



Australian Government

Department of Education, Employment and Workplace Relations

UEENEED115A Administer computer networks

Release: 1

UEENEED115A Administer computer networks

Modification History

Not applicable.

Unit Descriptor

Unit Descriptor

1) Scope:

1.1) Descriptor

This unit covers the administration of network servers. It encompasses safe working practices, planning server installations and upgrades, planning for infrastructure services roles, establishing and maintaining user and group permissions, planning for remote administration, delegated administration, network security and shared resource management, monitoring and maintaining servers for performance evaluation and optimisation, terminal server infrastructure, application deployment, planning for business continuity and high availability, and documenting all administration activities.

Note:

This unit applies to all aspects of Electrotechnology – engineering applications only. For general competencies related to Information Technologies refer to the latest endorsed IT Training Package.

Application of the Unit

Application of the Unit 2)

This unit applies to any recognised development program that leads to the acquisition of a formal award at AQF level 5 or higher.

Licensing/Regulatory Information

License to practice 3)

The skills and knowledge described in this unit do not require a license to practice in the workplace. However, practice in this unit is subject to regulations directly related to occupational health and safety and where applicable contracts of training such as apprenticeships.

Pre-Requisites

Prerequisite Unit(s) 4)

Competencies 4.1)

Granting competency in this unit shall be made only after competency in the following unit(s) has/have been confirmed.

UEENEED1 24A Integrate multiple computer operating systems on a client server network

UEENEEE1 01A Apply Occupational Health Safety regulations, codes and practices in the workplace

Literacy and numeracy skills 4.2)

Participants are best equipped to achieve competency in this unit if they have reading, writing and numeracy skills indicated by the following scales. Description of each scale is given in Volume 2, Part 3 'Literacy and Numeracy'

Reading 5 Writing 5 Numeracy 5

Employability Skills Information

Employability Skills 5)

The required outcomes described in this unit of competency contain applicable facets of Employability Skills. The Employability Skills Summary of the qualification in which this unit of competency is packaged will assist in identifying Employability Skill requirements.

Elements and Performance Criteria Pre-Content

6) Elements describe the essential outcomes of a competency standard unit
Performance Criteria describe the required performance needed to demonstrate achievement of the element.
Assessment of performance is to be consistent with the Evidence Guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1 Prepare to install, upgrade and maintain network operations.	1.1 OHS procedures for a given work area are identified, obtained and understood. 1.2 Established OHS risk control measures and procedures are followed in preparation for the work. 1.3 The nature of the network is established from network specifications and in consultation with appropriate person(s). 1.4 Activities are planned to meet scheduled timelines in consultation with others involved in the work. 1.5 Network operating system versions and updates needed to maintain the network are obtained in accordance with established procedures and checked against job requirements. (See Note 1)

ELEMENT	PERFORMANCE CRITERIA
2 Install, upgrade and maintain network operations.	2.1 OHS risk control measures and procedures for carrying out the work are followed.
	2.2 Server operating systems in current use are installed and upgraded and configure in accordance with developer's instructions and network requirements. (See Note 2)
	2.3 Devices and drivers, desktop environment, network protocols and services and system security are implemented in accordance with requirements.
	2.4 Access to resources is configured within the limitations specified for each users.
	2.5 Network malfunctions are identified and rectified using logical techniques and drawing knowledge of devices and drivers, storage, network protocols, connections and services and system security configuration processes.
	2.6 Network performance and reliability is monitored and optimised in accordance with established procedures.
	2.7 Methods for dealing with unexpected situations are selected on the basis of safety and specified work outcomes.
	2.8 Network administration is carried out efficiently without waste of materials and energy or damage to apparatus, the surrounding environment or other services.
	2.9 Written justification is produced for network maintenance and upgrading and appropriate person(s) notified in accordance with established procedures.
3 Document network administration activities.	3.1 Network administration documentation are maintained in accordance with established procedures.
	3.2 OHS procedures for a given work area are identified, obtained and understood.

ELEMENT**PERFORMANCE CRITERIA**

Notes:

1. Examples may include new deployment, complete version upgrade, incremental updates, and security and bug patches.
2. Examples of operating systems include Windows Server 2008, Mac OS X Server, Unix and Linux variants.
3. Examples of optimising network performance include implementing a patch management strategy, monitoring servers for performance evaluation and optimisation, removal of redundant components and maintaining storage capacity, and monitoring and maintaining security and policies.

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

8) This describes the essential skills and knowledge and their level, required for this unit.

Evidence shall show that knowledge has been acquired of safe working practices and administering user networks.

All knowledge and skills detailed in this unit should be contextualised to current industry practices and technologies.

KS01-ED115A

Administer computer networks

Evidence shall show an understanding of administering computer networks to an extent indicated by the following aspects:

T1 Server deployment encompassing:

- Operating system edition selection
- Roll back planning
- Encryption implementation requirements
- Attended installations
- Hardware device driver installation and configuration
- Installation, configuration and troubleshooting of peripheral I/O devices
- Automated server deployment
- Address assignment
- Name resolution
- Infrastructure services server rolls:
 - Address assignment
 - Name resolution
 - Network access
 - Directory services
 - Application services
 - Certificate services
- Application servers and services
 - Virtualisation server planning
 - Server availability
 - Server resilience
 - Server accessibility
- File and print server roles
 - Access permissions
 - Storage quotas
 - Replication
 - Indexing

REQUIRED SKILLS AND KNOWLEDGE

- File storage policies
- Server availability
- Printer availability

T2 Server management encompassing:

- Remote administration
- Remote desktop
- Server management technologies
- Delegation policies and procedures
- Delegation of administration of directory service objects
- Application management
- Planning and implementing policy strategies

T3 Monitoring and maintaining servers encompassing:

- Operating system patch level maintenance
- Server update services
- Application patch level maintenance
- Server and service monitoring, optimisation, event management, trending and baseline analysis
- Remote access
- Network access
- Server security
- Firewall rules and policies
- Authentication and authorisation, data security, and auditing

T4 Application and data provisioning encompassing:

- Virtualisation
- Terminal server infrastructure
- Resource allocation
- Application virtualisation alternatives
- Application deployment
- Shared resources
- Off line data access

T5 Business continuity and high availability:

- Storage solutions
- Storage management
- Service redundancy
- Service availability
- Data recovery strategy
- Server recovery strategy
- Directory service recovery strategy

REQUIRED SKILLS AND KNOWLEDGE

- Object level recovery

Evidence Guide

EVIDENCE GUIDE

9) This provides essential advice for assessment of the unit and must be read in conjunction with the performance criteria and the range statement of the unit and the Training Package Assessment Guidelines.

The Evidence Guide forms an integral part of this unit. It must be used in conjunction with all parts of this unit and performed in accordance with the Assessment Guidelines of this Training Package.

Overview of Assessment

9.1)

Longitudinal competency development approaches to assessment, such as Profiling, require data to be reliably gathered in a form that can be consistently interpreted over time. This approach is best utilised in Apprenticeship programs and reduces assessment intervention. It is the industry-preferred model for apprenticeships. However, where summative (or final) assessment is used it is to include the application of the competency in the normal work environment or, at a minimum, the application of the competency in a realistically simulated work environment. It is recognised that, in some circumstances, assessment in part or full can occur outside the workplace. However, it must be in accordance with industry and regulatory policy.

Methods chosen for a particular assessment will be influenced by various factors. These include the extent of the assessment, the most effective locations for the assessment activities to take place, access to physical resources, additional safety measures that may be required and the critical nature of the competencies being assessed.

The critical safety nature of working with electricity, electrical equipment, gas or any other hazardous substance/material carries risk in deeming a person competent. Sources of evidence need to be 'rich' in nature to minimise error in judgment.

Activities associated with normal everyday work have a bearing on the decision as to how much and how detailed the data gathered will contribute to its 'richness'. Some skills are more critical to

safety and operational requirements while the same skills may be more or less frequently practised. These points are raised for the assessors to consider when choosing an assessment method and developing assessment instruments. Sample assessment instruments are included for Assessors in the Assessment Guidelines of this Training Package.

**Critical aspects
of evidence
required to
demonstrate
competency in
this unit**

9.2)

Before the critical aspects of evidence are considered all prerequisites shall be met.

Evidence for competence in this unit shall be considered holistically. Each element and associated performance criteria shall be demonstrated on at least two occasions in accordance with the 'Assessment Guidelines – UEE11'. Evidence shall also comprise:

- A representative body of work performance demonstrated within the timeframes typically expected of the discipline, work function and industrial environment. In particular this shall incorporate evidence that shows a candidate is able to:
 - Implement Occupational Health and Safety workplace procedures and practices, including the use of risk control measures as specified in the performance criteria and range statement
 - Apply sustainable energy principles and practices as specified in the performance criteria and range statement
 - Demonstrate an understanding of the essential knowledge and associated skills as described in this unit. It may be required by some jurisdictions that RTOs provide a percentile graded result for the purpose of regulatory or licensing requirements.
 - Demonstrate an appropriate level of skills enabling employment
 - Conduct work observing the relevant Anti Discrimination legislation, regulations, policies and workplace procedures
- Demonstrated consistent performance across a representative range of contexts from the prescribed items below:
 - Administer user networks as described in 8) and including:

A Establishing network requirements and operating

- system versions and updates, including infrastructure, applications, file and print server services roles.
- B Installing, upgrading and configuring server operating system correctly as per network requirements.
 - C Define server management strategies, delegated administration, and policy strategies
 - D Monitor and maintain servers including implementing a patch management strategy, monitoring for performance evaluation and optimisation and monitor and maintain security and policies
 - E Identifying and rectifying network malfunctions.
 - F Provision applications and data, including virtualisation, resource allocation, application deployment, shared resources and off-line data access
 - G Plan storage solutions, high availability, and backup and recovery
 - H Documenting network administration activities.
 - I Dealing with unplanned events by drawing on essential knowledge and skills to provide appropriate solutions incorporated in a holistic assessment with the above listed items.

Note:

Successful completion of relevant vendor training may be used to contribute to evidence on which competency is deemed. In these cases the alignment of outcomes of vendor training with performance criteria and critical aspects of evidence shall be clearly identified.

Context of and specific resources for assessment **9.3)**

This unit should be assessed as it relates to normal work practice using procedures, information and resources typical of a

workplace. This should include:

- OHS policy and work procedures and instructions.
- Suitable work environment, facilities, equipment and materials to undertake actual work as prescribed in this unit.

These should be used in the formal learning/assessment environment.

Note:

Where simulation is considered a suitable strategy for assessment, conditions for assessment must be authentic and as far as possible reproduce and replicate the workplace and be consistent with the approved industry simulation policy.

The resources used for assessment should reflect current industry practices in relation to administering user networks.

Method of assessment

9.4)

This unit shall be assessed by methods given in Volume 1, Part 3 'Assessment Guidelines'.

Note:

Competent performance with inherent safe working practices is expected in the Industry to which this unit applies. This requires assessment in a structured environment which is primarily intended for learning/assessment and incorporates all necessary equipment and facilities for learners to develop and demonstrate the essential knowledge and skills described in this unit.

Concurrent assessment and relationship with other units

9.5)

There are no concurrent assessment recommendations for this unit.

Range Statement

RANGE STATEMENT

10) This relates to the unit as a whole providing the range of contexts and conditions to which the performance criteria apply. It allows for different work environments and situations that will affect performance.

This unit shall be demonstrated in relation to administering computer networks, including planning for server deployment, server management, monitoring and maintaining servers, planning application and data provisioning and planning for business continuity and high availability.

Generic terms used throughout this Vocational Standard shall be regarded as part of the Range Statement in which competency is demonstrated. The definition of these and other terms that apply are given in Volume 2, Part 2.1.

Unit Sector(s)

Not applicable.

Competency Field

Competency Field	11)
	Computer Systems