



**Australian Government**

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

# **UEENEEI006B Solve problems in process controllers, transmitters and converters**

**Release: 1**

## **UEENEEI006B Solve problems in process controllers, transmitters and converters**

### **Modification History**

Not Applicable

### **Unit Descriptor**

#### **Unit Descriptor**

1)

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

This unit covers providing solutions to predictable problems in process controllers, transmitters and converters. It encompasses working safely, applying logical problem solving procedures, evaluating performance, the use of measuring devices, providing solutions to predictable control problems, and documenting solutions.

### **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.

## Licensing/Regulatory Information

### 1.2) License to practice

The skills and knowledge described in this unit require a license to practice in the workplace where plant and equipment operate at voltage above 50 V a.c. or 120 V d.c. However other conditions may apply in some jurisdictions subject to regulations related to electrical work. Practice in the 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.

## Pre-Requisites

**Prerequisite Unit(s)**            2)

### 2.1) Competencies

Granting competency in this unit shall be made only after competency in the following unit(s) has/have been confirmed.

UEENEEI003B Solve problems in density/level measurement systems

UEENEEI004B Solve problems in flow measurement systems

UEENEEI005B Solve problems in temperature measurement systems

AND

UEENEEG002B Solve problems in single and three phase low voltage circuits

OR

UEENEEH014B Solve problems in frequency dependent circuits

For the full prerequisite chain details for this unit please refer to Table 2 in Volume 1, Part 2

## 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.

## Elements and Performance Criteria Pre-Content

6) Elements describe the essential outcomes of a unit of competency

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 work on process controllers, transmitters and converters	1.1 OHS procedures for a given work area are identified, obtained and understood
	1.2 OHS risk control work preparation measures and procedures are followed
	1.3 The nature of the control problem is obtained from documentation or from work supervisor to establish the scope of work to be undertaken.
	1.4 Advice is sought from the work supervisor to ensure the work is coordinated effectively with others.
	1.5 Sources of materials that may be required for the work are established in accordance with established procedures.
	1.6 Tools, equipment and testing devices needed to carry out the work are obtained and checked for

<b>ELEMENT</b>	<b>PERFORMANCE CRITERIA</b>
2 Solve process controller transmitters and converters problems	<p data-bbox="668 297 1031 331">correct operation and safety</p> <p data-bbox="668 365 1305 434">2.1 OHS risk control work measures and procedures are followed.</p> <p data-bbox="668 472 1305 613">2.2 The need to test or measure live is determined in strict accordance with OHS requirements and when necessary conducted within established safety procedures</p> <p data-bbox="668 651 1305 792">2.3 Process controller/transmitters/converters and control loops are checked as being isolated where necessary in strict accordance OHS requirements and procedures</p> <p data-bbox="668 831 1305 936">2.4 Known solutions that include the use of measured and calculated values are used for solving predictable process controller problems.</p> <p data-bbox="668 974 1305 1043">2.5 Written justification is made for solutions used to solve process controller problems.</p> <p data-bbox="668 1081 1305 1184">2.6 Methods for dealing with unexpected situations are selected on the basis of safety and specified work outcomes.</p> <p data-bbox="668 1223 1305 1323">2.7 Problems are solved without damage to apparatus, the surrounding environment or services and using sustainable energy principles.</p>
3 Complete work and provide status report(s)	<p data-bbox="549 1361 1305 1431">3.1 OHS risk control work completion measures and procedures are followed.</p> <p data-bbox="549 1469 1305 1570">3.2 Status report(s) is/are completed and work supervisor notified in accordance with established procedures</p>

## 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 solving problems in process controllers, transmitters and converters.

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

The extent of the essential knowledge and associated skills (EKAS) required is given in Volume 2 - Part 2.2 EKAS. It forms an integral part of this unit.

2.3.3 Process control principles

2.5.10 Technical manuals and catalogues

2.12.6 Process control systems

2.12.10 Transmitters and converters

## 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. 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 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 9.2)

## EVIDENCE GUIDE

### evidence required to demonstrate competency in this unit

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 must 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, polices&workplace procedures
- Demonstrated consistent performance across a representative range of contexts from the prescribed items below:
  - Solve problems in process controllers, transmitters and converters as listed as described in 8) and including:
    - A Determine the operating parameters of a controller in an existing control loop.
    - B Configure/tune a controller in an existing control loop to comply with specified operating parameters.
    - C Configure/tune a controller to comply with a specified function



## EVIDENCE GUIDE

- D 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 must 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, the conditions 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 solving problems in process controllers, transmitters and converters.

## EVIDENCE GUIDE

### 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)

For optimisation of training and assessment effort, competency development in this unit may be arranged concurrently with unit:

UEENEEI002B Solve problems in pressure measurement systems

UEENEEI003B Solve problems in density/level measurement systems

UEENEEI004B Solve problems in flow measurement systems

UEENEEI005B Solve problems in temperature measurement systems

The critical aspects of occupational health and safety covered in unit UEENEEI001B and other discipline specific occupational health and safety units shall be incorporated in relation to 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 a hydraulic or pneumatic controller and a microprocessor-based controller and solving at least two of the following problems:

- Determining the operating parameters of a controller, in an existing control loop
- Configuring/tuning a controller in an existing control loop to comply with specified operating parameters
- Configuring/tuning a controller to comply with a specified function

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	3	Writing	3	Numeracy	3
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## Custom Content Section

Competency Field            5)

Instruments