



Australian Government

UEENEEI122A Assist in commissioning process and instrumentation control systems

Release: 2

UEENEEI122A Assist in commissioning process and instrumentation control systems

Modification History

Release	Action	Core/Elective	Details	Points
2	Edit	N/A	Show full pre-req chain in the unit	
2	Edit	N/A	Inserted topic numbering in Required Skills and Knowledge	
2	Edit	N/A	Replaced "essential knowledge and associated skills" with "required skills and knowledge"	

Unit Descriptor

Unit Descriptor

1) Scope:

1.1) Descriptor

This unit covers commissioning of process control systems. It encompasses working safely and with others, complying with requirements, applying knowledge of process and control components, pre-commissioning tests, following start up procedures, checking and adjusting components and controls to ensure efficient and safe operation and completing commissioning documentation.

Application of the Unit

Application of the Unit 2)

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

License to practice 3)

The skills and knowledge described in this unit do not require a license to practice in the workplace provided equipment is not connected to installation wiring at voltage above 50 V a.c. or 120 V d.c. 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) 4)

Competencies 4.1)

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

Where pre-requisite pathways have been identified. All competencies in the Common Unit Group must be have been completed plus all the competencies in one (1) of the identified Pathway Unit Group(s):

Electrical

Instrumentation and Control

Common Unit Group

UEENEEI11 Verify compliance and functionality of instrumentation and process control

Prerequisite Unit(s)	4)	
	2A	installations
	UEENEEE1 01A	Apply Occupational Health and Safety regulations, codes and practices in the workplace
	UEENEEE1 04A	Solve problems in d.c. Circuits
	UEENEEE1 07A	Use drawings, diagrams, schedules, standards, codes and specifications
	UEENEEI10 1A	Use instrumentation drawings, specification, standards and equipment manuals
	UEENEEI10 2A	Solve problems in pressure measurement components and systems
	UEENEEI10 3A	Solve problems in density/level measurement components and systems
	UEENEEI10 4A	Solve problems in flow measurement components and systems
	UEENEEI10 5A	Solve problems in temperature measurement components and systems
	UEENEEI10 6A	Set up and adjust PID control loops
	UEENEEI11 0A	Set up and adjust advanced PID process control loops
	UEENEEI11 3A	Setup and configure Human-Machine Interface (HMI) and industrial networks
	Electrical Pathway Group	
	UEENEEG1 01A	Solve problems in electromagnetic devices and related circuits
	UEENEEG1 02A	Solve problems in low voltage a.c. circuits
	Instrumentation and Control Pathway Group	
	UEENEEE1	Solve problems in multiple path extra low

Prerequisite Unit(s) **4)**
 19A voltage (ELV) a.c. circuits

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 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 assist in commissioning process control systems	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 Commissioning plan is review with other team members to ensure commissioning procedures and the role of each member is understood and to ensure the work is coordinated effectively.
	1.5 Measurement parameters are identified with the team by reviewing process requirements and equipment manufacturer instructions.
	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 are checked as being isolated where necessary in strict accordance OHS requirements and procedures
2 Assist in commissioning process control systems	2.1 OHS risk control measures and procedures for carrying out the work are followed.
	2.2 Commissioning testing/measuring devices are connected and set up in accordance with requirements for a particular control system and team instructions.

ELEMENT

PERFORMANCE CRITERIA

- | | |
|-----|---|
| 2.3 | Process instruments and apparatus are set up and adjusted in accordance with process control requirements and equipment manufacturer instructions and team instructions. |
| 2.4 | Adjustments are made to provide optimum transmission/reception performance within regulatory requirements. |
| 2.5 | Decisions for dealing with unexpected situations are made from discussions with appropriate persons and from job specifications |
| 2.6 | Methods for dealing with unexpected situations are selected on the basis of safety and specified work outcomes. |
| 2.7 | Commissioning assistance 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 commissioning 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 | Adjustment settings are documented and appropriate person(s) notified in accordance with established procedures |

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

8) This describes the required skills and knowledge and their level, required for this unit.

Evidence shall show that knowledge has been acquired of safe working practices and assisting in commissioning process control systems.

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

KS01-EI122 Process control, commissioning

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Evidence shall show an understanding of commissioning process control instruments and systems to an extent indicated by the following aspects:

- T1 Purpose of commissioning
- T2 Commissioning planning and documentation
- T3 Procedures for commissioning instrumentation encompassing:
 - configuring
 - calibrating
 - tuning
 - validating system to drawings
 - procedures followed to commission instrument systems
- T4 Purpose and importance of documentation

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 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 – 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 required skills and knowledge 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:
 - Assist in commissioning process control systems as described in 10) and including:

- A Understanding the role of each commission team member
- B Connecting and setting-up commissioning testing/measuring devices in accordance with requirements for a particular control system and team instructions

- C Setting-up and adjusting process instruments and apparatus in accordance with process control requirements and equipment manufacturer instructions and team instructions.
- D Documenting adjustment settings in accordance with established procedures.
- E Dealing with unplanned events by drawing on required skills and knowledge 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 assisting in commissioning process control systems.

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 required skills and knowledge described in this unit.

Concurrent assessment and relationship with other units **9.5)**

There are no concurrent assessment recommendations for this unit.

The critical aspects of occupational health and safety covered in unit UEENEEI101A and other discipline specific occupational health and safety units shall be incorporated in relation to 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 must be demonstrated in relation to process control systems incorporating closed loop control and digital and analogue elements and with at least five interacting control functions.

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

Competency Field 11)
Instrumentation and Control