



**Australian Government**

**Department of Education, Employment and Workplace Relations**

# **UEENEED116A Develop computer network services**

**Release: 1**

## UEENEED116A Develop computer network services

### Modification History

Not applicable.

### Unit Descriptor

#### Unit Descriptor

#### 1) Scope:

##### 1.1) Descriptor

This unit covers developing services for network clients to support access to network resources. It encompasses safe working practices, configuring IPv4 and IPv6 addressing, installing and configuring name resolution using Domain Name Server (DNS), Dynamic Host Configuration Protocol (DHCP), configuring routing and firewalls, configuring remote access and authentication services, file and print services, update services, performance monitoring, data collection services, and documenting development 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 4 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.

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

**Employability Skills**

5)

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 develop network services.	1.1	OHS processes and 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 extent of network services to be developed is determined from network performance specifications and in consultation with relevant persons.
		1.4	Activities are planned to meet scheduled timelines in consultation with others involved in the work.
		1.5	Appropriate development tools and software are selected based on specified requirements and performance standard.
		1.6	Strategies are implemented to ensure network development is carried out efficiently.
2	Install, configure and manage network services.	2.1	OHS risk control measures and procedures for carrying out the work are followed.
		2.2	Knowledge and complexities of network

**ELEMENT****PERFORMANCE CRITERIA**

- infrastructure are applied to developing network services.
- 2.3 Network infrastructure components in current use and installed and configured in compliance with industry standards and variants as specified for the network. (See Note 1)
- 2.4 Management components of network services are configured in compliance with industry standards and requirements specified for the network. (See Note 2)
- 2.5 Security components of network services are created in compliance with current industry standards and requirements specified for the network.
- 2.6 Network malfunctions are identified and rectified using logical techniques and drawing knowledge of complex network infrastructure.
- 2.7 Network is monitored and solutions are developed to optimise network performance and reliability in accordance with established procedures.
- 2.8 Approaches to issues/problems are analysed to provide most effective solutions.
- 2.9 Quality of work is monitored against personal performance agreement and/or established organisational or professional standards.
- 3 Report network administration activities
- 3.1 Written justification is produced for network services development activities and appropriate person/s notified in accordance with established procedures.
- 3.2 Network service development records are maintained in accordance with established procedures.

**Notes.**

1. Examples of network infrastructure components may include DNS, DHCP, Remote Access, Network Protocols, IP Routing and WINS

**ELEMENT**

**PERFORMANCE CRITERIA**

2. Examples of management components may include Management Consoles, Server Manager, and Remote administration tools.

## 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 developing network services.

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

#### KS01-ED116A

#### Develop computer network services

Evidence shall show an understanding of network services to an extent indicated by the following aspects:

T1 IPv4 and IPv6 addressing

- Configure IP address options
- Subnetting and supernetting
- Interoperability between IPv4 and IPv6

T2 Domain Name Service (DNS) encompassing:

- Install and configure a DNS Server Service
- Configuring Zones, DNS records and replication
- Configuring DNS clients

T3 Dynamic Host Configuration Protocol (DHCP)

- Installation of a DHCP Server Service
- DHCP server options and scopes
- DHCP relay agents
- Exclusions and reservations
- DHCPv6

T4 Configure routing and firewalls

- Routing protocols
- Maintaining routing tables
- Demand dial routing
- Inbound and outbound and custom firewall rules
- IPSec policies

T5 Remote access

- Remote access policies
- Network Address Translation (NAT)
- VPN protocols
- Authentication policies and protocols

T6 File and print services

## REQUIRED SKILLS AND KNOWLEDGE

- Configure a file server, including file system permissions and encryption methodologies
- Configure backup and restore
- Manage file server resources
- Configure and print services monitor

### T7 Monitor and maintain network services

- Configure update services
- Configure performance monitoring
- Configure event logs
- Gather network data

## 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:
  - Develop network services as described in 8) and including:

- A Establishing network services to be developed.
- B Installing and configuring network infrastructure components.
- C Configuring management components of network services.
- D Creating security components of network services.
- E Identifying and rectifying network malfunctions.
- F Developing solutions to optimise network performance.
- G Documenting network services development activities.
- H 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.

**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 developing network services.

**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 developing and managing services for any network that is to provide clients with email and Internet access, shared resources and security.

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

<b>Competency Field</b>	<b>11)</b>
	Computer Systems