Australian Government

Assessment Requirements for ICTOPN607 Design dense wavelength division multiplexing systems

Release: 1

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Modification History

Release	Comments
Release 1	This version first released with ICT Information and Communications Technology Training Package Version 7.0.

Performance Evidence

The candidate must demonstrate the ability to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including evidence of the ability to:

- design at least two dense wavelength division multiplexing systems (DWDM).

In the course of the above, the candidate must:

- document an internet protocol (IP) addressing scheme that is suitable for DWDM shelf configuration
- determine fibre loss between sites
- calculate link budgets and link margins
- prepare dense wavelength division multiplexing (DWDM) shelf configuration and specifications
- produce detailed configuration documents
- investigate an emerging DWDM technology.

Knowledge Evidence

The candidate must be able to demonstrate knowledge to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including knowledge of:

- features of configuration of DWDM shelf
- operation principles of DWDM systems
- required formats for configuration documents for DWDM system
- functions and features of electrostatic discharge
- features and operating requirements of the following test equipment:
  - an optical time domain reflectometer (OTDR)
  - a hand-held optical power meter
  - a transmission test set
  - an optical spectrum analyser

- functions of an optical add-drop multiplexer (OADM)
- functions of reconfigurable optical add-drop multiplexer (ROADM)
- International Telecommunications Union (ITU) wavelength grid for DWDM
- features of laser stability
- characteristics of dispersion compensation devices
- the importance of a link budget and calculate link margins
- optical fibre connector types and characteristics
- optical fibre types and characteristics
- path protection and protection switching requirements
- physical optical loopbacks and software loopbacks
- traditional protocols and emerging Optical Transport Network (OTN) technologies used on optical DWDM systems
- ring topologies and linear network topologies
- specific work health and safety (WHS) requirements that impact management of DWDM systems
- required legislation, codes, company work practices, regulations and standards and environmental requirements for scoped work.

Assessment Conditions

Skills in this unit must be demonstrated in a workplace or simulated environment where the conditions are typical of those in a working environment in this industry.

This includes access to:

- manufacturer technical documentation
- required regulations
- system specifications.

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

Links

Companion Volume Implementation Guide is found on VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2