



Australian Government

UETDRTS033 Commission and maintain network protection and control systems

Release: 1

UETDRTS033 Commission and maintain network protection and control systems

Modification History

Release 1. This is the first release of this unit of competency in the UET Transmission, Distribution and Rail Sector Training Package Release 4.0.

Application

This unit includes the skills and knowledge required to commission and maintain network protection and control systems in the electricity supply industry (ESI).

It includes isolating and restoring, monitoring, repairing, setting, testing and functional checks of all types of network protection and control systems.

The application of the skills and knowledge described in this unit may require a licence/registration to practice in the workplace.

Other conditions may also apply under state and territory legislative and regulatory licensing requirements which must be confirmed prior to commencing this unit.

Pre-requisite Unit

UEECD0007 Apply work health and safety regulations, codes and practices in the workplace

UEECD0010 Compile and produce an energy sector detailed report

UEECD0019 Fabricate, assemble and dismantle utilities industry components

UEECD0044 Solve problems in multiple path circuits

UEECD0046 Solve problems in single path circuits

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

UEEEL0020 Solve problems in low voltage a.c. circuits

UEEEL0021 Solve problems in magnetic and electromagnetic devices

UETDREL005 Work safely in the vicinity of live electrical apparatus

UETDRTS036 Develop secondary protection and control scheme isolation and restoration documents

Competency Field

Testing

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

PERFORMANCE CRITERIA

Elements describe the essential outcomes.

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

1 Prepare to commission and maintain network protection and control systems

- 1.1** Workplace organisational requirements for the commissioning and maintenance of network protection and control systems, are reviewed and determined
- 1.2** Purpose of the commissioning and maintenance of network protection and control systems is established
- 1.3** Testing procedures are discussed and reviewed with appropriate personnel
- 1.4** Testing parameters are established from workplace organisational requirements
- 1.5** Tools, equipment and personal protective equipment (PPE) required for work are determined, obtained and confirmed in working order
- 1.6** Work is prioritised and sequenced for completion in accordance with workplace requirements
- 1.7** Relevant stakeholders are identified and liaised with
- 1.8** Hazards are identified, risks assessed, and control measures identified
- 1.9** Work permits are organised in accordance with workplace requirements

2 Commission and maintain network protection and control systems

- 2.1** Relevant stakeholder liaison and work permits are applied
- 2.2** Manual handling and use of tools, equipment and PPE are carried out in accordance with workplace requirements
- 2.3** Hazard control measures are applied and monitored in

- accordance with workplace requirements
- 2.4 Network protection and control systems are commissioned and maintained in accordance with workplace requirements
 - 2.5 Network protection and control systems are tested in accordance with workplace requirements
 - 2.6 Solutions to non-routine problems are identified and actioned
 - 2.7 Quality checks of work are undertaken in accordance with workplace requirements
- 3 Complete work and documentation**
- 3.1 Completed work is checked for compliance against workplace requirements
 - 3.2 Relevant stakeholders are notified of completion and reports and/or completion documents are finalised
 - 3.3 Commissioning and maintenance documentation is completed in accordance with workplace requirements

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 UET Transmission, Distribution and Rail Sector Training Package Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is not equivalent to UETDRTS017 Maintain interdependent network protection and control systems.

Links

Companion Volume Implementation Guides are found in VETNet - <https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=229bace1-b7bc-4653-9300-dffb13ecfad7>

Assessment Requirements for UETDRTS033 Commission and maintain network protection and control systems

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Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the elements and performance criteria on at least two (2) separate occasions and include:

- identifying hazards, assessing risks, and identifying, applying and monitoring control measures
- determining the preparation required for the commissioning and maintaining network protection and control systems including:
 - workplace organisational requirements
 - testing procedures and parameters
 - tools, equipment, personal protective equipment (PPE) and work permits
 - stakeholder liaison
- inspecting and using relevant tools, equipment and PPE
- establishing the purpose of the commissioning and maintenance of network protection and control systems
- commissioning four (4) types of network protection and control systems
- maintaining network protection and control systems, including:
 - isolating protection, control and alarms associated with protection and control schemes
 - carrying out function tests (trips and alarms) on protection and control schemes
 - recording performance of protection and control schemes
 - isolating in-service current transformers
- completed commissioning and maintenance documentation is made available in accordance with workplace requirements.

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the elements and performance criteria and include knowledge of:

- electrical equipment associated with protection and control schemes, including:
 - types and applications
 - characteristics and capabilities
- maintenance and commissioning system diagrams, drawings and operating manuals

- testing techniques and procedures
- types and applications of test equipment
- operation, maintenance and commissioning procedures for protection devices and high voltage (HV) plant
- relay manufacturer specifications, types, function and characteristics
- operation, maintenance and commissioning procedures associated with other protection and control systems including:
 - gas collection
 - oil collection
 - sulphur hexafluoride (SF6) collection
 - surge relay
- measurements, interpretation and analysis of protection and control schemes for HV plant and equipment
- operation, maintenance and commissioning procedures associated with voltage regulation schemes
- electrical equipment associated with distribution field device protection and control schemes
- circuit breaker auxiliary systems
- detailed operation and setting of protection and control schemes
- location and rectification of faults in low voltage (LV) electrical equipment
- effects of harmonics.

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so.

Where this is not appropriate, assessment must occur in simulated conditions involving realistic and authentic activities that replicate operational workplace conditions.

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.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and PPE currently used in industry
- applicable documentation, including workplace requirements, relevant industry standards, equipment specifications, regulations, codes of practice and operation manuals.

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