



Australian Government

UEENEEH168A Modify - redesign of electronics and communications systems

Release: 2

UEENEEH168A Modify - redesign of electronics and communications systems

Modification History

Not applicable.

Unit Descriptor

Unit Descriptor

1) Scope:

1.1) Descriptor

This competency standard unit covers the modification and redesign of electronics and communications systems to augment existing systems for clients. It encompasses safe working practices, system parameter reconfiguration, analysis to assure optimum performance, following procedures, and documenting final modifications and settings.

Application of the Unit

Application of the Unit 2)

This competency standard unit is intended to augment formally acquired competencies. It is suitable for employment-based programs under an approved contract of training or institutional based delivery. It is intended to apply to any formal recognition for this standard at the aligned AQF 5 level.

Licensing/Regulatory Information

License to practice 3)

The skills and knowledge described in this unit require a licence to practice in the workplace where plant and equipment operate at voltage above 50 V a.c. or 120 V d.c. In some States/Territories a licence is required to practice this unit in the workplace subject to regulations

License to practice**3)**

for undertaking refrigeration and air conditioning work and in particular working with refrigerants. Practice in workplace and during training is also subject to regulations directly related to occupational health and safety and where applicable contracts of training such as apprenticeships and the like.

Note:

1. Compliance with permits may be required in various jurisdictions and typically relates to the operation of plant, machinery and equipment such as elevating work platforms, powder operated fixing tools, power operated tools, vehicles, road signage and traffic control, lifting equipment and the like. Permits may also be required for some work environments such as confined spaces, working aloft, near live electrical apparatus, site rehabilitation and the like.
2. Compliance may be required in various jurisdictions relating to currency in first aid, confined space, lifting, risk safety measure and the like.

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.

UEENEEE10 Apply Occupational Health and Safety
1A regulations, codes and practices in the
workplace

Literacy and numeracy skills**4.2)**

Participants are best equipped to achieve 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)**

This unit contains Employability Skills

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 modify-redesign of electronics and communications system(s) | 1.1 OHS procedures for a given work area are obtained and understood.

1.2 Established OHS risk control measures and procedures in preparation for the work are followed.

1.3 Safety hazards that have not previously been identified are noted and established risk control measures are implemented. |
|--|---|

ELEMENT	PERFORMANCE CRITERIA
2 Generate modification-redesign of electronics and communications system(s)	1.4 Appropriate personnel are consulted to ensure the work is co-ordinated effectively with others involved on the work site.
	1.5 System operating parameters are identified by reviewing system specifications and component technical data.
	1.6 The limitations, use and operation of the system to be modified is established from original specifications, manufacturers' data and the like
	1.7 The extent of modification is determined from measurements, tests, inspections, system limitations and other relevant requirements
	1.8 Specifications and instructions for the modifications are documented in accordance with requirements and organisational procedures
	1.9 Tools, equipment, applications, and devices needed for the work are obtained in accordance with established procedures and checked for correct operation and safety.
	1.10 Preparatory work is checked to ensure no unnecessary damage has occurred and complies with requirements.
	2.1 OHS risk control measures and procedures for carrying out the work are followed.
	2.2 Alternative modification arrangements are considered and discussed with appropriate personnel
	2.3 Safety, functionality and economic considerations are incorporated in the proposed modification design Proposed modification complies with all requirements and includes specifications and documentation for alteration of the system(s) Changes in the use and operation of the

ELEMENT	PERFORMANCE CRITERIA
3 Completion and report modification-redesign activities.	system(s) as a consequence of the proposed modification are included in the documentation
	2.4 Decisions for dealing with unexpected situations are made from discussions with appropriate persons and job specifications and requirements.
	2.5 Methods for dealing with unexpected situations are selected on the basis of safety and specified work outcomes.
	2.6 Modification-redesign is carried out efficiently without unnecessary waste of materials or damage to apparatus, the surrounding environment or services and using sustainable energy principles.
	3.1 OHS risk control work completion measures and procedures are followed.
	3.2 Proposed modification is checked under established procedures for compliance with all relevant requirements
	3.3 Work site is cleaned and made safe in accordance with established procedures.
	3.4 Proposed modification is submitted for appropriate organisational approval and, where applicable, statutory or regulatory approval
	3.5 Approved copies of the modification-redesign documents are issued, and copies retained, documented and stored in records in accordance with established procedures and requirements

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 commissioning computer systems.

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

KS01-EH168A design processes

Electronic and Communications Engineering

Engineering design processes:

T1 The functional and non-functional requirements of a customer encompassing:

- scope of the project,
- non-functional requirements
- Economics (time, cost) including total life-cycle costs
- Design
- Implementation (construction)
- Maintenance (operation),
- Decommissioning (recycling)
- Aesthetics (quality)
- Design objectives (specifications)

Note:

- Establishing the specifications by defining the problem and producing a solution to satisfy the customer.
- Creation of the design plan through solution synthesis by selecting or creating the solution
- Analysis
- Optimisation of the proposed solution
- Validations of the resulting design against the customer's needs
- Implementation of the selected design

T2 Project to be carried out in accordance with current OH&S procedures.

Evidence Guide

EVIDENCE GUIDE

9) The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for this Training Package.

The Evidence Guide forms an integral part of this Competency Standard Unit and shall be used in conjunction with all components 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's 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 accord with Industry and, Regulatory policy in this regard.

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. Hence, sources of evidence need to be 'rich' in nature so as to minimise error in judgment.

Activities associated with normal every day 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**

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; and
 - Apply sustainable energy principles and practices as specified in the performance criteria and range; and
 - 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; and
 - Conduct work observing the relevant Anti Discrimination legislation, regulations, policies and workplace procedures; and
- Demonstrated consistent performance across a representative range of contexts from the prescribed items below:
 - Modify-redesign of electronics and communications systems as described in 8) and including:
 - a. Developing outlines of alternative redesigns.
 - b. Developing the modified-redesigned system within the safety and functional requirements and budget limitations.
 - c. Documenting and presenting modifications-redesigns effectively.

- d. Successfully negotiating system alteration requests.
- e. Obtaining approval for final modified-redesigned system.
- f. 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 by this competency standard unit.

Resources required to assess this unit are listed above in Context of assessment', which should also be used in the formal learning/assessment environment.

Note:

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

The resources used for assessment should reflect current industry practices in relation to modifying-redesigning electronics and communications systems.

**Method of
assessment**

9.4)

This competency standard 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 competency standard unit applies. This requires that the specified essential knowledge and associated skills are assessed 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 of competency 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 competency standard unit shall be demonstrated in relation to modifying-redesigning electronics and communications systems across two different and representative types of electronics and communications systems and associated components and controls.

Generic terms are used throughout this Vocational Standard shall be regarded as part of the Range of Variables 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)

Electronics