UEENEED113A Install and administer Unix based networked computers

Release: 1

UEENEED113A Install and administer Unix based networked computers

Modification History

Not applicable.

Unit Descriptor

Unit Descriptor	**1) Scope:**
	1.1) Descriptor
	This unit covers the installation and administration of UNIX based and networked computers. It encompasses safe working practices, performing basic UNIX, Linux or Mac OSX operating system installation, administration functions of logging in and out, setting up GUI applications, manipulating text files, creating and searching files and directories, changing permissions, using text editors, identifying and modifying initialization files, streamlining command, execution using shell features, using basic network commands 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 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.

UEENEEE101A	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 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 administration work 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	Unix system variants, versions and updates needed to maintain the computers and networks are identified and obtained in accordance with established procedures and checked against job requirements.

ELEMENT		PERFORMANCE CRITERIA	
2	Install, upgrade and maintain Unix-based computers and network operations	2.1	OHS risk control measures and procedures for carrying out the work are followed.
		2.2	Unix operating system is installed upgraded and configured on computers and servers in accordance with developer's instructions and network requirements.
		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	Unix-based network malfunctions are identified and rectified using logical techniques and drawing knowledge of devices and drivers, storage, basic 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	Unix-based network administration is carried out efficiently without waste of materials and energy or damage to apparatus, the surrounding environment or other services.
3	Document network administration activities.	3.1	Written justification is produced for network upgrading and maintenance and appropriate person(s) notified in accordance with established procedures.
		3.2	Network administration documentation are maintained in accordance with established procedures.

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 installing, configuring and administering Unix based computers.

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

KS01-ED113A   Unix fundamentals and operating systems

Evidence shall show an understanding of computer operating systems Unix fundamentals, Mac OSX fundamentals to an extent indicated by the following aspects:

T1   Operating system components and structure

T2   System installation and configuration

> Note.

> System installation includes drivers and internet access and simple

networking

T3   File structure and management

T4   System tools

> Note:

> Examples include control panels, wizards and the like

T5   Operating systems malfunctions and solutions

T6   Troubleshooting techniques.

T7   UNIX operating systems encompassing:

- Overview of basic function, components and concepts of computer systems   and operating systems
- History of UNIX and flavours of UNIX
- UNIX administrators role

T8   Accessing UNIX and common desktop environment encompassing:

- User Accounts
- Desktop environment
- Customising using Style Manager
- Sub-panels

T9   Graphical User Interface (GUI) Applications encompassing:

- Using Mail Tool, Calendar Manager and other applications
- Using GUI help and other help systems
- Troubleshooting

REQUIRED SKILLS AND KNOWLEDGE

T10   Accessing files and directories encompassing:

- File system structure and navigation
- Pathnames
- Listing directory contents
- Identifying and using meta-characters

T11   Directory and file management encompassing:

- Using Command Line
- Using File Manager

T12   File and user information utilities encompassing:

- File systems
- File processing commands
- Users
- Scripting

T13   File security encompassing:

- Overview of security concepts and functions
- Permissions
- Changing permissions with Command Line and File Manager

T14   Printing encompassing:

- Command line printing
- Print manager, print status and queue
- Printing from File Manager

T15   Backup and restoring data encompassing:

- Overview of back up and restoring strategies
- Using tar utility to perform file storage
- Compression tools
- Using jar command
- GUI backup tools

T16   System processes and memory management encompassing:

- Processes and PIDs
- Terminating a process
- Memory management

T17   Korn and C Shells encompassing:

- Overview of shell
- Korn Shell features
- C Shell Features
- Shell Feature Comparison

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REQUIRED SKILLS AND KNOWLEDGE

T18   Customisation encompassing:

- Overview of customisation
- Initialisation files
- Shell customisation
- GUI customisation

T19   Network Basics encompassing:

- Client – Server
- Network commands
- NIS+ and NFS+

T20   Mac OSX operating systems encompassing:

- System structure and component functions
- System Installation
- Setting user preferences
- T21   Security encompassing:
- Setting up multiple user accounts
- Role and function of Keychain

T22   Networking/internet set up procedures

T23   Onstalling applications software

T24   Installing and managing server software encompassing:

- Setting up servers for a variety of protocols
- Managing access

T25   Using 'Terminal'

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, polices and workplace procedures
- Demonstrated consistent performance across a representative range of contexts from the prescribed items below:
    - Install and administer Unix based computers as described in 8) and including:

A   Identify the Unix-based operating system variants, versions and updates required.

B   Installing, upgrading and configuring computer operating system correctly.

C   Configuring access to resources for each user.

D	Identifying computer/network malfunctions.
E	Rectifying computer/network malfunctions.
F	Documenting computer/network administration activities.
G	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 installing and administering Unix based computers.

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 installing and configuring the operating system and administering at least two networked computers using at least one of UNIX, Linux or MacOSX operating systems

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