



Australian Government

UEECS0007 Design and implement network systems for internetworking

Release: 1

UEECS0007 Design and implement network systems for internetworking

Modification History

Release 1. This is the first release of this unit of competency in the UEE Electrotechnology Training Package.

Application

This unit involves the skills and knowledge required to design and implement network systems for internetworking.

It includes safe working practice, applying design principles, using wide area network (WAN) technologies, complying with relevant industry standards, and documentation of design and performance monitoring.

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

Pre-requisite Unit

Not applicable

Competency Field

Computer Systems

Unit Sector

Electrotechnology

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Prepare to design internetworking systems

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Work health and safety (WHS)/occupational health and safety (OHS) requirements and workplace procedures for a given work area are identified, obtained and applied

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| | 1.2 | Scope of design brief for internetworking is developed and documented in consultation with relevant person/s |
| | 1.3 | Work team/group is arranged of relevant persons in accordance with design brief and workplace procedures |
| | 1.4 | Activities are planned in accordance with workplace procedures for timelines and in consultation with others involved |
| | 1.5 | Strategies are implemented to ensure network development is in accordance with design brief and workplace procedures |
| 2 Design internetworking systems | 2.1 | Internetworking system is designed with economical design solutions in accordance with design brief, relevant industry standards and workplace procedures |
| | 2.2 | Switching routing and WAN technologies are included in the internetworking system design in accordance with relevant industry standards and workplace procedures |
| | 2.3 | Internetworking system design specification of required media is in accordance with relevant industry standards |
| | 2.4 | Internetworking system design is documented in accordance with workplace procedures |
| | 2.5 | Internetworking system design is presented and discussed with relevant person/s in accordance with workplace procedures |
| | 2.6 | Alterations to the internetworking system design resulting from the presentation/discussion are negotiated with relevant person/s in accordance with workplace procedures |
| | 2.7 | Final internetworking system design is documented and approval obtained from relevant person/s in accordance with workplace procedures |
| 3 Implement internetworking systems | 3.1 | Activities are planned in accordance with workplace procedures, timelines and in consultation with others involved |
| | 3.2 | Relevant development tools and software are selected in accordance with design brief and relevant industry standards |

- 3.3 Switching routing and WAN technologies are installed, configured and tested in accordance with design brief and relevant industry standards
- 3.4 System malfunctions are identified and rectified using techniques in accordance with workplace procedures and relevant industry standards
- 3.5 Unplanned events are analysed to provide solutions in accordance with workplace procedures
- 3.6 Quality of work is monitored in accordance with workplace procedures and relevant industry standards
- 3.7 Final internetworking system design and implementation are documented in accordance with workplace procedures

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the UEE Electrotechnology Training Package Companion Volume Implementation Guide.

- Designing and implementing internetworking systems must include at least the following:
- between two local area networks (LANs) to form a wide area network (WAN) or
 - between a LAN and the internet

Unit Mapping Information

This unit replaces and is equivalent to UEENEED118A Design and implement network systems for internetworking.

Links

Companion Volume implementation guides are found in VETNet - -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b8a8f136-5421-4ce1-92e0-2b50341431b6>

Assessment Requirements for UEECS0007 Design and implement network systems for internetworking

Modification History

Release 1. This is the first release of this unit of competency in the UEE Electrotechnology Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the elements, performance criteria and range of conditions on at least two separate occasions and include:

- applying relevant work health and safety (WHS)/occupational health and safety (WHS/OHS) requirements
- arranging work team/group of relevant persons
- dealing with unplanned events
- designing internetworking system based on economic and effective solutions that meet design brief requirements
- designing internetworking system with economical design solutions
- detailing switching, routing and wide area network (WAN) technologies and specification for internetworking media in the design
- developing an internetworking system design brief
- documenting and presenting design for approval
- documenting internetworking installation and configuration activities
- identifying and rectifying system malfunctions and performance issues
- implementing strategies to ensure network development
- implementing internetworking system design, including advanced wireless local area network (LAN) technologies in internetworking system design
- monitoring quality of work
- negotiating alterations to internetworking system design
- planning work activities, including requirements for work team/group
- preparing to design internetworking systems
- presenting and discussing internetworking system design with relevant person/s
- troubleshooting internetworking system
- acquiring media for internetworking system design specification
- selecting relevant development tools and software.

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the elements, performance criteria and range of conditions and include

knowledge of:

- access lists configuration
- configure dynamic host configuration protocol (DHCP) service
- configure inter-virtual local area network (VLAN) routing
- configure spanning tree protocol
- configure VLAN trunking protocol
- design report presentation
- interior gateway protocol (IGP) configuration
- LAN design
- network performance assessment
- network security and risk management
- problem solving techniques
- relevant industry standards
- relevant manufacturer specifications
- relevant media
- relevant job safety assessments or risk mitigation processes
- relevant WHS/OHS legislated requirements
- relevant workplace budget, instructions, quality, policies and procedures
- relevant workplace documentation
- switch configuration
- VLAN configuration
- VLAN design
- WAN design
- WAN management and security
- WAN protocols
- WAN technologies
- wireless LAN configuration
- troubleshoot multi-VLAN issues
- layer 3 switching
- link aggregation and router redundancy
- dynamic routing
- interior gateway protocol (IGP) tuning and troubleshooting
- WAN monitoring
- quality of service
- network evolution
- network troubleshooting
- emerging technologies.

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training

Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in suitable workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated suitable workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- a range of relevant exercises, case studies and/or simulations
- relevant and appropriate materials, tools, facilities and equipment currently used in industry
- resources that reflect current industry practices in relation to designing and implementing internetworking systems
- applicable documentation, including workplace procedures, equipment specifications, regulations, codes of practice and operation manuals.

Links

Companion Volume implementation guides are found in VETNet - -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b8a8f136-5421-4ce1-92e0-2b50341431b6>