



Australian Government

UEPMNT431 Test and commission electronic instrumentation equipment

Release: 1

UEPMNT431 Test and commission electronic instrumentation equipment

Modification History

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 electronic wiring systems and complex digital/analogue equipment including, but not limited to, process control instrumentation, power grid energy control, supervisory instrumentation and security equipment including Closed Circuit Television (CCTV).

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

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

UEPMNT359 Test and commission instrumentation systems

UEENEEI001B Install and set up transducers and sensing devices

UEENEEE102A Fabricate, assemble and dismantle utilities industry components

UEENEEE105A Fix and secure electrotechnology equipment

UEENEEE107A 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 the workplace procedures
- 1.8** Work area is prepared, in accordance with workplace procedures

2 Test wiring systems

- 2.1** Isolations for work are confirmed, where appropriate, 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, in accordance with workplace procedures, prior to testing to ensure absence of damage, defect or 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, in accordance with workplace procedures, prior to testing to ensure absence of damage, defects or 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 electronic instrumentation equipment**
- 4.1 Isolations are confirmed, where appropriate, in accordance with workplace procedures
 - 4.2 Electronic instrumentation equipment is tested, in accordance with workplace procedures, plans, drawings and manuals
 - 4.3 Test conditions are confirmed and equipment is inspected, in accordance with workplace procedures, to ensure absence of damage, defect or deterioration
 - 4.4 Electronic instrumentation equipment test results are documented to confirm compliance with job specification
- 5 Commission electronic instrumentation equipment**
- 5.1 Isolations are confirmed, where appropriate, in accordance with workplace procedures

- 5.2 Electronic instrumentation equipment is commissioned, in accordance with workplace procedures, using appropriate plans, drawings and manuals
 - 5.3 Electronic instrumentation equipment is set up, in accordance with workplace procedures, operational requirements and manufacturers' specifications
 - 5.4 Testing and monitoring results are monitored and documented, in accordance with workplace procedures, to ensure equipment functions within manufactures' specifications
 - 5.5 Electronic 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

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 UEPMT431B Test and commission electronic 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 UEPMNT431 Test and commission electronic 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 electronic instrumentation equipment using commissioning techniques and procedures
- communicating with personnel
- completing work and finalising completion details
- determining permit to work requirements
- employing testing and measurement instruments
- implementing regulations, industry standards, codes of practice and regulations
- inspecting and monitoring equipment
- interpreting manufacturers' specifications and manuals
- performing instrument calibration techniques
- planning for testing and commissioning of electronic instrumentation equipment work
- selecting materials
- testing electronic instrumentation wiring systems, piping and tubing systems and electronic instrumentation equipment
- using tools and equipment
- utilising testing and isolation techniques
- 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:

- electronic instrumentation equipment
- equipment and materials
- generation plant and equipment, its location and operation
- installing electronic equipment
- instrument calibration techniques
- isolations
- legislation, industry standards, codes of practice and regulations
- manufacturers' specifications and manuals
- operational requirements of equipment
- permit to work system
- 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.

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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