



Australian Government

ICTOPN405 Install and test a dense wavelength division multiplexing system

Release: 1

ICTOPN405 Install and test a dense wavelength division multiplexing system

Modification History

Release	Comments
Release 1	This version released with ICT Information and Communications Technology Training Package Version 5.0.

Application

This unit describes the skills and knowledge required to install dense wavelength division multiplexing (DWDM) equipment in optical networks.

It applies to technicians who interpret installation manuals and use technical skills to prepare for and conduct system tests and commissioning.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Unit Sector

Telecommunications – Optical Networks

Elements and Performance Criteria

Element	Performance Criteria
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Prepare to install DWDM units	1.1 Determine number of racks and DWDM units at each site according to installation documents 1.2 Determine DWDM unit and equipment positions within individual racks 1.3 Assemble equipment racks according to safe industry practice and manufacturer instructions 1.4 Select tools and equipment for DWDM unit installation 1.5 Prepare patch panels with connectors according to installation plan
2. Install DWDM units and associated cabling	2.1 Install DWDM unit in designated rack position to maintain planned link budget margin

Element	Performance Criteria
	2.2 Install patch panels and ancillary equipment and connections into equipment rack in preparation for commissioning procedures 2.3 Insert circuit cards into specified slot locations in readiness for commissioning procedures without seating cards into backplane or locking into position 2.4 Connect optical fibre cables between circuit cards, optical multiplexers, adjoining DWDM units and patch panels, according to manufacturer specifications 2.5 Seat cards into backplane and lock into position
3. Test power connections and complete installation report	3.1 Measure main and redundant power supplies to verify correct polarity of ground and power connections 3.2 Rectify any identified power wiring fault as required 3.3 Confirm cooling fans, panel lights, indicator lights and alarms behave according to manufacturer prescribed specifications when power is applied 3.4 Complete installation report and reinstate site

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance, but not explicit in the performance criteria.

Skill	Description
Reading	Interprets textual information from relevant sources to identify and adhere to procedures and standards
Writing	Uses clear, specific and industry related terminology to complete and update workplace documentation
Numeracy	Uses mathematical formulae to calculate measurements and determine equipment requirements
Navigate the world of work	- Recognises and follows explicit and implicit protocols and meets expectations associated with own role - Takes personal responsibility for adherence to legal and regulatory responsibilities relevant to own work context with specific reference to workplace safety

Skill	Description
Get the work done	• Implements actions according to installation documents, making slight adjustments if necessary and addressing some unexpected issues • Takes responsibility for routine decision-making by selecting from a range of predetermined options in routine situations, identifying and taking some situational factors into account • Initiates standard procedures when responding to familiar problems within immediate context • Reflects on the ways digital systems and tools are used, or could be used to achieve work goals and begins to recognise strategic and operational applications

Unit Mapping Information

ICTOPN405 Install and test a dense wavelength division multiplexing system supersedes and is equivalent to ICTOPN401 Install and test a dense wavelength division multiplexing system.

Links

Companion Volume Implementation Guides are available from VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2>

Assessment Requirements for ICTOPN405 Install and test a dense wavelength division multiplexing system

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Performance Evidence

The candidate must demonstrate the ability to perform the tasks outlined in the elements, performance criteria, and foundation skills on two occasions and to:

- determine the dense wavelength division multiplexing (DWDM) requirements for a site
- install a DWDM system and associated cabling according to plans and specifications
- test installation for operation, power and ground connections
- analyse test results and rectify faults
- complete and submit an installation report.

Knowledge Evidence

The candidate must demonstrate the knowledge required to perform the tasks outlined in the elements, performance criteria, and foundation skills, which includes knowledge about:

- DWDM principles of operation and manufacturers guidelines
- risk management of electrostatic discharge
- optical fibre connector types and characteristics
- optical fibre types and characteristics
- specific work health and safety requirements that impact the safe measurement and inspection of optical connectors and optical power from laser transmission systems
- power wiring faults.

Assessment Conditions

Skills must be assessed in a workplace or simulated environment where conditions are typical of those in a telecommunications work environment or workplace.

Access is required to:

- tools and equipment requirement for installation
- a range of optical fibres to suit the installation.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

Links

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