



Australian Government

UEECS0010 Design and implement wireless LANs/WANs for internetworking systems

Release: 1

UEECS0010 Design and implement wireless LANs/WANs for internetworking systems

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 wireless local area networks (LANs)/wide area networks (WANs) for internetworking systems.

It includes working safely, applying design principles, complying with relevant industry standards, incorporating advanced wireless LAN/WAN technologies, and documenting 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 advanced wireless LAN/WAN technologies 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 |
| 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 | Advanced wireless LAN/WAN technologies are included in 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 for 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 | Advance wireless LAN/WAN technologies are installed, configured and tested in accordance with design brief |

and relevant industry standards

- 3.4 System malfunctions and performance issues 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/or 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 wireless LANs/WANs internetworking systems must include at least the following:

- between two LANs/wireless local area network (WLANs) to form a WAN, or a WLAN and the internet

Unit Mapping Information

This unit replaces and is equivalent to UEENEED123A Design and implement wireless LANs/WANs for internetworking systems.

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 UEECS0010 Design and implement wireless LANs/WANs for internetworking systems

Modification History

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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:

- acquiring media for internetworking system design specification
- applying relevant work health and safety (WHS)/occupational health and safety (WHS/OHS) requirements
- conducting wireless local area network (WLAN) maintenance and troubleshooting
- configuring and testing a controller-based WLAN
- configuring and testing WLAN security
- designing internetworking system with economical design solutions
- developing a design brief for advanced wireless local area network (LAN)/wide area network (WAN) technologies in 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 internetworking system design, including advanced wireless LAN/WAN technologies in internetworking system design
- monitoring quality of work
- negotiating alterations to internetworking system design
- planning and conducting a site survey for setting up a wireless network
- preparing to design wireless internetworking system
- selecting relevant development tools and software
- using technologies and media specifications used in the design of advanced wireless LAN/WAN technologies.

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 points

- advanced wireless LAN/WAN technologies
- antennas
- application design and site survey preparation
- authentication and encryption methods
- emerging technologies
- radio frequency (RF) fundamentals
- relevant industry standards
- relevant manufacturer specifications
- relevant media
- security
- troubleshooting, management, monitoring and diagnostics
- wireless bridges and routers
- wireless LAN/WAN network management software tools
- wireless radio technologies
- wireless roaming
- wireless standards
- wireless topologies
- WLAN architecture and devices
- WLAN implementation and deployment.

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
- applicable documentation, including workplace procedures, equipment specifications, regulations, codes of practice and operation manuals.

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