



Australian Government

UETTDRSB36 Commission discrete control and protection systems

Release: 1

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Modification History

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

Application

This unit covers the commissioning/testing of discrete protection and control systems and includes isolation, inspection, monitoring, testing, adjustment and functional checks on systems, such as overcurrent, overloads, earth fault, alarms and controls.

The application of the skills and knowledge described in this unit requires a licence/registration to practice in the workplace subject to regulations for undertaking of electrical work.

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

Pre-requisite Unit

All competencies in the Common Unit Group must have been completed, plus all competencies in one (1) of the identified Pathway Unit Group(s).

Common Unit Group

UEENEEE101A Apply Occupational Health and Safety regulations, codes and practices in the workplace

UEENEEE102A Fabricate, assemble and dismantle utilities industry components

UEENEEE104A Solve problems in d.c. circuits

UEENEEE105A Fix and secure electrotechnology equipment

UEENEEE107A Use drawings, diagrams, schedules, standards, codes and specifications

UEENEEE137A Document and apply measures to control OHS risks associated with electrotechnology work

UEENEEG006A Solve problems in single and three phase low voltage machines

UEENEEG033A Solve problems in single and three phase low voltage electrical apparatus and circuits

UEENEEG063A Arrange circuits, control and protection for general electrical installations

UEENEEG101A Solve problems in electromagnetic devices and related circuits

UEENEEG102A Solve problems in low voltage a.c. circuits

UEENEEG106A Terminate cables, cords and accessories for low voltage circuits

UEENEEG108A Trouble-shoot and repair faults in low voltage electrical apparatus and circuits

UEENEEG109A Develop and connect electrical control circuits

UEENEEK142A Apply environmentally and sustainable procedures in the energy sector

UETTDRSB25 Maintain high voltage power and instrument transformers

UETTDRSB29 Maintain capacitor bank equipment for voltage regulation

Pathway 1 - Electrician

UEENEEG103A Install low voltage wiring and accessories

UEENEEG104A Install appliances, switchgear and associated accessories for low voltage electrical installations

UEENEEG105A Verify compliance and functionality of low voltage general electrical installations

UEENEEG107A Select wiring systems and cables for low voltage general electrical installations

Pathway 2 - Electrical Fitter

UEENEEG199A Conduct compliance and functional verification of electrical apparatus and existing circuits

Competency Field

Substation

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Plan for the commissioning/testing of discrete protection and control systems

PERFORMANCE CRITERIA

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

- 1.1** Work schedules, including drawings, plans, requirements procedures and material lists, are acquired, analysed and the extent of work determined
- 1.2** Relevant requirements and established procedures for the work are communicated to all personnel and identified for all worksites
- 1.3** Hazards are identified, work health and safety

(WHS)/occupational health and safety (OHS) risks assessed and control measures prioritised, implemented and monitored, including emergency exits kept clear, to ensure safe systems of work are followed and according to established procedures

1.4 Work is prioritised and sequenced for the most efficient and effective outcome following consultation with others for completion within acceptable timeframes, to agreed quality standards and in accordance with established policies and procedures

1.5 Risk control measures are identified, prioritised, implemented and evaluated against the work schedule

1.6 Resources, including personnel, equipment, tools and personal protective equipment (PPE), required for the job are identified, acquired and confirmed safe and in technical working order

1.7 Liaison issues with other personnel and/or authorities are resolved and activities coordinated to facilitate the work

1.8 Personnel participating in the work, including plant operators and contractors, are fully briefed, their respective responsibilities explained and coordinated, and appropriate authorisation checked in accordance with established procedures

1.9 Worksite is prepared according to the work schedule and to minimise risk and damage to property and personnel in accordance with established procedures

2 Carry out the commissioning/testing of discrete protection and control systems

2.1 WHS/OHS and sustainable energy principles and practices to reduce the incidence of accidents and minimise waste are implemented and monitored in accordance with established procedures

2.2 Cardiopulmonary resuscitation (CPR), rescue from live electrical apparatus and other related safety procedures are in place according to requirements and established procedures

2.3 Safe working documentation is acquired and requirements completed in accordance with established procedures

2.4 Lifting, use of power tools/equipment techniques and

- practices are safely exercised in accordance with established procedures
- 2.5** Hazard warnings and safety signs are recognised and hazards and assessed WHS/OHS risks are reported to immediate authorised personnel for directions according to established procedures
- 2.6** Commissioning/testing of discrete protection and control systems is undertaken according to requirements and established procedures
- 2.7** Data is analysed and compared with compliance specifications to ensure commissioning/testing of the discrete system is completed within an agreed timeframe and according to requirements
- 2.8** Essential knowledge and associated skills are applied for the safe commissioning/testing of discrete protection and control systems to ensure completion in an agreed timeframe and to quality standards with a minimum of waste according to requirements
- 2.9** Unplanned events or conditions are responded to in accordance with established procedures
- 3 Complete the commissioning/testing of discrete protection and control systems**
- 3.1** Final inspections and functional testing of the discrete protection and control systems are completed and checked to ensure compliance with all requirements
- 3.2** Anomalies between requirements and measured performance are reported and solutions identified in accordance with established procedures
- 3.3** Safe working documentation is surrendered and discrete protection and control systems are made ready for service
- 3.4** Worksite is rehabilitated, cleaned up and confirmed safe in accordance with established procedures
- 3.5** Tools, equipment and any surplus resources and materials are cleaned, checked and returned to storage in accordance with established procedures
- 3.6** Required work completion records, reports and/or documentation and information are completed, processed and appropriate personnel notified in

accordance with established 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 UETTDRSB36A Commission discrete control and protection systems.

Links

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

Assessment Requirements for UETTDRSB36 Commission discrete control and protection 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 separate occasions and include:

- applying relevant work health and safety (WHS)/occupational health and safety (OHS) requirements, including the use of risk control measures
- applying sustainable energy principles and practices
- undertaking final inspections and functional testing of the discrete protection and control systems including all of the following:
 - isolating protection
 - inspecting controls and alarms with discrete protection and control systems
 - isolating current transformers
 - calibrating discrete protection and control relays
 - carrying out function tests (trips and alarms) on discrete protection and control systems without assistance
 - writing reports on the performance of discrete protection and control systems
- undertaking commissioning and testing of discrete control and protection devices including at least three (3) of the following:
 - overcurrent
 - frame leakage
 - cooling controls
 - buchholz/surge protection
 - direct current (d.c.) supplies control
 - neutral displacement circuit breaker reclose
 - d.c. frame leakage
 - CEL fail
 - earth fault
- dealing with unplanned events on at least one (1) occasion.

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:

- commissioning procedures associated with discrete protection schemes encompassing:
 - standards, codes, Commonwealth/state/territory legislation, supply authority regulations and/or enterprise requirements associated with the commissioning procedures
 - requirements for the use of commissioning manuals, system diagrams/plans and drawings
 - techniques in commissioning procedures – planning, policy and testing techniques
 - close out requirements.

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:

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

Links

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