



**Australian Government**

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

# **UEENEEE130A Provide solutions and report on routine electrotechnology problems**

Release: 1

## **UEENEEE130A Provide solutions and report on routine electrotechnology problems**

### **Modification History**

Not applicable.

### **Unit Descriptor**

#### **Unit Descriptor**

#### **1) Scope:**

##### **1.1) Descriptor**

This unit covers the application of fundamental numerical calculations required to solve routine electrotechnology problems and reporting the outcomes to requirements. It encompasses working safely, applying routine problem solving techniques, using a range of fundamental mathematical processes and techniques to identifying solutions to electrotechnology problems, and reporting the solutions.

Note.

Typical electrotechnology problems are those encountered in meeting routine performance requirements and compliance standards, interpreting the operating parameters of equipment and dealing with equipment malfunctions. Typical reports are those based on routine structures and formats, and require the application of routine communication fundamentals.

### **Application of the Unit**

#### **Application of the Unit 2)**

This unit is intended to apply to any recognised development program that leads to the acquisition of a formal award at AQF level 2 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)

There are no prerequisite competencies for this unit.

### 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 2      Writing 2      Numeracy 2

## 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 Perform fundamental numerical calculations to solve routine electrotechnology problems.	1.1 OHS procedures for a given work area are obtained and understood
	1.2 The nature of the problems are obtained from documentation or from work supervisor to establish the scope of work to be undertaken
	1.3 Problems are clearly stated in writing and/or diagrammatic form to ensure they are understood and appropriate methods used to resolve them.
	1.4 Known constants and variable related to the problem are obtained from measured values or problem documentation.
	1.5 Methods for resolving non-routine problems are considered and discussed with appropriate person(s).
	1.6 Routine problems are solved using fundamental numerical calculations with resultant outcome aligned to realistic accuracy.
	1.7 Solutions to routine problems are documented in accordance with established procedures.
2 Complete work and report on calculated solutions	2.1 Solutions used to solve routine electrotechnology problems are recorded for inclusion in work/project records/technical reports in accordance with requirements.
	2.2 Known reporting requirements and structures are identified and used to prepare for the production of technical reports, which communicate the outcomes solved to appropriate person(s).

**ELEMENT**

**PERFORMANCE CRITERIA**

- 2.3 Reports are produced to communicate the solved outcomes in accordance with requirements.
- 2.4 Work completion is documented and appropriate person(s) notified.

## 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, providing solutions to and reporting on routine electrotechnology problems. All knowledge and skills detailed in this unit should be contextualised to current industry practices and technologies.

#### **KS01-EE130A Electrotechnology Numeracy Diagnostic**

##### **Assessment Methods**

Evidence shall show an understanding of electrotechnology numeracy diagnostic assessment methods to an extent indicated by the following aspects:

T1 Electrotechnology Numeracy Diagnostic Test encompassing:

- Decimals
- Fractions and Indices
- Percentages
- Graphs
- Multiples and Sub Multiples
- Ratios and Proportions
- Transposition
- Areas and Volumes
- Trigonometry and Pythagoras' Theorem
- Construction of Angles and Triangles

T2 Recommendation of Remedial Action

- Action plan for remedial action
- Other support agencies
- Failure to follow action plan
- Monitoring of remedial action of learner

#### **KS02-EE130A Electrotechnology Literacy Diagnostic Assessment**

##### **Methods**

Evidence shall show an understanding of electrotechnology literacy diagnostic assessment methods to an extent indicated by the following aspects:

T1 Electrotechnology Literacy Diagnostic Test encompassing:

- Reading Comprehension
- Spelling
- Sentence Construction (Syntax)
- Grammar

T2 Recommendation of Remedial Action

- Action plan for remedial action
- Other support agencies
- Failure to follow action plan

## REQUIRED SKILLS AND KNOWLEDGE

T3 Communicating with suppliers and clients

## 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 the 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 must 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:
  - Apply fundamental calculations and standard reporting structures required to solve and report on routine electrotechnology problems as described in 8) and including:



- A Identifying problems in written and diagrammatic form.
- B Obtaining known constants and variables from an appropriate source to solve routine problems.
- C Solving problems using appropriate fundamental calculations to achieve realistic and accurate outcomes.
- D Using standard reporting structures and forms to prepare and produce routine documents/technical reports
- E Interpreting and communicating solutions in routine documents/technical reports to appropriate person(s) in accordance with established procedures.
- 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.

**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 applying fundamental calculations required to solve routine electrotechnology problems with realistic accuracy and formally reporting such outcomes to appropriate persons(s)

and to requirements.

**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 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 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 solve routine electrotechnology problems using fundamental numerical calculations in equipment processes in the deployment of work functions and reporting their outcomes in accordance with requirements in any of the following disciplines:

- Computers
- Data Communications
- Electrical
- Electronics
- Instrumentation
- Refrigeration and Air Conditioning

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>
	Electrotechnology