Australian Government
Department of Education, Employment and Workplace Relations

UEENEED110A Set up, create and implement content for a web server

Release: 1

INDUSTRY SKILLS COUNCILS
Creating Australia's Future

UEENEED110A Set up, create and implement content for a web server

Modification History

Not applicable.

Unit Descriptor

Unit Descriptor	**1) Scope:**
	1.1) Descriptor
	This unit covers installation, set up, implementation and provision of on-going support of web services. It encompasses working safely, installing and administering server software and databases, server side scripting, configuring access and security and documenting work 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

| **License to practice** | **3)** |
| | 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 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 and implement web based server.	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 development work is determined from server 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 standards.
		1.6	Strategies are implemented to ensure development work is carried out efficiently.
2	Develop web services.	2.1	OHS risk control measures and procedures for carrying out the work are followed.
		2.2	Server software is installed and configured to ensure effective functionality and security. (See Note 1)
		2.3	Knowledge of syntax functions and features of mark-up languages scripts in current use are applied to developing client-side programming. (See Notes 2 and 3)

ELEMENT	PERFORMANCE CRITERIA

	2.4	Pages are created and rendered with relative and absolute links, images and table formatting using cascaded styles sheets.
	2.5	Forms are created with a variety of appropriate elements and element groupings to make forms easy to follow.
	2.6	Knowledge of server scripting languages in current use is applied to scripting to developing client-side programming and validations. (See Note 4)
	2.7	Scripts are written to provide web functionality and management of relation databases. (See Notes 5 and 6
	2.8	Scripts are written to provide web functionality and management of browser windows, security, web application deployment and administration consoles.
	2.9	A number of individual solutions are integrated to meet the specifications of a web application project.
	2.10	Approaches to issues/problems are analysed to provide most effective solutions.
	2.11	Quality of work is monitored against personal performance agreement and/or established organisational or professional standards.
3 Test, evaluate, implement and document the developed web services.	3.1	Testing and procedures are developed to evaluate client-side programming and web applications and services.
	3.2	Problems and bugs in client-side programming, and web services functionality are identified and rectified to ensure specification are met.
	3.3	Intermediate and final work reports are written in accordance with professional standards and presented to appropriate person(s).

ELEMENT	PERFORMANCE CRITERIA

Notes.

1. Examples of web software are Apache, IIS.

2. Examples of mark-up languages are HTML, XML and XSL.

3. Example of scripts are JavaScript and VB script.

4. Examples of server scripting languages are JSP, ASP, PHP and Perl

5. Examples of relational databases are SQL variants and Access

6. Examples of database connectivity components are ODBC, JDBC and ADO

EE-Oz Training Standards

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 setting up and creating content for a web server.

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

KS01-ED110A   Web application server and services

Evidence shall show an understanding of the programming elements and web servers to an extent indicated by the following aspects:

T1   Algorithm Design encompassing:

- Problem Definition
- Steps in Problem-Solving
- Modular Design
- Top-Down Design
- Flow-Charts and Structured Programming
- Pseudo-Code
- Filtering allowable Data Input
- Using standard Input & Output methods
- Object-Oriented Design (brief intro.)
- Documentation Rationale
- Acceptable Documentation Method

T2   Machine-Code, Assemblers and Compilers

T3   Brief History of Languages & Limitations

T4   Parameters of different programming languages encompassing:

- Constants and variables
- Data types and declarations
- Logical flow control
- Detecting breaches of structure
- Documentation instruction examples
- Procedures and function calls
- Parameter-passing
- Local and global variables
- Object-oriented methods
- Classes and objects,
- encapsulation and inheritance.
- Visual programming methods
- General-purpose program libraries

REQUIRED SKILLS AND KNOWLEDGE

T5   Data structures encompassing:

- Records
- Arrays
- File Input/output

T6   Testing and validation encompassing:

- Sequencing the process
- Inconsistencies detection

    Note, An examples is comparing code to documentation, commonly called "Desk-Checking'.

- Test data selection
- Modular testing & debug
- Problems with using non-standard methods for data input and output.
- Common bugs
- Comparison of HTTP servers and platforms

    Note.

    Examples include IIS and Apache

T7   Comparison of Application servers and platforms

    Note.

    Examples include J2EE / tomcat, .NET

T8   HTTP Servers encompassing:

- Installation requirements and methods
- Security configuration
- Content publishing and security

T9   WEB application technologies encompassing:

- Server installation and deployment
- Security

T10   Server scripting technologies encompassing:

- WEB application installation and deployment
- Application server administration

T11   Web services overview encompassing:

- WEB services XML, API, RPC
- XML API processing
- XML DOM
- SOAP (simple object access protocol)
- WEB Services Security

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:
  - Set up and create content for a web server as described in 8) and including:

A	Interpreting server performance requirements.
B	Identifying the appropriate development tools and software.
C	Installing and configure web server software.

D	Creating and rendering effective web pages.
E	Providing web functionality and management of relation databases.
F	Providing web functionality and management of browser windows, security, web application deployment and administration consoles.
G	Developing testing procedures.
H	Identifying problem and bugs in client-side programming and web services functionality.
I	Rectifying problem and bugs.
J	Writing intermediate and final work reports to the required standard.
K	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 setting up and creating content in a web server.

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 web and application servers and web services technology within a multi-tier client-server environment. This shall include:

- Development, implementation and testing HTML pages with at least four of the following features:
  - Relative and absolute links, images and table formatting
  - Cascaded styles sheets
  - Forms
  - New browser windows
  - Validation of form data
- Development, implementation and testing of server scripting for database access with at least four of the following features:
  - Form data input response
  - Form data processing
  - Database access
  - Output of database table contents
  - Insertion of table data to database
- Installation and administration of key features of Web and Web application servers

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