



Australian Government

UEPMNT430 Test and commission complex instrumentation equipment

Release: 2

UEPMNT430 Test and commission complex 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 Minor release to update superseded pre-requisite units.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 complex instrumentation used in multi-loop configurations, including but not limited to, laboratory and field analysers, totaliser units, signal characterising, microprocessor control, interface, ultrasonic and nucleonic equipment.

Commissioning and testing ensures that all complex instrumentation equipment, which is used to measure, monitor, automate and control processes in a power generation facility are working efficiently and meeting operational requirements.

Competency in this unit requires the ability to plan work, test complex instrumentation equipment wiring systems, test complex instrumentation equipment piping and tubing systems, test complex instrumentation equipment, commission complex instrumentation 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

UEPMNT359 Test and commission instrumentation systems

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 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, where appropriate, in accordance with workplace procedures

- 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, in accordance with workplace procedures, to ensure absence of damage, defects and deterioration
 - 2.4** Fixed wiring is tested, in accordance with workplace procedures and results are documented to confirm compliance with job specification
- 3 Test piping and tubing systems**
 - 3.1** Isolations are confirmed, where appropriate, in accordance with workplace procedures
 - 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 and deterioration
 - 3.4** Fixed piping and tubing is tested, in accordance with workplace procedures and results are documented to confirm compliance with job specification
- 4 Test equipment**
 - 4.1** Isolations are confirmed, where appropriate, in accordance with workplace procedures
 - 4.2** Complex instrumentation equipment is tested, in accordance with workplace procedures, using plans, drawings and manuals
 - 4.3** Test conditions are confirmed and complex instrumentation equipment is inspected, in accordance with workplace procedures to ensure absence of damage, defects or deterioration
 - 4.4** Complex instrumentation equipment is tested, in accordance with workplace procedures, using appropriate techniques
 - 4.5** Complex instrumentation equipment test results are documented to confirm compliance with job specification
- 5 Commission equipment**
 - 5.1** Isolations are confirmed, where appropriate, in accordance with workplace procedures

- 5.2 Complex instrumentation equipment is commissioned, in accordance with workplace procedures, plans, drawings and manuals
- 5.3 Complex instrumentation equipment is set up, in accordance with workplace procedures, operational requirements and manufacturers' specifications
- 5.4 Testing and monitoring is implemented, in accordance with workplace procedures and the results are monitored and documented to ensure equipment operates to manufacturers' specifications

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 UEPMT430B Test and commission complex 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 UEPMNT430 Test and commission complex instrumentation equipment

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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 complex instrumentation equipment using commissioning techniques and procedures
- communicating with personnel
- determining permit to work requirements
- finalising work completion details
- implementing regulations, industry standards, codes of practice and legislation
- inspecting and monitoring equipment
- interpreting manufacturers' specifications and manuals
- performing with instrument calibration techniques
- planning for the testing and commissioning of complex instrumentation equipment work
- selecting materials
- testing complex instrumentation equipment
- testing complex instrumentation wiring systems using testing techniques
- testing piping and tubing systems
- using tools and equipment
- utilising test and measurement instruments
- 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:

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

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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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