



Australian Government

UEECS0011 Design and manage enterprise computer networks

Release: 1

UEECS0011 Design and manage enterprise computer networks

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 manage enterprise computer networks.

It includes safe working practices, the design and management of network and application services, core identity and access management components, directory services infrastructure components, designing physical and logical directory service topologies, designing for business continuity and data availability, and documenting all design and management activities.

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 Develop design for a network

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

- 1.2 Scope of the network design is determined from design brief and/or in consultation with relevant person/s
- 1.3 Business requirements for existing and projected business model, organisational and information technology management structures are analysed in accordance with workplace procedures
- 1.4 Design is developed to include business priorities, growth, growth strategy, regulatory framework, risk and relevant cost in accordance with workplace
- 1.5 Existing and planned technical and environment goals of the enterprise are evaluated and documented in accordance with workplace procedures and design specifications
- 1.6 Design is developed with relevant technical factors in accordance with workplace procedures and design specifications
- 1.7 Client access, end-user needs and usage patterns, and disaster recovery requirements are evaluated and documented
- 1.8 Design specifications, analysis and evaluations are documented in accordance with workplace procedures and design specifications
- 1.9 Network specification is presented and discussed with relevant person/s
- 1.10 Alterations to the network specification resulting from the presentation/discussion are negotiated with relevant person/s in accordance with workplace procedures

2 Design a network

- 2.1 Alternative network infrastructures and technologies are applied to network design
- 2.2 Network design is developed with required wide area network (WAN) infrastructure, internet connectivity, and implementation and management strategies
- 2.3 Risk management strategies are sought, obtained and incorporated into the network design
- 2.4 Network design is reviewed and adjusted to rectify any anomalies in accordance with workplace procedures

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| | 2.5 | Network design proposal is documented in accordance with workplace procedures |
| | 2.6 | Network design is presented and discussed with relevant person/s |
| | 2.7 | Alterations to network design from the presentation/discussion are negotiated with relevant person/s in accordance with workplace procedures |
| | 2.8 | Optimised project charter design is documented and approval obtained from relevant person/s |
| 3 | Implement and manage a network | |
| | 3.1 | Server and client systems are installed and configured in accordance with design specifications and network industry standards |
| | 3.2 | User and group objects security is implemented in accordance with network specifications |
| | 3.3 | Directory services, data storage, shared resources, web, remote access and network security are managed to ensure operation of the network is in accordance with workplace procedures and design specifications |
| | 3.4 | Issues/problems are analysed to provide effective solutions in accordance with workplace procedures and design specifications |
| | 3.5 | Quality of work is monitored in accordance with workplace procedures and relevant industry standards |
| 4 | Diagnose network malfunctions | |
| | 4.1 | Network operation is monitored using network diagnostic tools and malfunctions are diagnosed to determine cause in accordance with workplace procedure and design specifications |
| | 4.2 | Network malfunctions are rectified using appropriate tests of the network in accordance with workplace procedures |
| | 4.3 | Approaches to issues/problems are analysed to provide most effective solutions |
| | 4.4 | Quality of work is monitored in accordance with workplace procedures and relevant industry standards |
| 5 | Report network management activities | |
| | 5.1 | Finalised project charter documentation is written and forwarded to relevant person/s in accordance with |

workplace procedures

- 5.2** Network service records are maintained 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.

Unit Mapping Information

This unit replaces and is equivalent to UEENEED114A Design and manage enterprise computer networks.

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 UEECS0011 Design and manage enterprise computer networks

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 and performance criteria on at least one occasion and include:

- analysing business requirements
- analysing technical requirements
- analysing resources, services, network infrastructure, protocols and hosts, transmission control protocol and internet protocol (IP) hardware, planned upgrades, support and network and systems management
- applying alternative network infrastructures and technologies to network design
- applying relevant work health and safety (WHS)/occupational health and safety (OHS) requirements, including the use of risk control measures
- designing a network in accordance with design specifications and relevant industry standards
- diagnosing and rectifying the cause of network malfunctions
- documenting justification for network solutions
- evaluating and documenting client access, end-user needs and usage patterns, and disaster recovery requirements
- implementing and managing an enterprise network
- implementing network design
- obtaining and incorporating risk management strategies
- obtaining approval for network design specification
- presenting network specification
- reporting network management activities
- configuring of user and group objects, groups configuring accounts via a directory service, searching for objects, use of templates for creating user accounts and resetting accounts
- installing and configuring domain name system (DNS) servers, and creating and configuring DNS zones and records
- installing and configuring dynamic host configuration protocol (DHCP), managing and maintaining DHCP, implementing and maintaining IP address management
- implementing network connectivity solutions, implementing network address translation (NAT) and configuring routing
- implementing network policy server and configuring a RADIUS server, including RADIUS proxy
- implementing IPv4 and IPv6 addressing and implementing distributed file system

- implementing high performance network solutions
- determining scenarios and requirements for implementing software-defined networking (SDN).

Knowledge Evidence

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

- design network considering company size, user and resource distribution, various site connectivity, bandwidth, service performance, availability and scalability, data and system access patterns, network roles and responsibilities and security considerations
- design and management of DHCP
- design and management of DNS
- design of network connectivity and remote access solutions
- design of core and distributed network solutions
- design of an advanced network infrastructure design and manage business continuity and data availability
- design and manage identity management components
- plan for network and application services
- problem-solving techniques
- relevant business requirements
- relevant manufacturer specifications and operating instructions
- relevant network diagnostic tools
- relevant network infrastructures
- relevant risk management strategies
- relevant technical requirements
- relevant WHS/OHS legislated requirements
- relevant workplace documentation, including network design proposal
- relevant workplace instructions, quality, policies and procedures.

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 design and management of enterprise computer networks
- 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>