a role as part of the team • applying teamwork to a range of situations e.g. futures planning and crisis problem solving • identifying the strengths of team members • coaching and mentoring skills, including giving feedback
Problem solving that contributes to productive outcomes	• developing creative, innovative and practical solutions • showing independence and initiative in identifying and solving problems • solving problems in teams • applying a range of strategies to problem solving • using mathematics, including budgeting and financial management to solve problems • applying problem-solving strategies across a range of areas • testing assumptions, taking into account the context of data and circumstances • resolving customer concerns in relation to complex project issues
Initiative and enterprise that contribute to innovative outcomes	• adapting to new situations • developing a strategic, creative and long-term vision • being creative • identifying opportunities not obvious to others • translating ideas into action • generating a range of options • initiating innovative solutions
Planning and organising that contribute to long and short-term strategic planning	• managing time and priorities - setting time lines, coordinating tasks for self and with others • being resourceful • taking initiative and making decisions • adapting resource allocations to cope with contingencies • establishing clear project goals and deliverables • allocating people and other resources to tasks • planning the use of resources, including time management • participating in continuous improvement and planning processes • developing a vision and a proactive plan to accompany it
	• predicting - weighing up risk, evaluating alternatives and applying evaluation criteria • collecting, analysing and organising information • understanding basic business systems and their relationships
Self-management that contributes to employee satisfaction and growth	• having a personal vision and goals • evaluating and monitoring own performance • having knowledge and confidence in own ideas and visions • articulating own ideas and visions

	• taking responsibility
Learning that contributes to ongoing improvement and expansion in employee and company operations and outcomes	• managing own learning • contributing to the learning community at the workplace • using a range of mediums to learn - mentoring, peer support and networking, IT and courses • applying learning to technical issues (e.g. learning about products) and people issues (e.g. interpersonal and cultural aspects of work) • having enthusiasm for ongoing learning • being willing to learn in any setting - on and off the job • being open to new ideas and techniques • being prepared to invest time and effort in learning new skills • acknowledging the need to learn in order to accommodate change
Technology that contributes to the effective carrying out of tasks	• having a range of basic IT skills • applying IT as a management tool • using IT to organise data • being willing to learn new IT skills • having the OHS knowledge to apply technology • having the appropriate physical capacity

Employability Skills Summary

An Employability Skills Summary exists for each qualification. Summaries provide a lens through which to view Employability Skills at the qualification level and capture the key aspects or facets of the Employability Skills that are important to the job roles covered by the qualification. Summaries are designed to assist trainers and assessors to identify and include important industry application of Employability Skills in learning and assessment strategies.

The following is important information for trainers and assessors about Employability Skills Summaries.

• Employability Skills Summaries provide examples of how each skill is applicable to the job roles covered by the qualification.
• Employability Skills Summaries contain general information about industry context which is further explained as measurable outcomes of performance in the units of competency in each qualification.
• The detail in each Employability Skills Summary will vary depending on the range of job roles covered by the qualification in question.
• Employability Skills Summaries are not exhaustive lists of qualification requirements or checklists of performance (which are separate assessment tools that should be designed by trainers and assessors after analysis at the unit level).
• Employability Skills Summaries contain information that may also assist in building learners' understanding of industry and workplace expectations.

Industry Requirements for Employability Skills

ICT10 Integrated Telecommunications Training Package seeks to ensure that industry-endorsed employability skills are explicitly embedded in units of competency. The application of each skill and the level of detail included in each part of the unit will vary according to industry requirements and the nature of the unit of competency.

Employability skills are both explicit and embedded within units of competency. This means that employability skills are:

- embedded in units of competency as part of the other performance requirements that make up the competency as a whole
- explicitly described within units of competency to enable Training Package users to identify accurately the performance requirements of each unit with regards to employability skills.

ICT10 Integrated Telecommunications Training Package also seeks to ensure that employability skills are well-defined and written into units of competency so that they are apparent, clear and can be delivered and assessed as an essential component of unit work outcomes.

Whole of Industry Qualification Information

ICT10 at a glance

ICT10 comprises of 26 qualifications developed with industry consultation and validation with the following:

- **Revised qualifications**
- Eleven (11) qualifications from the ICT02 Version 3.0 Training Package were revised and updated to include current practices and technologies in:
    - Cabling (CPE and Access)
    - Digital Reception Technology
    - Network Planning
    - Radio Communications
    - Telecommunications.

- **New qualifications**
- Fifteen (15) new qualifications were developed to provide pathways in skill shortage areas in new and emerging technology areas and internet protocol (IP) convergence in:
    - Broadband and Wireless Networks
    - Network Planning and Design
    - Optical Frequency Networks
    - Rigging Installation
    - Radio Frequency Networks
    - Telecommunications Management
    - Telecommunications Networks Engineering
    - Telecommunications Technology for VET in schools program.

- **New qualifications and Skill sets**
- Twenty (20) new skill sets have been developed to provide pathways for skill update in new technology areas.
- These are in:
  - Broadband Networks
  - Optical and Wireless Networks
  - Radio Technology
  - Digital Reception Technology
  - Rigging Installations
  - Emerging Technologies
  - Convergence Technologies
  - Sustainability
  - ICT Networking
  - Customer Premises Networks
  - Digital Home Integration
  - Small Medium Enterprise Networks
  - Customer and Access Cabling
  - Help Desk Support.

- **Packaging of qualifications to meet industry flexibility**

The judicious packaging of core and elective units has provided great flexibility for participants to cross over from stream to stream with minimal disruptions. This has been possible by minimising the number of core units and allowing greater choice of elective units. The mainstream is the Telecommunications/Telecommunications Network Engineering which leads to a Vocational Graduate Diploma.

The following are the Training Packages from which units have been imported to supplement those developed specifically for the telecommunications industry:
BSB07 Business Services Training Package
CPP07 Property Services Training Package
FNS04 Financial Services Training Package
HLT07 Health Training Package
ICA05 Information and Communications Technology Training Package

The importation of units from those Training Packages provides clear support to the telecommunications units in the area of sustainability, project management and IT convergence networks.

The 'ICT20110 Certificate II in Telecommunications Technology' is an exception to the flexible packaging rule. This school-based entry qualification for VET in schools provides an innovative approach to a pathway model for use by schools as a recommended school model pathway. The ICT20110 provides Years 11 and 12 students with skills in Telecommunications Networks, Digital Reception Technology and IP networks in home and SME networks. It contains a core with a choice of three streams; the Cabling Technician stream that enables an ACMA CPR restricted registration, the Digital Reception stream that provides for work on digital reception equipment and the Networking stream that provides for work with IP home and small business networks. Due to the specialisation of the streams, the substitution of elective units is not permitted.

- **Unit development considerations**

In the review of existing units and the development of new units for ICT10, key factors were considered, namely:

- eliminating duplication of content between units
- embedding relevant employability skills in elements and performance criteria, as well as in the required skills and knowledge sections of all units
- embedding sustainability in elements and performance criteria, as well as in the required skills and knowledge sections of all units
- inclusion of sustainability units at all AQF levels in core and elective units
- 'Future-proofing' units against technological change. This has been done by using terms that are typically used by the ICT industry in elements and performance criteria and providing current examples in range statements
- broadening the scope of units to include a range of industry contexts where appropriate
- using plain English and accepted industry terminology
- providing clear guidance on required skills and knowledge and the critical aspects of evidence.
-

Work outcome
All VET qualifications must lead to a work outcome. The flexibility of ICT10 Integrated Telecommunications Training Package qualifications allows RTOs to vary programs to meet:

- the specific needs of learners and industry clients
- the needs of a locality or a particular industry application of skills
- greater employability of a group of students or an individual.

Maximising employability
In all cases, when packaging qualifications in ICT10 Integrated Telecommunications Training Package, RTOs must follow the principle of providing groups and individuals with the broadest possible combination of skills and attributes.

When combining units, therefore, choices must be exercised so that duplication of work outcomes does not occur either within the Integrated Telecommunications Training Package or among other Training Packages.

Titles of qualifications

Guidelines on issuing qualifications and the protocol defining the form of qualifications are contained in the *Australian Qualifications Framework (AQF) Implementation Handbook* which can be accessed on the AQF website at http://www.aqf.edu.au/implem.htm.

Qualifications in the ICT10 Integrated Telecommunications Training Package have industry descriptors only. There is no provision for nominating an occupational or functional stream in brackets after a title, such as ICT40210 Certificate IV in Telecommunications Network Engineering. In the context of telecommunications performance, an occupational stream could be seen as Telstra or Nokia specific.

However, to specify such streams would narrow the focus of what students can achieve and would result in the addition of numerous qualifications to the Training Package without any actual change in their structure.

However, RTOs issuing qualifications may wish to describe the specialisation in which individuals achieve competence in performance or composition. For example, the transcript of units completed could be preceded by a short statement such as:
'The chosen job functions for this qualification was the 'installation and testing of optical networks'.

Any descriptive statement may nominate the individual specialisation (e.g. mobile telephony, satellite, microwave, broadcasting, etc.) where competence has been achieved. Note that candidates may achieve competence in one or more areas of specialisation.

Descriptive statements on certificates should always be written with reference to the overall guidelines in the *AQF Implementation Handbook*.

Assessment Guidelines

Introduction

These Assessment Guidelines provide the endorsed framework for assessment of units of competency in this Training Package. They are designed to ensure that assessment is consistent with the AQTF 2007. Assessments against the units of competency in this Training Package must be carried out in accordance with these Assessment Guidelines.

Assessment System Overview

This section provides an overview of the requirements for assessment when using this Training Package, including a summary of the AQTF 2007 requirements; licensing/registration requirements; and assessment pathways.

Benchmarks for Assessment

Assessment within the National Skills Framework is the process of collecting evidence and making judgments about whether competency has been achieved to confirm whether an individual can perform to the standards expected in the workplace, as expressed in the relevant endorsed unit of competency.

In the areas of work covered by this Training Package, the endorsed units of competency are the benchmarks for assessment. As such, they provide the basis for nationally recognised Australian Qualifications Framework (AQF) qualifications and Statements of Attainment issued by Registered Training Organisations (RTOs).

Australian Quality Training Framework Assessment Requirements

Assessment leading to nationally recognised AQF qualifications and Statements of Attainment in the vocational education and training sector must meet the requirements of the AQTF as expressed in the AQTF 2007 Essential Standards for Registration.

The AQTF 2007 Essential Standards for Registration can be downloaded from < www.training.com.au/aqtf2007>. The following points summarise assessment requirements.

Registration of Training Organisations

Assessment must be conducted by, or on behalf of, an RTO formally registered by a State or Territory Registering/Course Accrediting Body in accordance with the AQTF 2007 Essential Standards for Registration. The RTO must have the specific units of competency and/or AQF qualifications on its scope of registration.

Quality Training and Assessment

Each RTO must provide quality training and assessment across all its operations. See the AQTF 2007 Essential Standards for Registration, Standard 1.

Assessor Competency Requirements

Each person involved in training, assessment or client service must be competent for the functions they perform. See the AQTF 2007 Essential Standards for Registration, Standard 1, for assessor (and trainer) competency requirements.

Assessment Requirements

The RTOs assessments, including RPL, must meet the requirements of the relevant endorsed Training Package. See the AQTF 2007 Essential Standards for Registration, Standard 1.

Assessment Strategies
Each RTO must have strategies for training and assessment that meet the requirements of the relevant Training Package or accredited course and are developed in consultation with industry stakeholders. See the AQTF 2007 Essential Standards for Registration, Standard 1.

National Recognition

Each RTO must recognise the AQF qualifications and Statements of Attainment issued by any other RTO. See the AQTF 2007 Essential Standards for Registration, Condition of Registration 7: Recognition of qualifications issued by other RTOs.

Access and Equity and Client Outcomes

Each RTO must adhere to the principles of access and equity and maximise outcomes for its clients. See the AQTF 2007 Essential Standards for Registration, Standard 2.

Monitoring Assessments

Training and/or assessment provided on behalf of the RTO must be monitored to ensure that it is in accordance with all aspects of the Essential Standards for Registration. See the AQTF 2007 Essential Standards for Registration, Standard 3.

Recording Assessment Outcomes

Each RTO must manage records to ensure their accuracy and integrity. See the AQTF 2007 Essential Standards for Registration, Standard 3.

Issuing AQF Qualifications and Statements of Attainment

Each RTO must issue AQF qualifications and Statements of Attainment that meet the requirements of the current AQF Implementation Handbook and the endorsed Training Packages within the scope of its registration. An AQF qualification is issued once the full requirements for a qualification, as specified in the nationally endorsed Training Package are met. A Statement of Attainment is issued when an individual has completed one or more units of competency from nationally recognised qualification(s)/courses(s). See the AQTF 2007 and the 2007 edition of the AQF Implementation Handbook-available on the AQFAB website < www.aqf.edu.au>.

This section provides information on licensing/registration for this Training Package, with the following important disclaimer.

Licensing and registration requirements that apply to specific industries, and vocational education and training, vary between each State and Territory, and can regularly change. The developers of this Training Package, and DEEWR, consider that the licensing/registration requirements described in this section apply to RTOs, assessors or candidates with respect to this Training Package. While reasonable care has been taken in its preparation, the developers of this Training Package and DEEWR cannot guarantee that the list is definitive or accurate at the time of reading; the information in this section is provided in good faith on that basis.

Contact the relevant State or Territory Department(s) to check if the licensing/registration requirements described below still apply, and to check if there are any others with which you must comply.

The Telecommunications Regulator is the Australian Communications and Media Authority (ACMA). The legislation covering ACMA activities involves a broad range of national activities, from carrier licensing to use of radio spectrum. The most relevant issue for ICT10

qualifications is the ACMA Cabling Provider Rules Registration. Prior to October 2000, Cabling Provider Rules (CPR) Registration was known as 'licensing' and included several levels, such as General Premises Cabling, Base Cabling and 'Endorsements', Domestic and Restricted Cabling licences.

Units of competency included in the selections for the relevant ICT10 Integrated Telecommunications qualifications enable candidates to qualify for ACMA CPR registration either by gaining a full qualification, or the required set as a part qualification, skill set, or Statement of Attainment. The units of competency for ACMA CPR registration are:

Restricted Registration

ICTCBL2136A Install, maintain and modify customer premises communications cabling: ACMA Restricted Rule

Open Registration

ICTCBL2136A Install, maintain and modify customer premises communications cabling: ACMA Restricted Rule

ICTCBL2137A Install, maintain and modify customer premises communications cabling: ACMA Open Rule

Restricted Registration

ICTCBL2005A Install customer cable support systems ICTCBL2006A Place and secure customer cable ICTCBL2008A Terminate metallic conductor customer cable ICTCMP2022A Organise and monitor cabling to ensure compliance with regulatory and industry standards

Open Registration

ICTCBL2005A Install customer cable support systems ICTCBL2006A Place and secure customer cable ICTCBL2008A Terminate metallic conductor customer cable ICTCBL2012A Install functional and protective telecommunications earthing system

ICTCBL2017A Alter services to existing cable system

ICTCMP2022A Organise and monitor cabling to ensure compliance with regulatory and industry standards

Lift Registration

ICTCBL2138A Install, maintain and modify customer premises communications cabling: ACMA Lift Rule

The following guidance is provided in relation to regulatory requirements that may apply to people working in the Telecommunications industry.

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

Information on occupational licensing and its intersection with vocational education and training can be found in Licensing Line News at www.licensinglinenews.com.

National Code of Practice for Induction for Construction Work

"This Code of Practice provides guidance to persons working in the general and residential construction sectors on the types of induction training that may be needed to provide construction workers with an awareness and understanding of common hazards on construction sites and how they should be managed." (Source: *Licensing Line News* at www.licensinglinenews.com).

Sets and staging for some performances or events 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 Integrated Framework Training Package fulfils this requirement.

Contact state or territory OHS authorities for information on RTOs approved to deliver the general induction training program.

Requirements for Assessors

In order to conduct assessment for statutory licensing or other industry registration requirements, assessors must meet the requirements outlined in the following table, in addition to the AQTF requirements.

LICENCE/ REGISTRATION	JURISDICTION	REQUIREMENTS
Restricted Registration ICTCBL2136A	Australian Communications and Media Authority	Restricted Registered Cabler TITAB registered assessor
Open Registration ICTCBL2136A ICTCBL2137A	Australian Communications and Media Authority	Open Registered Cabler

		TITAB registered assessor
Restricted Registration ICTCBL2005A ICTCBL2006A ICTCBL2008A ICTCMP2022A	Australian Communications and Media Authority	Restricted Registered Cabler TITAB registered assessor
Open Registration ICTCBL2005A ICTCBL2006A ICTCBL2008A ICTCBL2012A ICTCBL2017A ICTCMP2022A	Australian Communications and Media Authority	Open Registered Cabler TITAB registered assessor
Lift Registration	Australian Communications and Media Authority	Lift Registered Cabler
ICTCBL2138A		TITAB registered assessor
Endorsement - Structured Cabling ICTCBL3009A	Telecommunications industry preferred (previously mandated by ACMA)	Open Registered Cabler TITAB registered assessor Equivalent competency
Endorsement - Optical Fibre ICTCBL3010A	Telecommunications industry preferred (previously mandated by ACMA)	Open Registered Cabler TITAB registered assessor Equivalent competency
Endorsement - Coaxial Cable ICTCBL3011A	Telecommunications industry preferred (previously mandated by ACMA)	Open Registered Cabler TITAB registered assessor Equivalent competency
Endorsement - Aerial ICTCBL2016A ICTCBL3020A ICTCBL3021A	Telecommunications industry preferred (previously mandated by ACMA)	Open Registered Cabler TITAB registered assessor Equivalent competencies
Endorsement - Underground ICTCBL2016A ICTCBL3018A ICTCBL3019A	Telecommunications industry preferred (previously mandated by ACMA)	Open Registered Cabler TITAB registered assessor Equivalent competencies
Endorsement - Cable and System Testing ICTCBL3013A	Telecommunications industry preferred (previously mandated by ACMA)	Open Registered Cabler TITAB registered assessor Equivalent competency

TITAB and TITAB REGISTERED ASSESSORS

Due to the regulatory aspects of the Telecommunications Training Package, it is vital that compliance is achieved in the areas of vocational education and training as well as sector specific 'licensing'/registration requirements.

Prior to October 2000, the 'ACMA Cabling Provider Rules Registration' was known as

'licensing' and included several levels of cabling licences and 'Endorsements'. Since 2000, the Australian Communications and Media Authority (ACMA) - the telecommunications regulator - has mandated that particular competencies apply to registration therefore this Training Package is now a combination of both mandatory and voluntary or industry requirements. Selected competencies within Training Package qualifications allow candidates to qualify for the 'ACMA Cabling Provider Rules (CPR) Registration', either by gaining a full or part qualification or a skill set or Statement of Attainment.

TITAB was funded by the Federal Government, through the ACMA, to provide Registered Assessors to assess telecommunications competency standards, as part of the statutory obligations and mandatory 'licensing'/registration requirements. The management and co-ordination of the Registered Assessors was then delegated to TITAB as the industry moved to co-regulation.

The Registered Assessors are supported by TITAB and must fulfill a number of conditions to maintain current TITAB Assessor registration. This comprehensive network of skilled and knowledgeable TITAB Registered Assessors is used extensively by the telecommunications sector to implement both the 'licensing'/registration and AQTF requirements.

TITAB's contact details are:

PO Box 348 Carlton South Victoria 3053

Phone: 03 9349 4955

Fax: 03 9349 4844

Email: info@titab.com.au Website: www.titab.com.au **Assessor Competencies**
The AQTF 2007 specifies mandatory competency requirements for assessors. For information, Element 1.4 from the AQTF 2007 Essential Standards for Registration follows:

1.4 Training and assessment are conducted by trainers and assessors who:

a) have the necessary training and assessment competencies as determined by the National Quality Council or its successors
b) have the relevant vocational competencies at least to the level being delivered or assessed
c) continue developing their vocational and training and assessment competencies to support continuous improvements in delivery of the RTO's services.
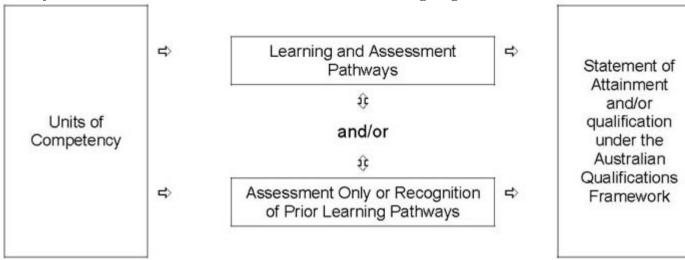
Pathways

The competencies in this Training Package may be attained in a number of ways including through:

- formal or informal education and training
- experiences in the workplace
- general life experience, and/or
- any combination of the above.

Assessment under this Training Package leading to an AQF qualification or Statement of Attainment may follow a learning and assessment pathway, an assessment-only or recognition pathway, or a combination of the two as illustrated in the following diagram.

```
┌──────────────┐           ┌─────────────────────────┐           ┌──────────────┐
│              │    ⇨      │  Learning and Assessment │    ⇨      │ Statement of │
│              │           │        Pathways         │           │ Attainment   │
│   Units of   │           └─────────────────────────┘           │ and/or       │
│  Competency  │                       ⇕                         │ qualification│
│              │                    and/or                       │ under the    │
│              │                       ⇕                         │ Australian   │
│              │    ⇨      ┌─────────────────────────┐    ⇨      │ Qualifications│
│              │           │ Assessment Only or Recognition│      │ Framework    │
│              │           │  of Prior Learning Pathways │        │              │
└──────────────┘           └─────────────────────────┘           └──────────────┘
```

Assessment, by any pathway, must comply with the assessment requirements set out in the Assessment Guidelines of the Training Package and the AQTF 2007.

Learning and Assessment Pathways

Usually, learning and assessment are integrated, with assessment evidence being collected and feedback provided to the candidate at anytime throughout the learning and assessment process.

Learning and assessment pathways may include structured programs in a variety of contexts using a range of strategies to meet different learner needs. Structured learning and assessment programs could be: group-based, work-based, project-based, self-paced, action learning-based; conducted by distance or e-learning; and/or involve practice and experience in the workplace.

Learning and assessment pathways to suit Australian Apprenticeships have a mix of formal structured training and structured workplace experience with formative assessment activities through which candidates can acquire and demonstrate skills and knowledge from the relevant units of competency.

Assessment-Only or Recognition of Prior Learning Pathway

Competencies already held by individuals can be formally assessed against the units of competency in this Training Package, and should be recognised regardless of how, when or where they were achieved.

In an assessment-only or Recognition of Prior Learning (RPL) pathway, the candidate provides current, quality evidence of their competency against the relevant unit of competency. This process may be directed by the candidate and verified by the assessor, such as in the compilation of portfolios; or directed by the assessor, such as through observation of workplace performance and skills application, and oral and/or written assessment. Where the outcomes of this process indicate that the candidate is competent, structured training is not required. The RPL requirements of the AQTF 2007 must be met (Standard 1).

As with all assessment, the assessor must be confident that the evidence indicates that the candidate is currently competent against the endorsed unit of competency. This evidence may take a variety of forms and might include certification, references from past employers, testimonials from clients, and work samples. The onus is on candidates to provide sufficient evidence to satisfy assessors that they currently hold the relevant competencies. In judging evidence, the assessor must ensure that the evidence of prior learning is:

• authentic (the candidate"s own work)
• valid (directly related to the current version of the relevant endorsed unit of competency)
• reliable (shows that the candidate consistently meets the endorsed unit of competency)
• current (reflects the candidate"s current capacity to perform the aspect of the work covered by the endorsed unit of competency), and
• sufficient (covers the full range of elements in the relevant unit of competency and addresses the four dimensions of competency, namely task skills, task management skills, contingency management skills, and job/role environment skills).

The assessment only or recognition of prior learning pathway is likely to be most appropriate in the following scenarios:

• candidates enrolling in qualifications who want recognition for prior learning or current competencies
• existing workers
• individuals with overseas qualifications
• recent migrants with established work histories
• people returning to the workplace, and
• people with disabilities or injuries requiring a change in career.

Combination of Pathways

Where candidates for assessment have gained competencies through work and life experience and gaps in their competence are identified, or where they require training in new areas, a combination of pathways may be appropriate.

In such situations, the candidate may undertake an initial assessment to determine their current competency. Once current competency is identified, a structured learning and assessment program ensures that the candidate acquires the required additional competencies identified as gaps.

Assessor Requirements

This section identifies the mandatory competencies for assessors, and clarifies how others may contribute to the assessment process where one person alone does not hold all the required competencies.

Assessor Competencies

The AQTF 2007 specifies mandatory competency requirements for assessors. For information, Standard 1, Element 1.4 from the AQTF 2007 *Essential Standards for Registration* follows:

1.4		*Training and assessment is delivered by trainers and assessors who:*
	a)	*have the necessary training and assessment competencies as determined by the National Quality Council or its successors*
	b)	*have the relevant vocational competencies at least to the level being delivered or assessed*
	c)	*continue developing their vocational and training and assessment competencies to support continuous improvements in the delivery of the RTO"s services.*

Training and assessment for people with specific needs

Disability Standards for Education were formed under the Disability Discrimination Act 1992 and were introduced in August 2005. They clarify the obligations of education and training providers to ensure that students who have a disability are able to access and participate in education without experiencing discrimination.

The Department of Education, Employment and Workplace Relations (DEEWR) provides further information in the *Disability Standards for Education 2005 Guidance Notes* , accessible via the DEEWR website (www.deewr.gov.au/Schooling/DisabilityStandardsforEducation/Documents/ Disability_Standards_Education_Guidance_Notes_pdf.pdf).

Good vocational training and assessment are often about making adjustments to what we do to meet the learning support needs of individuals. The information provided in this section is aimed at assisting teachers/trainers to meet the reasonable adjustment needs of people who have a disability.

According to the Australian Bureau of Statistics (ABS), 2003, *Survey of Disability, Ageing and*
Carers (SDAC) in the section on education and employment:

'In 2003, one in four people (24%) aged 15-64 years with a profound or severe core-activity limitation, who were living in households, had completed Year 12. This compares to half (49%) of those without a disability. People with a profound or severe core-activity limitation were less likely to have completed a diploma or higher qualification (14%) than those without a disability (28%).'

Employment-related findings, for people aged 15-64 years living in households, from the ABS
2003 *SDAC* include:

• those with a profound level of core-activity limitation had a much lower labour force participation rate (15%) than people without a disability (81%)
• people with a disability who were employed were more likely to work part-time (37%) than those who were employed and did not have a disability (29%)
• people employed in agriculture, forestry and fishing (16%) had a relatively high disability rate compared to the overall rate for those employed (11%).'

Clearly there is much work still to be done to ensure that people who have a disability are able to participate in employment and vocational education and training as fully as possible.

What is a disability?

A disability presents some impairment to everyday activity. Some people with a disability do not have any impairments resulting from their disability. For example, a person who has a hearing impairment which is compensated for by a hearing aid may function without any adjustments. While some people with a disability may have an impairment because of the environment, not the disability itself. For example, hearing loss can be accentuated in a room with loud, competing noise and poor acoustics.

A disability may affect or relate to a range of human functions, including mobility, stamina, lifting ability, memory, vision, hearing, speech, comprehension and mood swings. This may be due to accidents, illnesses or birth.

According to the ABS 2003 *SDAC* :

'One in five people in Australia (3,958,300 or 20.0%) had a reported disability. This rate was much the same for males (19.8%) and females (20.1%). Disability was defined as any limitation, restriction or impairment, which has lasted, or is likely to last, for at least six months and restricts everyday activities. Examples range from hearing loss which requires the use of a hearing aid, to difficulty dressing due to arthritis, to advanced dementia requiring constant help and supervision.'

The ABS 2003 *SDAC* information also tells us that:

'15.2% (600,300) of people with a disability reported that the cause of their main health condition was accident or injury, 14% (557 300) that it was disease, illness or heredity, and 11% (423,500) that it was "working conditions, work or over-work".'

Health conditions can also be acquired through sporting accidents, repetitive or over-use (through regular or sporting activities), or the daily activities of life.

There are many resources available that provide information on how to adjust training and assessment for someone who has a disability; some of these are listed in the contacts section below.

Adjustments in training and assessment

An open mind, common sense and tailoring to individual circumstances will, as often as not, ensure individuals achieve the standards that employers and training providers expect. Reasonable adjustments need only be that - reasonable. It is about identifying what adjustments might reasonably be made and how they may be put into place.

Training and assessment can be made more appropriate and fairer for a person who has a disability through attitude, preparation and application.

Attitude

The attitude of others is often the greatest barrier for people who have a disability. While most people who have a disability will only ever require minor adjustments to ensure learning is positive, some will require additional support. There are many support agencies that can provide advice, however teachers/trainers may need to take additional time to ensure their teaching/training meets the learning support needs of the individual concerned.

Positive language creates an atmosphere of mutual respect, which is essential to learning. For example, using language that identifies learners as people rather than language that identifies them by one of their characteristics conveys that the person is more important than the characteristic, such as the difference between a 'person who has an intellectual disability' and an 'intellectually disabled person'. A person who has an intellectual disability could also be identified by a range of equally important characteristics - height, age, sporting interests, etc. However, the term 'intellectually disabled person' refers to the disability as the major, and often only, defining characteristic.

Preparation

It is important to identify any functional issues arising from the nature and extent of a person's disability. This can usually be done by discussing such issues with the individual. In most cases, this consultation will identify reasonable adjustment needs which can be put into place. There are many simple things that teachers/trainers can do to make reasonable adjustments to enable individuals who have a disability to succeed in training and assessment. In some cases, professional support may be required.

Application

Once reasonable adjustments have been implemented it is important to monitor and evaluate what has been done to ensure the best environment for continuous learning because:

• adjustments may only need to be temporary - i.e. mechanisms may only need to be in place during an induction period or due to a temporary disability, in which case evaluation will ensure appropriateness without the need for ongoing monitoring

• adjustments may need reinforcing - when adjustments need to be ongoing, monitoring may reinforce patterns of behaviour in order for them to become 'natural'
• adjustments may need improving - where adjustments are ongoing or substantial, a commitment to continuous improvement is recommended through monitoring.

In most cases an informal discussion with the person concerned may be all that is necessary. However, should adjustments be substantial, or a learner not be acquiring competence at a reasonable rate, a more formal process may be required. This may include:

• performance indicators - training providers, learners and employers should have agreed indicators of performance which can be measured and monitored
• independent support - a third party, independent of the training and/or assessment environment, may need to be involved
• experimentation - if existing adjustments are not proving satisfactory, creative solutions may be needed
• continuing review - formal monitoring is encouraged if adjustments are changed or if substantial adjustments are necessary.

For further information on training and assessment for people with specific needs, the DEEWR website has information about the National Disability Coordination Officer Programme, which 'provides information, co-ordination and referral services for people with a disability interested in or enrolled in post-school education and training' (www.deewr.gov.au).
Reasonable adjustment

Below are some of the practical things that can be done as part of providing reasonable adjustment to learners with specific support needs to enable them to undertake training and assessment. Clearly, each case will be different and will need to be discussed with the person and in some cases expert help will be needed, at least in the initial stages.

Type of disability	Reasonable adjustment
Acquired brain injury	• Memory aids (posters, notes, etc.) • Reflective listening skills • Stress minimisation • Time and patience
Hearing impairment	• Audio loops for people using hearing aids • Plain English documents • Fire and alarm systems with flashing lights • Sign language interpreters • Telephone typewriters
Intellectual disability	• Additional time • Assessment which is appropriate to the skill (i.e. avoiding written assessment for practical tasks) • Mentors • Plain English documents • Practical learning sessions

	• Repetition of learning exercises
Mobility impairment	• Access to aids, such as for holding documents • Adjustable tables • Lifting limits • Note-taking support • Verbal rather than written presentations • Personal computers • Wheelchair access
Psychiatric disability	• Identification and avoidance of stresses • Ongoing rather than formal assessments • Reflective listening skills • 'Time-out' breaks in assessment
Speech impairment	• Information summaries • Stress minimisation • Time and patience • Written rather than verbal opportunities
Vision impairment	• Additional writing time for assignments and tests • Audiotapes • Braille translations • Enlarged computer screen images • Enlarged text and images • Good lighting or reading lamps • Guide dog provision • Informing the person before moving furniture Voice synthesisers on computers

Designing Assessment Tools

This section provides an overview on the use and development of assessment tools.

Use of Assessment Tools

Assessment tools provide a means of collecting the evidence that assessors use in making judgments about whether candidates have achieved competency.

There is no set format or process for the design, production or development of assessment tools. Assessors may use prepared assessment tools, such as those specifically developed to support this Training Package, or they may develop their own.

Using Prepared Assessment Tools

If using prepared assessment tools, assessors should ensure these are benchmarked, or mapped, against the current version of the relevant unit of competency. This can be done by checking that the materials are listed on the National Training Information Service < www.ntis.gov.au>. Materials on the list have been noted by the National Quality Council as meeting their quality criteria for Training Package support materials.

Developing Assessment Tools

When developing assessment tools, assessors must ensure that they:

• are benchmarked against the relevant unit or units of competency
• are reviewed as part of the continuous improvement of assessment strategies as required under Standard 1 of the AQTF 2007
• meet the assessment requirements expressed in Standard 1 of the AQTF 2007.

A key reference for assessors developing assessment tools is TAA04 Training and Assessment Training Package and the unit of competency TAAASS403A *Develop assessment tools*. There is no set format or process for the design, production or development of assessment materials.

Conducting Assessment

This section details the mandatory assessment requirements and provides information on equity in assessment including reasonable adjustment.

Assessment Requirements

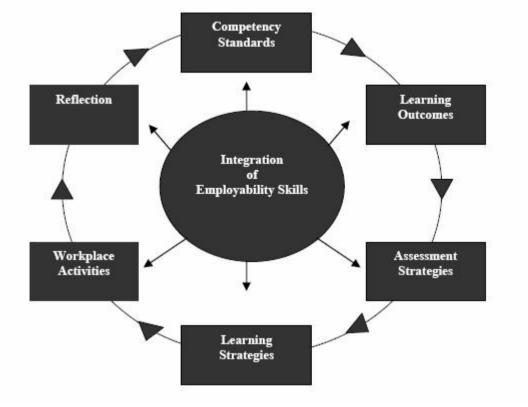Assessments must meet the criteria set out in the AQTF 2007 Essential Standards for Registration.

For information, the mandatory assessment requirements from Standard 1 from the AQTF 2007 *Essential Standards for Registration* are as follows:

1.5		*Assessment, including Recognition of Prior Learning:*
	a)	*meets the requirements of the relevant Training Package or accredited course,*
	b)	*is conducted in accordance with the principles of assessment and the rules of evidence, and*
	c)	*meets workplace and, where relevant, regulatory requirements.*

Assessment of Employability Skills

Employability Skills are integral to workplace competency. As such they must be considered in the design, customisation, delivery and assessment of vocational education and training programs in an integrated and holistic way, as represented diagrammatically below

Employability Skills are embedded and explicit within each unit of competency. Training providers must use Employability Skills information in order to design valid and reliable training and assessment strategies. This analysis could include:

• reviewing units of competency to locate relevant Employability Skills and determine how they are applied within the unit
• analysing the Employability Skills Summary for the qualification in which the unit or units are packaged to help clarify relevant industry and workplace contexts and the application of Employability Skills at that qualification outcome
• designing training and assessment to address Employability Skills requirements.

Employability Skills in the Integrated Telecommunications context

ICT10 Integrated Telecommunications Training Package seeks to ensure that industry-endorsed employability skills are explicitly embedded in units of competency. The application of each skill and the level of detail included in each part of the unit will vary according to industry requirements and the nature of the unit of competency.

Employability skills are both explicit and embedded within units of competency. This means that employability skills are:

• embedded in units of competency as part of the other performance requirements that make up the competency as a whole
• explicitly described within units of competency to enable Training Package users to identify accurately the performance requirements of each unit with regards to employability skills.

ICT10 Integrated Telecommunications Training Package also seeks to ensure that employability skills are well-defined and written into units of competency so that they are apparent, clear and can be delivered and assessed as an essential component of unit work outcomes.
For more information on Employability Skills in Innovation and Business Industry Skills Council Training Packages go to the Innovation and Business Industry Skills Council website at http://www.ibsa.org.au.

Access and Equity

An individual"s access to the assessment process should not be adversely affected by restrictions placed on the location or context of assessment beyond the requirements specified in this Training Package: training and assessment must be bias-free.

Under the rules for their development, Training Packages must reflect and cater for the increasing diversity of Australia"s VET clients and Australia"s current and future workforce. The flexibilities offered by Training Packages should enhance opportunities and potential outcomes for all people so that we can all benefit from a wider national skills base and a shared contribution to Australia"s economic development and social and cultural life.

Reasonable adjustments

It is important that education providers take meaningful, transparent and reasonable steps to consult, consider and implement reasonable adjustments for students with disability.

Under the Disability Standards for Education 2005, education providers must make reasonable adjustments for people with disability to the maximum extent that those adjustments do not cause that provider unjustifiable hardship. While "reasonable adjustment" and "unjustifiable hardship" are different concepts and involve different considerations, they both seek to strike a balance between the interests of education providers and the interests of students with and without disability.

An adjustment is any measure or action that a student requires because of their disability, and which has the effect of assisting the student to access and participate in education and training on the same basis as students without a disability. An adjustment is reasonable if it achieves this purpose while taking into account factors such as the nature of the student"s disability, the views of the student, the potential effect of the adjustment on the student and others who might be affected, and the costs and benefits of making the adjustment.

An education provider is also entitled to maintain the academic integrity of a course or program and to consider the requirements or components that are inherent or essential to its nature when assessing whether an adjustment is reasonable. There may be more than one adjustment that is reasonable in a given set of circumstances; education providers are required to make adjustments that are reasonable and that do not cause them unjustifiable hardship.

See Part 4, Chapter 2 of the Training Package Development Handbook (DEST, September 2007) for more information on reasonable adjustment, including examples of adjustments.

Assessment for Indigenous organisations

Aboriginal and Torres Strait Islander people have expressed concern about the importance of developing appropriate assessment processes.
There are four main areas of concern:

• diversity
• cultural appropriateness
• community control
• accreditation.

Diversity

The term diversity is used to emphasise the wide range of opinions, aspirations, community circumstances, cultural practices, geographic locations, and social, economic and political conditions that exist throughout Australia and the need to guard against assumptions that all communities are the same.

One approach is to distinguish between remote, rural and urban settings. These settings suggest differences that may be relevant to Aboriginal and Torres Strait Islander organisations, including:

• culture
• language
• history
• social make-up
• geography
• social and economic infrastructure
• economy
• political structure.

These factors suggest that training and assessment, in order to be relevant to the needs of a particular Aboriginal and Torres Strait Islander organisation, should address each situation as unique.

Cultural appropriateness

The term culture is used in a broad sense, it refers to:

• values, social beliefs and customs, such as Aboriginal and Torres Strait Islander law, land, and family and kinship systems
• protocols of behaviour and interaction e.g. cultural authority, gender and kinship
• ways of thinking, including preferred learning styles
• language, both English and Aboriginal English
• lifestyles
• local history
• location, including region and place.

A particularly important aspect of cultural appropriateness is that of learning styles. There is evidence that Aboriginal and Torres Strait Islander people, both traditional and contemporary, approach learning differently from the Western intellectual tradition, which is relevant to effective training and assessment.

It is understood that Aboriginal and Torres Strait Islander people may:

• learn better in groups than individually
• learn better in the surroundings of their community than in an institutional environment
• prefer oral communications to written forms
• learn on the basis of trial and error in the presence of an experienced person in preference to concept building approaches
• have a highly-developed sense of spatial relations by which they learn; hence stories, maps and pictures would be preferable to oral explanations.
To be effective, it is necessary that training and assessment recognises, adopts and practises appropriate delivery and assessment approaches.

Trainers and assessors who are not Aboriginal or Torres Strait Islanders need information on aspects of Aboriginal and Torres Strait Islander culture. They need to work closely with Aboriginal and Torres Strait Islander people to adopt practices that reflect Aboriginal and Torres Strait Islander approaches. The community should be asked to identify experts to provide information and to assist with assessment of relevant protocols, for example, where required.

There are a number of ways an RTO can establish and maintain culturally appropriate training and assessment practices, including:

• ensuring a high proportion of Aboriginal and Torres Strait Islander participation in all aspects of planning, development, delivery and evaluation
• establishing and maintaining a collaborative relationship with local Aboriginal and Torres Strait Islander communities
• as a mainstream (non-Indigenous) RTO, establishing auspice relationships with Aboriginal and Torres Strait Islander organisations and individuals, including direct and indirect involvement of persons identified as appropriate by the local community
• ensuring ongoing training of non-Aboriginal and Torres Strait Islander staff at all levels of the RTO, delivered by Aboriginal and Torres Strait Islander personnel.

Community control

The term community control is synonymous with such things as self-determination and self-management, and underpins most community aspirations. It is of fundamental concern to people who see themselves as having been dispossessed by colonisation.

The essence of control is control of decision-making. In order to be able to do this, people need all relevant information, relevant competencies, and recognition of their own structures and processes.

Among other things, Aboriginal and Torres Strait Islander people seek control over their training. It is necessary, therefore, that they participate in meaningful ways in all stages of planning, development, delivery and evaluation. One way to achieve this is for communities to have control of the contract for training initiatives.

It is important that training providers and assessors respect and conform to the practice of community control which underpins this field within the ICT10 Integrated Telecommunications Training Package.

Accreditation

Aboriginal and Torres Strait Islander people have said for a long time that their involvement in training has not been formally recognised and that many of the skills they use in managing their organisations and delivering services to their communities have not been valued.

The first issue may have arisen because much of the training that has been delivered to communities has been customised to particular situations, has not been assessed on an individual basis if at all, and has been delivered by unregistered personnel. Secondly, until this time, recognition of current competencies (RCC) has been under-utilised.

Individuals may demonstrate competence in complete units of competency through formal training, informal training or the recognition of current competencies and skills, resulting in qualifications or statements of attainment being awarded.

In the community group setting, an important feature of likely relevance for assessment is that participants may vary with respect to previous education and training experience, which may result in diverse literacy and numeracy issues. However, literacy and numeracy skills are not a barrier to sophisticated thought, and care must be taken not to use assessment strategies that rely on a person having numeracy and literacy skills that are not intrinsically required by the unit of competency being assessed.

A flexible approach to assessment will be required by RTOs in order to meet the requirements of Aboriginal and Torres Strait Islander organisations and individuals under this domain within the ICT10 Integrated Telecommunications Training Package.

Assessment in Aboriginal and Torres Strait Islander communities

The guiding principles that underpin assessment include:

• assessment should be transparent, i.e. clearly seen and understood by the candidate and others
• assessment should empower the candidate on the basis of consent, self-assessment and responsibility for the process
• members or prospective members of community management committees should have opportunities to demonstrate their competencies and skills
• activities undertaken by the candidate in a community management role may be used as the context for assessment where possible (known as on-the-job assessment or workplace assessment); there may also be opportunities to include evidence from other relevant situations
• assessment should involve designated community experts working in collaboration with RTO assessors in order to provide appropriate recognition of cultural and community skills and knowledge
• assessments must provide constructive feedback to candidates and support for further competency development
• assessments must provide a statement of attainment or qualification, listing the units of competency achieved
• records of candidate achievement maintained by the RTO must include the statement of attainment, listing the units of competency or qualifications achieved as required by the AQTF 2007
• a record of demonstrated competencies will assist in role clarification and performance appraisals in the workplace.

Given the importance of the assessment to the candidate and community management committees, the assessor must make every effort to ensure that assessment is conducted with the highest level of professionalism and integrity.

Units of competency with cultural content, including the following of local protocols, will require the assessor to have knowledge of these cultural matters. As these matters are often governed by local rules regarding access to such knowledge, only those people with the knowledge can genuinely assess these aspects of the competency or provide guidance on their assessment.

Discussion must take place with the community and agreement must be reached on how these matters are assessed. For non-Aboriginal and Torres Strait Islander RTOs, this will usually mean the use of auspice arrangements with appropriate people or knowledge experts, identified by the community.

It should be noted that for Aboriginal and Torres Strait Islander people being assessed in aspects of competency, they will almost invariably have been attained through life experience. This must also be taken into account in the assessment procedures relating to cultural matters.

Assessors may exercise limited discretion in response to organisational or individual requirements, but any changes must not alter the meaning of the unit of competency or the elements of competency.
Candidates must be informed of the right to access grievance procedures.

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Further Sources of Information

The section provides a listing of useful contacts and resources to assist assessors in planning, designing, conducting and reviewing of assessments against this Training Package.

Contacts

Contacts

This section provides a listing of useful contacts and resources to assist assessors in planning, designing, conducting and reviewing of assessments against this Training Package.

Innovation & Business Skills Australia Level 11, 176 Wellington Pde EAST MELBOURNE VIC
3002 Telephone: +61 3 9815 7000 Facsimile: +61 3 9815 7001 Email: virtual@ibsa.org.au
Web: www.ibsa.org.au

Technical and Vocational Education and Training (TVET) Australia Limited Level 21, 390 St Kilda Road MELBOURNE VIC 3150 PO Box 12211, A'Beckett Street Post Office MELBOURNE VIC 8006 Ph: +61 3 9832 8100 Fax: +61 3 9832 8198 Email: sales@tvetaustralia.com.au Web: www.tvetaustralia.com.au

Regulatory Advice

Australian Communications and Media Authority (ACMA) PO Box 13112 Law Courts MELBOURNE, VIC 8010 Telephone: (03) 9963 6800 Fax: (03) 9963 6970 Website: www.acma.gov.au

For information on the TAA04 Training and Assessment Training Package contact:

Innovation & Business Skills Australia Level 11, 176 Wellington Pde EAST MELBOURNE VIC
3002 Telephone: +61 3 9815 7000 Facsimile: +61 3 9815 7001 Email: virtual@ibsa.org.au
Web: www.ibsa.org.au

General resources

Refer to http://antapubs.dest.gov.au/publications/search.asp to locate the following publications.

AQF Implementation Handbook, third edition. Australian Qualifications Framework Advisory Board, 2002, www.aqf.edu.au.

Australian Quality Training Framework 2007 (AQTF 2007) - for information and resources go to <www.training.com.au/aqtf2007>.

AQTF 2007 *Essential Standards for Registration* . Training organisations must meet these standards in order to deliver and assess nationally recognised training and issue nationally recognised qualifications. They include three standards, a requirement for registered training organisations to gather information on their performance against three quality indicators, and nine conditions of registration.

AQTF 2007 *User's Guide to the Essential Standards for Registration* . A Users' Guide for training organisations who must meet these standards in order to deliver and assess nationally recognised training and issue nationally recognised qualifications.

AQTF 2007 *Standards for Accredited Courses* . State and territory accrediting bodies are responsible for accrediting courses. This standard provides a national operating framework and template for the accreditation of courses.

TAA04 Training and Assessment Training Package . This is available from Innovation and

Business Skills Australia (IBSA), the Innovation and Business Industry Skills Council, and can be viewed and components downloaded, from the National Training Information Service (NTIS).

National Training Information Service, an electronic database providing comprehensive information about RTOs, Training Packages and accredited courses (www.ntis.gov.au).

Training Package Development Handbook (DEST, August 2007). Can be downloaded from www.deeewr.gov.au.

Assessment resources

Training Package Assessment Guides - a range of resources to assist RTOs in developing Training Package assessment materials (originally developed by ANTA with funding from the Department of Education, Training and Youth Affairs) and made up of 10 separate titles, as described at the publications page of www.deewr.gov.au. Go to www.resourcegenerator.gov.au.

Printed and/or CD versions of the guides can be purchased from Technical and Vocational Education and Training (TVET) Australia Limited. The resource includes the following guides:

• Training Package Assessment Materials Kit
• Assessing Competencies in Higher Qualifications
• Recognition Resource
• Kit to Support Assessor Training
• Candidates Kit: Guide to Assessment in New Apprenticeships
• Assessment Approaches for Small Workplaces
• Assessment Using Partnership Arrangements
• Strategies for ensuring Consistency in Assessment
• Networking for Assessors
• Quality Assurance Guide for Assessment.

An additional guide 'Delivery and Assessment Strategies' has been developed to complement these resources.

Assessment tool design and conducting assessment

VETASSESS and Western Australian Department of Training and Employment 2000, Designing Tests - Guidelines for designing knowledge based tests for Training Packages.

Vocational Education and Assessment Centre 1997, Designing Workplace Assessment Tools, A self-directed learning program, NSW TAFE.

Manufacturing Learning Australia 2000, Assessment Solutions, Australian Training Products, Melbourne.

Rumsey, David 1994, Assessment practical guide, Australian Government Publishing Service, Canberra.

Assessor training

Australian Committee on Training Curriculum (ACTRAC) 1994, *Assessor training program - learning materials* , Australian Training Products, Melbourne.

Australian National Training Authority, *A Guide for Professional Development* , ANTA, Brisbane.

Australian Training Products Ltd *Assessment and Workplace Training, Training Package - Toolbox,* ATPL Melbourne (available from TVET).
Green, M, et al. 1997, *Key competencies professional development package* , Department for Education and Children's Services, South Australia.

Victorian TAFE Association 2000, *The professional development CD: A learning tool* , VTA, Melbourne.

Assessment system design and management

Office of Training and Further Education 1998, *Demonstrating best practice in VET project - assessment systems and processes,* OTFE Victoria (now 'Skills Victoria').

Toop, L., Gibb, J. & Worsnop, P. *Assessment system designs* , Australian Government Publishing Service, Canberra.

Support for employment, training and assessment of people with specific needs

Association of Competitive Employment (ACE) National Network

ACE represents agencies who deliver open employment services for people who have a disability.

PO Box 5198

Alphington VIC 3078

Tel: 03 9411 4033

Fax: 03 9411 4053

Email: info@acenational.org.au

Website: www.acenational.org.au

Australian Disability Clearinghouse on Education and Training (ADCET)

ADECT provides information about inclusive post-secondary education and training teaching, learning and assessment strategies and support services for people who have a disability.

ADCET

Locked Bag 1335

Launceston TAS 7250

Tel: 03 6324 3787

Fax: 03 6324 3788

Website: www.adcet.edu.au **Australian Association of the Deaf** PO Box 1083 Stafford QLD 4053

Tel: 07 3357 8266

Fax: 07 3357 8377

TTY: 07 3357 8277

Email: aad@aad.org.au

Website: www.aad.org.au

Australian Federation of Deaf Societies

PO Box 1060

Parramatta NSW 2124

Tel: 02 8833 3615

Fax: 02 9893 8333

TTY: 02 9893 8858

Australian Federation of Disability Organisations

247 Flinders lane

Melbourne VIC 3000

Tel: 03 9662 3324

Fax: 03 9662 3325

Email: office@afdo.org.au Website: www.afdo.org.au Blind Citizens Australia PO Box 24 Sunshine VIC 3020

Tel: 03 9372 6400

Fax: 03 9372 6466

TTY: 03 9372 9275

Freecall: 1800 033 660

Email: bca@bca.org.au Website: www.bca.org.au Brain Injury Australia PO Box 82 Mawson ACT 2607

Tel: 02 6290 2253

Fax: 02 6290 2252

Email: bianational@apex.net.au

Carers Australia

PO Box 73

Deakin West ACT 2600

Tel: 02 6122 9900

Fax: 02 6122 9999

Email: caa@carersaustralia.com.au

Website: www.carersaustralia.com.au

Commonwealth Disability Services Program Contacts
www.facs.gov.au or by telephone: ACT: 02 6274 5206
New South Wales: 02 263 3818

Northern Territory: 08 8946 3555

Queensland: 07 3360 2800

South Australia: 08 8236 6111

Tasmania: 03 6221 1411

Victoria: 03 9285 8523

Western Australia: 08 9346 5311

Deafness Forum of Australia

The forum coordinates the annual National Hearing Awareness Week, held in the last
complete week of August.

218 Northbourne Avenue

Braddon ACT 2612

Tel: 02 6262 7808

Fax: 02 6262 7810

TTY: 02 6262 7809

Email: info@deafnessforum.org.au Website: www.deafnessforum.org.au Website:
www.hearingawareness.org.au Mental Health Foundation Australia
270 Church St

Richmond VIC 3121

Tel: 03 9427 0407

Fax: 03 9427 1294

Email: admin@mhfa.org.au

Website: www.mhfa.org.au

National Council on Intellectual Disability

PO Box 771

Mawson ACT 2607

Tel: 02 6296 4400

Fax: 02 6296 4488

Email: ncid@dice.org.au

Website: www.dice.org.au

National Ethnic Disability Alliance

PO Box 381

Harris Park NSW 2150

Tel: 02 9687 8933

Fax: 02 9635 5355
TTY: 02 9687 6325

Website: www.neda.org.au

Physical Disability Council of Australia Ltd

PO Box 77

Northgate QLD 4013

Tel: 07 3267 1057

Fax: 07 3267 1733

Email: pdca@pdca.org.au Website: www.pdca.org.au SANE Australia
PO Box 226

South Melbourne VIC 3205

Tel: 03 9682 5933

Fax: 03 9682 5944

Freecall: 1800 18 SANE Email: info@sane.org Email:helpline@sane.org Website:
www.sane.org SAI Global
Standards Australia publications distributor. Tel: 131 242
Fax: 1300 65 49 49

Innovation and Business Skills Australia

Email: sales@sai-global.com Website: www.saiglobal.com Standards Australia
Standards Australia develops standards and codes for building access. Standards Australia Limited
Level 10, The Exchange Centre

20 Bridge Street

Sydney NSW 2000

Tel: 1800 035 822

Email: mail@standards.org.au

Women with Disabilities Australia WWDA PO Box 605 Rosny Park TAS 7018 Tel: 03 6244 8288 Fax: 03 6244 8255 Email: wwda@ozemail.com.au Website: www.wwda.org.au

Technical and Vocational Education and Training (TVET) Australia Limited

Level 21, 390 St Kilda Road, Melbourne VIC 3150

PO Box 12211, A"Beckett Street Post Office
MELBOURNE VICTORIA 8006

Ph: +61 3 9832 8100

Fax: +61 3 9832 8198

Email: sales@tvetaustralia.com.au

Web: www.tvetaustralia.com.au

For information on the TAA04 Training and Assessment Training Package contact:

Innovation & Business Skills Australia Level 2, Building B, 192 Burwood Road
HAWTHORN VIC 3122
Telephone: (03) 9815 7000

Facsimile: (03) 9815 7001

Web: www.ibsa.org.au

Email: virtual@ibsa.org.au

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Training Package Development Handbook (DEST, August 2007). Can be downloaded from www.dest.gov.au

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• Kit to Support Assessor Training
• Candidates Kit: Guide to Assessment in New Apprenticeships

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- Assessment Using Partnership Arrangements
- Strategies for ensuring Consistency in Assessment
- Networking for Assessors
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Tests - Guidelines for designing knowledge based tests for Training Packages.

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Green, M, et al. 1997, Key competencies professional development Package, Department for Education and Children"s Services, South Australia.

Victorian TAFE Association 2000, The professional development CD: A learning tool, VTA, Melbourne.

Assessment System Design and Management

Office of Training and Further Education 1998, Demonstrating best practice in VET project - assessment systems and processes, OTFE (now OTTE) Victoria.

Toop, L., Gibb, J. & Worsnop, P. Assessment system designs, Australian Government Publishing Service, Canberra.

Competency Standards - Industry Contextualisation

Competency Standards

What is competency?

The broad concept of industry competency concerns the ability to perform particular tasks and duties to the standard of performance expected in the workplace. Competency requires the application of specified skills, knowledge and attitudes relevant to effective participation in an industry, industry sector or enterprise.

Competency covers all aspects of workplace performance and involves performing individual tasks; managing a range of different tasks; responding to contingencies or breakdowns; and, dealing with the responsibilities of the workplace, including working with others. Workplace competency requires the ability to apply relevant skills, knowledge and attitudes consistently over time and in the required workplace situations and environments. In line with this concept of competency Training Packages focus on what is expected of a competent individual in the workplace as an outcome of learning, rather than focussing on the learning process itself.

Competency standards in Training Packages are determined by industry to meet identified industry skill needs. Competency standards are made up of a number of units of competency each of which describes a key function or role in a particular job function or occupation. Each unit of competency within a Training Package is linked to one or more AQF qualifications.

Contextualisation of Units of Competency by RTOs

Registered Training Organisation (RTOs) may contextualise units of competency to reflect local outcomes required. Contextualisation could involve additions or amendments to the unit of competency to suit particular delivery methods, learner profiles, specific enterprise equipment requirements, or to otherwise meet local needs. However, the integrity of the overall intended outcome of the unit of competency must be maintained.

Any contextualisation of units of competency in this endorsed Training Package must be within the bounds of the following advice. In contextualising units of competency, RTOs:

• must not remove or add to the number and content of elements and performance criteria
• may add specific industry terminology to performance criteria where this does not distort or narrow the competency outcomes
• may make amendments and additions to the range statement as long as such changes do not diminish the breadth of application of the competency and reduce its portability, and/or
• may add detail to the evidence guide in areas such as the critical aspects of evidence or resources and infrastructure required where these expand the breadth of the competency but do not limit its use.

Components of Units of Competency

The components of units of competency are summarised below, in the order in which they appear in each unit of competency.

Unit Title

The unit title is a succinct statement of the outcome of the unit of competency. Each unit of competency title is unique, both within and across Training Packages.

Unit Descriptor

The unit descriptor broadly communicates the content of the unit of competency and the skill area it addresses. Where units of competency have been contextualised from units of

competency from other endorsed Training Packages, summary information is provided. There may also be a brief second paragraph that describes its relationship with other units of competency, and any licensing requirements.

Employability Skills statement

A standard Employability Skills statement appears in each unit of competency. This statement directs trainers and assessors to consider the information contained in the Employability Skills Summary in which the unit of competency is packaged.

Prerequisite Units (optional)

If there are any units of competency that must be completed before the unit, these will be listed.

Application of the Unit

This sub-section fleshes out the unit of competency's scope, purpose and operation in different contexts, for example, by showing how it applies in the workplace.

Competency Field (Optional)

The competency field either reflects the way the units of competency are categorised in the Training Package or denotes the industry sector, specialisation or function. It is an optional component of the unit of competency.

Sector (optional)

The industry sector is a further categorisation of the competency field and identifies the next classification, for example an elective or supervision field.

Elements of Competency

The elements of competency are the basic building blocks of the unit of competency. They describe in terms of outcomes the significant functions and tasks that make up the competency.

Performance Criteria

The performance criteria specify the required performance in relevant tasks, roles, skills and in the applied knowledge that enables competent performance. They are usually written in passive voice. Critical terms or phrases may be written in bold italics and then defined in range statement, in the order of their appearance in the performance criteria.

Required Skills and Knowledge

The essential skills and knowledge are either identified separately or combined. Knowledge identifies what a person needs to know to perform the work in an informed and effective manner. Skills describe the application of knowledge to situations where understanding is converted into a workplace outcome.

Range Statement

The range statement provides a context for the unit of competency, describing essential operating conditions that may be present with training and assessment, depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts. As applicable, the meanings of key terms used in the performance criteria will also be explained in the range statement.

Evidence Guide

The evidence guide is critical in assessment as it provides information to the Registered Training Organisation (RTO) and assessor about how the described competency may be demonstrated. The evidence guide does this by providing a range of evidence for the assessor to make determinations, and by providing the assessment context. The evidence guide describes:

• conditions under which competency must be assessed including variables such as the assessment environment or necessary equipment
• relationships with the assessment of any other units of competency
• suitable methodologies for conducting assessment including the potential for workplace simulation
• resource implications, for example access to particular equipment, infrastructure or situations
• how consistency in performance can be assessed over time, various contexts and with a range of evidence, and expectations at the AQF qualification level involved

Employability Skills in units of competency

The detail and application of Employability Skills facets will vary according to the job-role requirements of each industry. In developing Training Packages, industry stakeholders are consulted to identify appropriate facets of Employability Skills which are incorporated into the relevant units of competency and qualifications.

Employability Skills are not a discrete requirement contained in units of competency (as was the case with Key Competencies). Employability Skills are specifically expressed in the context of the work outcomes described in units of competency and will appear in elements, performance criteria, range statements and evidence guides. As a result, users of Training Packages are required to review the entire unit of competency in order to accurately determine Employability Skills requirements.

How Employability Skills relate to the Key Competencies

The eight nationally agreed Employability Skills now replace the seven Key Competencies in Training Packages. Trainers and assessors who have used Training Packages prior to the introduction of Employability Skills may find the following comparison useful.

Employability Skills	Mayer Key Competencies
Communication	Communicating ideas and information
Teamwork	Working with others and in teams
Problem solving	Solving problems Using mathematical ideas and techniques
Initiative and enterprise	
Planning and organising	Collecting, analysing and organising information Planning and organising activities
Self-management	
Learning	
Technology	Using technology

When analysing the above table it is important to consider the relationship and natural overlap of Employability Skills. For example, using technology may involve communication skills and combine the understanding of mathematical concepts.

Explicitly embedding Employability Skills in units of competency
This Training Package seeks to ensure that industry-endorsed Employability Skills are explicitly embedded in units of competency. The application of each skill and the level of detail included in each part of the unit will vary according to industry requirements and the nature of the unit of competency.

Employability Skills must be both explicit and embedded within units of competency. This means that Employability Skills will be:

• embedded in units of competency as part of the other performance requirements that make up the competency as a whole
• explicitly described within units of competency to enable Training Packages users to identify accurately the performance requirements of each unit with regards to Employability Skills.

This Training Package also seeks to ensure that Employability Skills are well-defined and written into units of competency so that they are apparent, clear and can be delivered and assessed as an essential component of unit work outcomes.

The following table contains examples of embedded Employability Skills for each component of a unit of competency. Please note that in the examples below the bracketed skills are provided only for clarification and will not be present in units of competency within this Training Package.

Competency Standards - Industry Contextualisation

As indicated elsewhere in this volume of the Training Package, RTOs may contextualise units of competency imported from other Training Packages to reflect outcomes relevant to the ICT10 Integrated Telecommunications Training Package industry. Many units from the ICA05
Information and Communications Technology Training Package, BSB07 Business Services Training Package, CPP07 Property Services Training Package, FNS04 Financial Services Training Package, HLT07 Heath Training Package and FNS04 Financial Services Training Package have been imported into the telecommunications qualifications to support those units which address specific aspects of the ICT industry, such as computer networking and security, project management, small business needs and customer service.

Using 'BSBSUS501A Develop workplace policy and procedures for sustainability' as an example, RTOs could add the development of policies and procedures in sustainability whilst formulating planning and design specifications to ICT projects.

Similarly if 'ICAS3031B Provide advice to clients' were imported, examples of 'customer service and support' in the context of the ICT could be added.

Examples from this Training Package of Employability Skills

Examples from this Training Package of Employability Skills embedded within unit components.	
Analytical, literacy, numeracy and technical skills are obtained in unit ICTOPN5123A Analyse and integrate specialised optical devices in the network	
Unit component	**Example of embedded Employability Skill**
Unit Title	Analyse and integrate specialised optical devices in the network
Unit Descriptor	This unit describes the performance outcomes, skills and knowledge required to analyse and integrate specialised optical devices into existing optical networks to support the higher bandwidths associated with Next Generation Networks (NGN).
	Carriers and service providers regularly upgrade existing infrastructures and extend the length of their networks' optical links due to expansion of NGN services such as voice, data and video.
	Performance testing of specialised optical devices is covered in a separate unit ICTOPN5122A Test the performance of specialised optical devices.
	No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.
Element	2. Integrate the specialised optical device in the network
Performance Criteria	2.1. Install and integrate *specialised optical devices* into existing network according to design plan
	2.2. Test the network and evaluate the results to *verify optical network performance* with the integrated specialised optical devices in operation
Range Statement	*Specialised optical devices* may include:
	• Bragg grating

Examples from this Training Package of Employability Skills embedded within unit components.	
Analytical, literacy, numeracy and technical skills are obtained in unit ICTOPN5123A Analyse and integrate specialised optical devices in the network	
Unit component	**Example of embedded Employability Skill**
	• coupler • dispersion compensation device (DCD) • DWDM multiplexer • erbium doped fibre amplifier (EDFA) • gain equaliser • Raman amplifier • ROADM. ***Verify optical network performance*** may include: • stability test • bit error ratio test (BERT).

Examples from this Training Package of Employability Skills embedded within unit components.

Analytical, literacy, numeracy and technical skills are obtained in unit ICTOPN5123A
Analyse and integrate specialised optical devices in the network

Unit component	Example of embedded Employability Skill
Required Skills and Knowledge	**Required skills** • analytical skills to evaluate technical information and develop integration options **Required knowledge** • attenuation characteristics of optical fibres • dense wavelength division multiplexing (DWDM) principles of operation • features and operating requirements of test equipment including: • hand held optical power meter • optical spectrum analyser • transmission test set • dispersion characteristics of optical fibres • dispersion compensation devices • electrostatic discharge precaution • functions of optical add drop multiplexer (OADM) and reconfigurable optical add-drop • multiplexer (ROADM) • gain equalisation • ITU wavelength grid for DWDM • measurement of dispersion • optical amplifier operation • optical fibre connector types and characteristics • optical fibre types and characteristics • optical return loss (ORL) • path protection and protection switching • protocols used on optical DWDM systems • reflectance • ring topologies and linear network topologies • specific OHS requirements that impact on the safe inspection of optical connectors and the

Examples from this Training Package of Employability Skills embedded within unit components. Analytical, literacy, numeracy and technical skills are obtained in unit ICTOPN5123A Analyse and integrate specialised optical devices in the network	
Unit component	**Example of embedded Employability Skill**
	• safe measurement of optical power from laser transmission systems • tunable laser sources and their characteristics
Evidence Guide	**Critical aspects for assessment and evidence required to demonstrate competency in this unit** Evidence of the ability to: • analyse a specialised optical device and prepare a design to integrate it with a network • integrate and test the device • document the integration to the network and recommend enhancements

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Appendices

Appendix A: VET in Schools

What is VET in schools?

Vocational education and training in schools (VETiS) provides for nationally recognised vocational education and training undertaken as part of a senior secondary certificate and based on industry standards.

Successful completion of a VETiS program enables students to gain a nationally-recognised Australian Qualifications Framework (AQF) qualification, usually at the same time as their school-based qualification.

How are VET in schools programs structured?

VETiS programs are packaged and delivered in a variety of ways across Australia. There are three main types of delivery arrangements for VETiS programs:

- schools can be a registered training organisation (RTO) in their own right
- school sectoral bodies (such as Boards of Studies or regional offices) can hold RTO status on behalf of a group of schools
- schools can work together in a partnership with an RTO.

Appropriate qualifications for VET in schools

IBSA encourages links between schools, businesses and the community, and strongly supports young people combining schooling with VET and workplace learning.

It is essential that all VET qualifications gained through a VETiS program are consistent with the outcomes detailed in the Training Package.

The following qualification is recommended as most suitable for a VETiS program:
- ICT20110 Certificate II in Telecommunications Technology

The AQTF 2007 Standards for Registered Training Organisations set out minimum competency standards for staff responsible for the delivery of training and the conducting of assessments; and they ensure that VET specialists have skills and competencies consistent with Training Package requirements. All schools using their own teachers for VET delivery must also be aware of the AQTF 2007 requirement for assessors to hold relevant vocational competencies, at least equal to that being delivered and assessed, in addition to teaching and assessment competence.

Schools are encouraged to establish partnerships with industry and effective work placement arrangements to maximise the quality of outcomes for students and industry alike. Recognition of competence gained through voluntary, part-time or vacation work not directly related to the industry focus of the qualification should also be considered.

Work placement

Work placement usually involves students spending an extended period of time in a workplace gaining experience and skills, and undergoing an assessment process related to the attainment of a qualification in a specific occupational field.

An essential feature of school-industry programs is that they involve students spending some time learning in a workplace. In recent years an increasing number of effective structured workplace learning programs have made significant progress towards greater workplace integrity for those industry training programs that are delivered predominantly off-the-job. The implementation of Training Packages means that structured workplace learning must be a consideration for all RTOs, not only schools, in the delivery of training programs.

Principles for quality workplace learning
The Ministerial Council on Education, Employment, Training and Youth Affairs (MCEETYA) endorsed the Principles for Quality Workplace Learning for school students engaged in VET programs throughout Australia. All states and territories apply the principles to their work placement programs, although the nature and extent of work placement programs vary across states and territories.

The broad MCEETYA principles are documented below.

Quality workplace learning is integrated into a program

- It operates within a framework which provides the opportunity for all students to access it, though not all students may choose to do so; and
- It operates within the context of vocational courses, which are recognised by industry, are responsive to industry needs and forms part of a student's exit credential.

Quality workplace learning is structured

- It has a clearly articulated and documented purpose;
- There are clearly identified and documented learning outcomes for students within accredited programs, which are linked to post-school qualifications;
- They are of sufficient duration and depth to enable students to acquire a reasonable understanding of the enterprise/industry to demonstrate competence according to industry standards of at least level 1 of the AQF;
- There is a matching between the students' skills and interests and the work placements; and
- Students, teachers and employers are thoroughly prepared beforehand so that the expectations and outcomes of the work placement are clearly understood by all parties.

Quality workplace learning is monitored

- The learning is coordinated by personnel with appropriate expertise and adequate resources; and
- Support should be made available to students and employers throughout the course of the work placement.

Quality workplace learning is regulated
There are clearly stated procedures designed to ensure that:

- Students are protected from moral and physical danger;
- Students work in a non-discriminatory and harassment-free environment;
- Students receive appropriate training and instruction in occupational health and safety;
- Students are not exploited by being continuously engaged in a production or service capacity or used to substitute for the employment of employees and payment of appropriate wages; and
- Students are required to understand the roles and responsibilities of employees in the workplace and are expected to follow the directions of the workplace supervisors and other employees.

Quality workplace learning is assessed

- The assessment, according to industry standards, is of students' competencies achieved in the workplace which contributes to the overall assessment of the program; and
- There are mechanisms for the recording and reporting of students' competencies.

There is a strong correlation between these MCEETYA quality principles and the OECD characteristics of high quality learning programs detailed below.

The major 14-country study entitled *From Initial Education to Working Life: Making Transitions Work* by the OECD identified 10 characteristics of high quality workplace learning programs. These are:

1) Work placements that are long enough for real learning to take place.
2) Systematic analysis of the training capacity of the workplace, to see what it can realistically supply.
3) A formal training plan, setting out what has to be taught and learned, and clarifying the work-based and school-based parts of a student's program.
4) Employer involvement in student selection for work placements.
5) The presence of a trained program coordinator, able to liaise between the school and the firm and troubleshoot when problems occur.
6) The use of qualified, highly competent workers as workplace trainers or mentors.
7) Regular face-to-face contact between the coordinators and employers and in-firm supervisors.
8) Monitoring of the students on the job by the program coordinator.
9) The evaluation of student performance against the training plan at the end of the placement, with the evaluation carried out by the job supervisor and coordinator jointly.
10) Deliberate efforts by schools to relate what has been learned at work to students' school-based learning.[1]

[1] OECD, 2000, *From Initial Education to Working Life: Making Transitions Work*. Organisation for Economic Cooperation and Development, Paris.
Effective work placement is characterised by:

- activities that complement off-the-job learning programs
- clearly articulated and documented purpose
- development of appropriate attitudes towards work
- development of competence in designated industry skills and employability skills
- facility for on-the-job practice of skills acquired in a classroom
- flexibility
- learning in a range of behaviours appropriate to the relevant industry
- opportunities for work-based assessment
- regular and frequent use of current technology and equipment
- relevance to the VET qualification being undertaken
- recognition of student readiness
- support of industry partners.

Beyond the above, a number of other provisions are necessary for a successful work placement program. The credibility of work placements and any resultant recognition of competence requires a degree of 'seriousness' if the outcomes are to be valued by individuals and industry clients of the VET system.

It is suggested that stakeholders involved in the planning and management of work placements carefully consider and implement the following general principles.

11) That the RTO assume responsibility for finding placements and validating the arrangements.
12) That the workplace has the appropriate resources, tools and staff to conduct the placement, with compliance with any legislative requirements.
13) That there be regular validation by the RTO that the student and assessor, where relevant, are operating according to RTO AQTF 2007 standards.
14) That a student on work placement must be covered by injury insurance.
15) That there is a formal contract setting out each party's responsibilities and obligations.
16) That, where possible, the workplace has on site a qualified workplace trainer and assessor in 'direct line' control of the student (to avoid training and assessment by 'proxy').
17) That if the placement is for assessment only then there must be clearly documented assessment tasks specifically related to the unit being assessed and evidence retained to support achievement of competence (for both best practice recording purposes and audit/appeal).
18) That if the placement also includes training, then any 'academic pass' cannot be bestowed prior to the placement as clearly all of the learning components have not been undertaken nor can they be assessed in advance if they have not been learned.
19) That the training be directly related to achievement of competence while recognising the likely acquisition of other skills and knowledge.
20) That where assessment occurs it be clearly related to a unit of competency relevant to the work placement.
21) That where more than one performance criterion (possibly over more than one unit) is being assessed there must be a clearly linked and documented relationship between the assessment and the performance criterion.
22) That the qualifications level be appropriate in context, i.e. if it is advanced programming there must be an advanced programming task observed and assessed.

23) That the actual variables of the performance criterion be documented for audit purposes and for verification of appropriateness of the range of activities in the work placement.

In some state and territory school systems, part-time student work in an appropriate workplace may be used to fulfil work placement requirements and virtual or simulated work placements may also be legitimate.

Appendix B: Australian Apprenticeships
All qualifications within ICT10 Integrated Telecommunications Training Package can be achieved by a variety of pathways and delivery methods – either on-the-job or through a combination of on- and off-the-job training and recognition processes.

Qualifications at AQF levels III to IV particularly facilitate Australian Apprenticeship pathways. Industry recommends that the following qualifications are achieved through contracted training as Apprenticeships:

- ICT30110 Certificate III in Broadband and Wireless Networks Technology
- ICT40610 Certificate IV in Telecommunication Network Engineering Technology
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