



Australian Government

UEPMNT359 Test and commission instrumentation equipment

Release: 2

UEPMNT359 Test and commission instrumentation equipment

Modification History

Release 2. Minor release to update superseded pre-requisite units.

Release 1. This is the first release of this unit of competency in the UEP Generation Training Package.

Application

This unit involves the skills and knowledge required to conduct testing and commissioning of instrumentation equipment including, but not limited to, sensor elements, signal characterising equipment, input and output blocks, controllers, transducers and final elements.

Commissioning and testing is the process of ensuring that all instrumentation equipment, that forms part of the control system in a power generation facility, is working according to operational requirements.

Competency in this unit requires the ability to plan work, testing wiring systems, testing piping and tubing systems, testing instrumentation equipment, commissioning instrumental equipment and to report on all completed work tasks. Individuals will, in general, work under supervision in an electrical, electronic and/or mechanical equipment repair workshop or on site.

Power generation maintenance personnel are typically trained and authorised to receive permits to work.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Note: Workplace practice

The application of the skills and knowledge described in this unit of competency may require a licence or training permit to practice in the workplace, where work is carried out on gas and electrical installations. Additional and/or other conditions may apply under state and territory legislative and regulatory licensing requirements.

Pre-requisite Unit

UEECD0019 Fabricate, assemble and dismantle utilities industry components

UEECD0020 Fix and secure electrotechnology equipment

UEECD0051 Use drawings, diagrams, schedules, standards, codes and specifications

Competency Field

Maintenance

Unit Sector

Electricity generation

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Plan and prepare for work

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

- 1.1** Requirements including scope of work and assigned roles are identified and confirmed with appropriate personnel or by site inspection, in accordance with workplace procedures
- 1.2** Work, Health and Safety (WHS)/Occupational Health and Safety (OHS) regulations, legislative requirements, industry standards, codes of practice, manufacturers' specifications, environmental obligations and workplace procedures are reviewed in preparation for work
- 1.3** Resources are obtained and inspected for compliance with job specification
- 1.4** Relevant plans, drawings and manuals are selected and used, in accordance with workplace procedures
- 1.5** Correct materials and components for work are obtained and inspected, in accordance with workplace procedures, for compliance with job specification
- 1.6** Work is planned, sequenced and prioritised, in accordance with workplace procedures
- 1.7** Potential hazards are identified and risk control measures are selected and implemented, in accordance with workplace procedures
- 1.8** Work area is prepared, in accordance with workplace and site procedures

2 Test wiring systems

- 2.1** Isolations for work are confirmed, in accordance with workplace procedures and site requirements
- 2.2** Wiring systems are tested, in accordance with workplace procedures, plans, drawings and manuals

- 2.3 Wiring systems, including enclosures and supports, are inspected prior to testing, to ensure absence of damage, defect and deterioration, in accordance with workplace procedures
 - 2.4 Fixed wiring is tested, as appropriate, in accordance with workplace procedures, and the results are documented to confirm compliance with job specification
- 3 Test piping and tubing systems**
 - 3.1 Isolations are confirmed, in accordance with workplace procedures and site requirements
 - 3.2 Piping and tubing systems are tested, in accordance with workplace procedures, plans, drawings and manuals
 - 3.3 Piping and tubing systems, including enclosures and supports, are inspected prior to testing, in accordance with workplace procedures, to ensure absence of damage, defects or deterioration
 - 3.4 Fixed piping and tubing is tested, as appropriate, in accordance with workplace procedures, and results are documented to confirm compliance with job specification
- 4 Test equipment**
 - 4.1 Isolations are confirmed, in accordance with workplace procedures and site requirements
 - 4.2 Instrumentation equipment is tested, in accordance with workplace procedures, plans, drawings and manuals
 - 4.3 Test conditions are confirmed and the equipment is inspected, in accordance with workplace procedures, to ensure absence of damage, defects and deterioration
 - 4.4 Instrumentation equipment is tested using appropriate test techniques, in accordance with workplace procedures
 - 4.5 Instrumentation equipment test results are documented, in accordance with workplace procedures, to confirm compliance with job specification
- 5 Commission equipment**
 - 5.1 Isolations are confirmed, in accordance with workplace procedures and site requirements
 - 5.2 Instrumentation equipment is commissioned, in accordance with workplace procedures, using

appropriate plans, drawings and manuals

- 5.3 Instrumentation equipment is set up, in accordance with workplace procedures, operational requirements and manufacturers' specifications
- 5.4 Testing and monitoring procedures are followed, in accordance with workplace procedures, and results are monitored and documented to ensure equipment operates within job specification
- 5.5 Instrumentation equipment is commissioned, in accordance with workplace procedures
- 5.6 Final inspection is carried out, in accordance with workplace procedures

6 Complete work

- 6.1 Work is completed and appropriate personnel are notified, in accordance with workplace procedures
- 6.2 Work area is cleared of waste, cleaned, restored and secured, in accordance with workplace procedures
- 6.3 Tools and equipment are cleaned, maintained and stored, in accordance with workplace procedures
- 6.4 Work completion details are finalised, in accordance with workplace procedures

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to UEPMNT359B Test and commission instrumentation equipment.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=1715b9fa-e7bd-441c-bb8d-cf22c9c825a8>

Assessment Requirements for UEPMNT359 Test and commission instrumentation equipment

Modification History

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Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements, performance criteria and range of conditions on at least two separate occasions and includes:

- applying Work, Health and Safety (WHS)/Occupational Health and Safety (OHS) requirements including:
 - emergency procedures
 - hazard identification
 - risk control measures
 - safe working practices
- commissioning equipment
- commissioning equipment
- communicating with personnel
- completing work as per scheduled requirements
- determining permit to work system
- implementing legislation, codes of practice, regulations and industry standards
- inspecting, monitoring and testing wiring systems, piping and tubing systems and instrumentation equipment
- interpreting manufacturers' specifications and manuals
- performing with test and measurement instruments
- planning for testing and commissioning instrumentation equipment work
- selecting materials
- testing and commissioning instrumentation equipment using testing techniques
- using tools and equipment
- utilising commissioning techniques and procedures
- working with data analysis techniques and tools

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements, performance criteria and range of conditions and includes

knowledge of:

- equipment and materials
- instrument calibration techniques
- instrumentation systems and operational requirements
- isolations
- legislation, industry standards, codes of practice and regulations
- manufacturers' specifications and manuals
- permit to work system
- plant and equipment and its location
- safe working practices workplace documentation
- test and commission instrumentation equipment
- test and measurement instruments
- testing and commissioning techniques
- typical arrangements of power production plant
- WHS/OHS legislated requirements including:
 - emergency procedures
 - hazard identification
 - risk control measures
- workplace policies and procedures

Assessment Conditions

As a minimum, assessors must satisfy applicable regulatory requirements, which include requirements in the Standards for Registered Training Organisations current at the time of assessment.

As a minimum, assessment must satisfy applicable regulatory requirements, which include requirements in the Standards for Registered Training Organisations current at the time of assessment.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Assessment must occur in workplace operational situations. Where this is not appropriate, assessment must occur in simulated workplace operational situations that reflect workplace conditions. Resources for assessment must include access to:

- a range of relevant exercises, case studies and/or other simulations
- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including workplace procedures, industry standards, equipment specifications, regulations, codes of practice and operation manuals.

Links

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