



Australian Government

UETTD RIS42 Maintain network infrastructure electrical equipment

Release: 1

UETTDRIS42 Maintain network infrastructure electrical equipment

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 involves the skills and knowledge required to maintain network infrastructure electrical equipment in the electricity supply industry (ESI).

It includes the maintenance of electrical equipment and associated hardware, including fuse switches, drop out switches, sectionalisers, links, surge arrestors, gas filled and/or oil filled switches that are relevant to transmission, distribution and rail traction networks. It also includes the repair and/or replacement of 'like for like' electrical equipment and associated hardware as well as the termination and/or connection of this equipment according to requirements, and sampling of insulating oils.

It also includes identifying faults, performing pre-commissioning tests involving the equipment/system and the interpretation of these tests against agreed specifications.

It excludes the energisation of the equipment maintained in a highly complex, interdependent and interconnected electricity supply network system, where the effects of unintended consequences on the system are high risk.

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

Other conditions may apply under State and Territory legislative and regulatory licensing requirement 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

UEENEEG101A Solve problems in electromagnetic devices and related circuits

UEENEEG102A Solve problems in low voltage a.c. circuits

UETTDREL11 Apply sustainable energy and environmental procedures

UETTDREL12 Operate plant and equipment near live electrical conductors and apparatus

UETTDREL16 Working safely near live electrical apparatus

Transmission Overhead Pathway Group

UETTDNIS41 Install network infrastructure electrical equipment

UETTDNIS54 Install and maintain poles, structures and overhead conductors and cables

UETTDRT26 Install transmission structures and associated hardware

UETTDRT27 Maintain transmission structures and associated hardware

UETTDRT29 Install and maintain transmission overhead conductors and cables

Distribution Overhead Pathway Group

UETTDNDP12 Maintain overhead energised low voltage conductors and cables

UETTDNIS41 Install network infrastructure electrical equipment

UETTDNIS52 Install and maintain poles, structures and associated hardware

UETTDNIS54 Install and maintain poles, structures and overhead conductors and cables

UETTDNIS56 Install and maintain low voltage overhead services

Rail Traction Pathway Group

UETTDNIS41 Install network infrastructure electrical equipment

UETTDNIS52 Install and maintain poles, structures and associated hardware

UETTDNIS54 Install and maintain poles, structures and overhead conductors and cables

UETTDRT21 Install traction overhead wiring systems

UETTDRT22 Maintain traction overhead wiring systems

UETTDRT23 Install rail traction bonds

UETTDRT27 Install overhead traction components and equipment

UETTDRT28 Maintain overhead traction components and equipment

Distribution Cable Jointing Pathway Group

UETTDRCJ21 Lay ESI electrical cables

UETTDRCJ26 Install and maintain de-energised low voltage underground polymeric cables

UETTDRCJ27 Install and maintain de-energised high voltage underground polymeric cables

UETTDNIS41 Install network infrastructure electrical equipment

UETTDNIS55 Install and maintain low voltage underground services

Competency Field

Industry Specific Cross Discipline

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Prepare for maintenance of network infrastructure electrical equipment

PERFORMANCE CRITERIA

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

- 1.1** Works schedules, construction plans, drawings, workplace procedures and material lists are received and confirmed
- 1.2** Job requirements and workplace procedures are identified and communicated with relevant personnel
- 1.3** Work health and safety (WHS)/occupational health and safety (OHS), environmental and workplace procedures for the maintenance of electrical equipment (network infrastructure) are obtained and confirmed for the purposes of the work to be performed
- 1.4** Work is prioritised and sequenced for completion within acceptable timeframes following consultation with relevant personnel and in accordance with workplace procedures
- 1.5** Hazards are identified, WHS/OHS risks assessed and control measures identified in accordance with workplace procedures
- 1.6** Relevant work permits are obtained, understood and signed in accordance with workplace procedures
- 1.7** Plant, equipment, tools and personal protective equipment (PPE) required for work are identified, obtained and confirmed in working order
- 1.8** Worksite is prepared to minimise risk, damage to property, commerce and individuals in accordance with workplace procedures

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|---|------------|---|
| | 1.9 | Traffic management plan is confirmed as being applied in accordance with workplace procedures |
| 2 Carry out maintenance of network infrastructure electrical equipment | 2.1 | WHS/OHS, sustainable energy and environmental principles and practices are monitored and followed to reduce incidents in accordance with workplace procedures |
| | 2.2 | Requirements for lifting and/or climbing and/or working at heights and the use of power tools/equipment are followed in accordance with workplace procedures |
| | 2.3 | Maintenance of electrical equipment (network infrastructure) is completed in agreed timeframes, to quality standards and with minimum of waste in accordance with workplace procedures |
| | 2.4 | Maintenance, including repair and/or replacement of electrical equipment (network infrastructure), is performed in accordance with job schedule, work requirements and workplace procedures |
| | 2.5 | Unplanned events are responded to in accordance with workplace procedures |
| | 2.6 | Quality checks of work are undertaken in accordance with workplace procedures |
| 3 Complete maintenance of network infrastructure electrical equipment | 3.1 | Work undertaken is checked/tested against works schedule for conformance with requirements and anomalies reported in accordance with workplace procedures |
| | 3.2 | WHS/OHS and environmental incidents are reported in accordance with workplace procedures, as required |
| | 3.3 | Worksite is rehabilitated, cleaned up and made safe in accordance with workplace procedures |
| | 3.4 | Tools, equipment and surplus resources and materials are, where appropriate, cleaned, checked and returned to storage in accordance with workplace procedures |
| | 3.5 | Relevant work permits are signed off and electrical equipment (network infrastructure) is returned to service in accordance with workplace procedures |
| | 3.6 | Work records, reports and/or documentation are completed 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 UETTDRIS42A Maintain network infrastructure electrical equipment.

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 UETTDRIS42 Maintain network infrastructure electrical equipment

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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
- performing maintenance of network infrastructure electrical equipment using at least three (3) of the following:
 - fuse switches
 - dropout fuses
 - sectionalisers
 - disconnectors
 - links
 - fuses
 - surge arrestors
- using at least one (1) of the following:
 - reclosers
 - gas filled switches
 - ring main units
 - oil filled switches
 - air break switches
- maintaining network infrastructure electrical equipment for at least one (1) of the following equipment types:
 - transformers
 - reactors
 - regulators
 - capacitors
 - relays
 - line fault indicators
- using specialist testing equipment, including at least three (3) of the following:

- voltage detectors
- phasing equipment
- clip-on ammeters
- insulation resistance testers
- recording meters
- earth resistance testers
- 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:

- types and function of various switchgear, such as:
 - isolators, air-break switches, gas-filled switches, vacuum type, links, fuses, oil disconnectors, fuse switches, circuit breakers, operating characteristics, advantages and disadvantages of different types switchgear, installation procedures, earthing, and requirements and techniques
- types of equipment, such as:
 - transformers, reactors, regulators, capacitors, relays, surge arrestors, fault indicators and mobile generators
- maintenance procedures for switchgear and equipment encompassing:
 - diagnosing and rectifying faults according to electricity supply industry (ESI) standards and procedures
- testing and commissioning encompassing:
 - ESI standards and procedures.

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, facilities, equipment and personal protective

equipment (PPE) currently used in industry for maintaining network infrastructure electrical equipment

- applicable documentation, including workplace procedures, relevant industry standards, equipment specifications, regulations, codes of practice and operation manuals.

Links

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