



Australian Government

Department of Education, Employment and Workplace Relations

UEENEEJ150A Evaluate new and alternative technologies applicable to electrotechnology applications

Release: 2

UEENEEJ150A Evaluate new and alternative technologies applicable to electrotechnology applications

Modification History

Not Applicable

Unit Descriptor

Unit Descriptor

1)

1.1) Descriptor

This unit covers evaluation of alternative and new technologies applicable to electrotechnology applications. It encompasses working safely, comparing manufacturer's technical data for alternative or new technologies with specifications for a proposed project, conducting evaluation tests, evaluating systems/components from technical data, calculations and/or measured parameters and reporting findings for use in design work.

Application of the Unit

Application of the Unit

4)

This unit is intended for competency development entry-level employment-based programs incorporated in approved contracts of training. It applies to any formal recognition for this standard at the aligned AQF 6 level or higher.

Licensing/Regulatory Information

1.2) License to practice

The skills and knowledge described in this unit may require a license to practice in the workplace subject to regulations for undertaking of refrigeration or air conditioning work. 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.

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. Permits may also be required for some work environments such as confined spaces, working aloft, near live electrical devices, site rehabilitation.
2. Compliance may be required in various jurisdictions relating to currency in First Aid, confined space, lifting and risk safety measures.

Pre-Requisites

Prerequisite Unit(s) 2)

2.1) Competencies

There are no prerequisite competencies for this unit.

Employability Skills Information

Employability Skills	3) 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.
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Elements and Performance Criteria Pre-Content

6) Elements describe the essential outcomes of a 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.
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Elements and Performance Criteria

ELEMENT		PERFORMANCE CRITERIA	
1	Prepare to evaluate and report on alternative and new technologies	1.1	OHS procedures for a given work area are identified, 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 evaluation is determined from proposed project specifications and discussion with appropriate personnel.
		1.4	Advice is sought from the work supervisor to ensure the work is coordinated effectively with others.
		1.5	Tools, testing devices, and manufacture's technical data needed to carry out the work are obtained and checked for correct operation and safety.

ELEMENT		PERFORMANCE CRITERIA	
2	Evaluate alternative and new technologies.	2.1	OHS risk control measures and procedures for carrying out the work are followed.
		2.2	In-depth knowledge of the electrotechnology discipline applicable to the alternative or new technology being considered is applied to the evaluation process.
		2.3	Manufacture's technical data for alternative or new technologies is compared with proposed project specifications, budget and regulations.
		2.4	Evaluation tests, where used, are set up in strict accordance with OHS requirements and established test methods for each particular component under scrutiny.
		2.5	Evaluation is carried out methodically and results and comments systematically noted.
		2.6	Unexpected situations are dealt with safely and with the approval of an authorised person.
		2.7	Evaluation is carried out without damage to systems, circuits, the surrounding environment or services and using sustainable energy practices.
3	Report on use of alternative and new technologies	3.1	OHS work completion risk control measures and procedures are followed.
		3.2	Where applicable, the work site is cleaned and made safe in accordance with established procedures.
		3.3	Results of the evaluation are documented for use in design work including recommendations and justifications for adoption or rejection of the alternative and new technologies evaluated.
		3.4	Report is forwarded to appropriate person(s) for endorsement.

ELEMENT PERFORMANCE CRITERIA

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

7) 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 evaluating alternative and new technologies applicable to electrotechnology applications.

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

KS01-EJ150A New and alternative technology sources

Evidence shall show an understanding of the sources of new and alternative technology development and processes for their adoption, applying safe working practices and relevant Standards, Codes and Regulations to an extent indicated by the following aspects:

T1 Sources of information on alternative or new technologies

- Industry organisations
- Industry technical journals
- Government and private research papers/literature
- Manufacturers' bulletins

T2 Comparison of technical data from different manufacturers

T3 Evaluating performance benefits and limitations of new and developed technologies for given applications, encompassing:

- Capital cost benefits
- Operations efficiency
- Risk hazardous and issues related to environmental and health and safety
- Functionality

T4 Processes to facilitate adoption

Note: Research; analyses; reporting; recommending; and the like, utilising a range of techniques, processes and technologies

Evidence Guide

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 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. 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 influence decisions about how/how much 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 must be met.

Evidence for competence in this unit shall be considered holistically. Each Element and associated performance criteria

EVIDENCE GUIDE

shall be demonstrated on at least two occasions in accordance with the 'Assessment Guidelines - UEE07'. 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:
 - Evaluating alternative and new technologies applicable to electrotechnology applications as described in 8) and including:
 - A Determining the extent of the evaluation.
 - B Comparing manufacture's technical data for alternative or new technologies with proposed project specifications, budget and regulations accurately.
 - C Reporting evaluation including recommendations and justifications for adoption or rejection of the alternative and new technologies evaluated.
 - D Dealing with unplanned events by drawing on essential knowledge and skills to provide appropriate solutions incorporated in the holistic assessment with the above listed items

EVIDENCE GUIDE

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 unit.

These should be part of the formal learning/assessment environment.

Note:

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

Evidence should show demonstrated competency in evaluating alternative and new technologies applicable to electrotechnology applications.

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 intended primarily 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

8) 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 must be demonstrated in relation to evaluating alternative and new technologies for two different proposed projects in any of the following electrotechnology disciplines.

- Automated systems
- Computer systems
- Electrical
- Electronics
- Industrial electronics and control
- Refrigeration and air conditioning
- Renewable energy

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

2.2) Literacy and numeracy skills

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
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Custom Content Section

Competency Field 5)

Refrigeration and Air Conditioning