



Australian Government

Department of Education, Employment and Workplace Relations

UEENEEI010B Set up and adjust process control loops

Release: 1

UEENEEI010B Set up and adjust process control loops

Modification History

Not Applicable

Unit Descriptor

Unit Descriptor

1)

1.1) Descriptor

This unit covers basic setting up and adjustment of controllers and control elements to specified output. It encompasses working safely and to standards, following set-up and adjustment procedures, applying knowledge of process requirements, testing and reporting.

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 may be used to augment previously acquired competencies.

Licensing/Regulatory Information

1.2) License to practice

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.

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

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.

UEENEEI006B Solve problems in process controllers, transmitters and converters

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.
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Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1 Prepare to tune control loop	1.1 OHS 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 Safety hazards that have not previously been identified are noted, and established risk control measures are implemented.
	1.4 Appropriate personnel are consulted to ensure the work is coordinated effectively with others involved on the work site
	1.5 Control loop parameters are identified by reviewing process specification and equipment

ELEMENT	PERFORMANCE CRITERIA
	manuals.
	1.6 Tools, equipment and testing devices needed for the work are obtained in accordance with established procedures and checked for correct operation and safety
	1.7 Preparatory work is checked to ensure no damage has occurred and that work complies with requirements
	1.8 The need to test or measure live is determined in strict accordance with OHS requirements and when necessary conducted within established safety procedures
	1.9 Circuits/machines/plant are checked as being isolated where necessary in strict accordance OHS requirements and procedures
2 Tune control loop	2.1 OHS risk control measures and procedures for carrying out the work are followed.
	2.2 Testing/measuring devices are connected and set up in accordance with requirements for a particular control system.
	2.3 Control set-point is established and control loop adjusted in accordance with process specification
	2.4 Process is observed and decisions made in consultation with process operation personnel to readjusted control loop settings to ensure process demand and output quality is met.
	2.5 Process control loops are readjusted as required and checked.
	2.6 Established methods for dealing with unexpected situations are discussed with appropriate person or persons and documented.
	2.7 Unexpected situations are dealt with safely and with the approval of an authorised person.
	2.8 Ongoing checks of the quality of process output are undertaken to ensure control loop is tuned as

ELEMENT	PERFORMANCE CRITERIA
	required.
	2.9 Tuning is carried out efficiently without waste of materials or damage to apparatus, the surrounding environment or services and using sustainable energy principles.
3 Completion and report control loop tuning activities	3.1 OHS risk control work completion measures and procedures are followed.
	3.2 Work site is cleaned and made safe in accordance with established procedures.
	3.3 Control loop settings are documented and appropriate person(s) notified in accordance with established procedures

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 setting up process measuring and control instruments.

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.

2.12.11.1 Industrial processes

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.

EVIDENCE GUIDE

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 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 and workplace procedures
- Demonstrated consistent performance across a representative range of contexts from the prescribed items below:
 - Set up process measuring and control instruments as listed as described in 8) and including:
 - A Identifying control loop parameters
 - B Adjusting control loop to satisfy process demand and quality
 - C Documenting control loop settings with established procedures

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 setting up process measuring and control instruments.

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

UEENEEI006B Solve problems in process controllers, transmitters and converters

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 shall/may be demonstrated in relation to setting-up and adjusting process control loops for optimum stability and the following:

- Proportional response only
- Proportional plus integral
- Proportional plus integral plus derivative

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	4	Writing	4	Numeracy	4
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2.2) Literacy and numeracy skills

Competency Field 5)

Instruments

