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SKILLS
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ICTCBL3010B Install and terminate optical fibre cable on customer premises

Release 1

ICTCBL3010B Install and terminate optical fibre cable on customer premises

Modification History

Release	Comments
Release 2	This version first released with *ICT10 Integrated Telecommunications Training Package Version 3.0.* Minor addition to required knowledge and range statement. Outcomes deemed equivalent.
Release 1	This version first released with *ICT10 Integrated Telecommunications Training Package Version 1.0.*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to install and test optical fibre cable on customer premises for communications applications.

Assessment by a TITAB-registered assessor is recommended.

All customer cabling work in the telecommunications, fire, security and data industries must be performed by a registered cabler. All cablers are required to register with an Australian Communications and Media Authority (ACMA)-accredited registrar.

Application of the Unit

Technical staff who place, secure and terminate optical fibre cable apply the skills and knowledge in this unit. Types of termination include direct termination, fusion splicing and mechanical splicing.

They may be required to do new installations or upgrades, or maintain existing networks in domestic, commercial and industrial installations. Communications applications include digital and analog, telephony, data, video, digital broadcasting, computer networks, local area networks (LAN), wide area networks (WAN) and multimedia.

Licensing/Regulatory Information

Refer to Unit Descriptor.

Pre-Requisites

Nil

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Prepare for installation of optical fibre cable	1.1 Prepare for given work according to requirements of *relevant legislation, codes, regulations and standards*
	1.2 Arrange access to the site according to required procedure
	1.3 Inform appropriate personnel of identified *hazards* on work site
	1.4 Organise tools, equipment and materials for given work
	1.5 Match *optical fibre cable type* and *connectors* to installation environment and *customer requirements*
	1.6 Check proposed route and bend ratios to meet manufacturer specifications and industry standards
	1.7 Test cable on drum for optical continuity
2. Install, terminate and test the optical fibre cable	2.1 Install cable following *occupational health and safety (OHS) and environmental requirements* and complying with manufacturer specifications and industry standards
	2.2 Join cable and perform the *type of termination* specified in the plan using safe work practices and according to manufacturer specifications
	2.3 Test joint for transmission loss and strength, and re-terminate joint if transmission loss exceeds manufacturer specifications
	2.4 Record all measurements
3. Remove fibre hazards from work area	3.1 Clean work area thoroughly to minimise risk of injury from loose glass fibre
	3.2 Dispose of waste safely and according to relevant environmental requirements
	3.3 Restore work site to original condition
4. Document installation	4.1 Update plans and records with details of installation and test results
	4.2 Notify client of work completion and obtain sign-off

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to:
    - liaise with internal and external personnel on technical and operational matters
    - relate to work associates, supervisors, team members and clients
- literacy skills to interpret technical documentation, such as equipment manuals, specifications and requirements for optical fibre cable installation
- numeracy skills to take and analyse measurements
- planning and organising skills to organise and maintain equipment
- problem-solving skills to solve equipment and logistics problems
- safety awareness skills to:
    - apply precautions and required action to minimise, control or eliminate hazards that may exist during work activities
    - select and use required personal protective equipment conforming to industry and OHS standards
    - work systematically with required attention to detail without injury to self or others, or damage to goods or equipment
- task-management skills to work systematically with required attention to detail and adherence to all safety requirements
- technical skills to:
    - perform fault clearance
    - use diagnostic equipment
    - use hand and power tools.
    -

Required knowledge

- detailed knowledge of:
    - AS/NZS 3080:2003 Telecommunications Installations – Generic cabling for commercial premises, clause 10.3.2
    - ACMA Competency Requirements for Telecommunications Cabling Provider Rules 2000
    - AS/NZS 2211:2006 Safety of laser products (parts 1 and 2)
- features and operating requirements of test equipment for optical fibre cable
- information required to operate equipment according to a test specification
- manufacturer requirements for safe operation of optical fibre equipment
- safety precautions when working with laser-based systems
- specific OHS requirements relating to the activity and site conditions
- test methods and performance requirements
- techniques for types of termination including:
    - direct termination
    - fusion splicing

- mechanical splicing
- typical issues and challenges that occur on site.

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Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • install, terminate and test optical fibre cable applying safety precautions when working with laser-based systems • install a connector type for fusion, mechanical splicing and direct terminations • complete relevant documentation to manufacturer and design requirements • provide report documenting installation and test results to client • comply with all related OHS requirements and work practices.
Context of, and specific resources for assessment	Assessment must ensure: • sites where installation and termination of optical fibre cable may be conducted • use of optical fibre testing equipment currently used in industry • relevant regulatory and equipment documentation that impacts on optical fibre cable installation activities.
Methods of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • review of a hands-on project completed by the candidate • review of an oral and written report prepared by candidate outlining installation and test results • direct observation of the candidate placing, securing and terminating customer premises optical fibre cable.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example:

	- ICTCBL2136B Install, maintain and modify customer premises communications cabling: ACMA Restricted Rule - ICTCBL3013A Perform cable and system test on customer premises. Aboriginal people and other people from a non-English speaking background may have second language issues. Access must be provided to appropriate learning and assessment support when required. Assessment processes and techniques must be culturally appropriate, and appropriate to the oral communication skill level, and language and literacy capacity of the candidate and the work being performed. In all cases where practical assessment is used it will be combined with targeted questioning to assess required knowledge. Questioning techniques should not require language, literacy and numeracy skills beyond those required in this unit of competency. Where applicable, physical resources should include equipment modified for people with special needs.

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Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. 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) may also be included.

Relevant legislation, codes, regulations and standards may include:	- Australian Communications Industry Forum (ACIF) Standards and Codes - AS Communications Cabling Manual (CCM) Volume 1 - AS/NZS 3000:2007 - AS/NZS 3080:2003 Telecommunications Installations – Generic cabling for commercial premises, clause 10.3.2 includes: - colour codes used to identify the various types of fibre - signals these cables would normally carry - AS/NZS 3084:2003 - AS/NZS 3085.1:2004 - AS/NZS ISO/IEC 14763.3:2007 - AS/NZS ISO/IEC 15018:2005 - AS/NZS ISO/IEC 24702 :2007 - cabling security codes and regulations - OHS Acts and relevant codes and standards - regulated or industry codes of practice, including appropriate ACMA technical standards - technical standards AS/ACIF S008:2006 and AS/ACIF S009:2006.
Hazards may include:	- earth potential rise (EPR) - optical cable: - bare fibres - hazardous laser light - remote power feeding - radio frequency (RF) emission.
Optical fibre cable type may include:	- air blown - armour plated - compliance with appropriate ACMA technical standard requirements for: - aerial - underground - designed for different environments and intended uses - external

	- internal - loose tube - multi-mode - single mode - tight buffered - various grades.
Connectors may include:	- any approved or specified fibre connector for MM or SM - ACMA approved - either epoxy, anaerobic, hot melt glue or mechanical splice style - either OM1, 2, 3 or 4 or OS1 - fusion splicing (cable to cable fibre splice or cable to pigtail splice).
Customer requirements may be:	- advised in on-site meetings - found in: - cable plans and designs - contract documents - specification schedules.
OHS and environmental requirements may relate to:	- identifying other services, including power and gas - need for decommissioning and isolating work site and lines before beginning work - personal protective clothing: - earmuffs - gloves: - plastic - rubber - leather - head protection - kneepads - masks - protective suits - safety boots - safety glasses for laser work - safe work practices, such as the safe use and handling of: - asbestos - chemicals - materials - tools and equipment - work platforms - safety equipment:

	• flashing lights
	• gas and other hazard detection equipment
	• safety barriers
	• trench guards
	• warning signs and tapes
	• witches hats
	• special access requirements
	• suitable light and ventilation
	• environmental considerations:
	• clean-up protection
	• noise, dust and clean-up management
	• stormwater protection
	• waste management
	• waste disposal containers:
	• drop sheets
	• sharps containers.
Type of termination may include:	• direct termination • fusion splicing • mechanical splicing.

Unit Sector(s)

Telecommunications - Cabling