



Australian Government

UETDRIS008 Install and maintain electrical apparatus

Release: 1

UETDRIS008 Install and maintain electrical apparatus

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 2.0.

Application

This unit involves the skills and knowledge required to install and maintain electrical apparatus in the electricity supply industry (ESI).

It includes assembling, installing, connecting, testing and commissioning electrical apparatus.

It also includes cleaning, repairing and replacing electrical apparatus.

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

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

UETDREL001 Apply environmental requirements

UETDREL004 Operate plant and equipment in the vicinity of live electrical apparatus

UETDREL005 Work safely in the vicinity of live electrical apparatus

and

UETDRDU013 Joint, terminate and maintain high voltage underground polymeric cable

UETDRDU015 Joint, terminate and maintain low voltage underground polymeric cable

or

UETDRIS007 Install and maintain distribution overhead conductors and cables

UETDRIS012 Install and maintain poles, structures and hardware

Competency Field

Industry Specific Cross Discipline

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Prepare to install and maintain electrical apparatus

PERFORMANCE CRITERIA

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

- 1.1** Legislation, regulations, standards, codes of practice and organisational workplace requirements for the work to be performed are referred to and confirmed
- 1.2** Work plan is obtained and confirmed in accordance with workplace requirements
- 1.3** Materials required for work are determined and obtained in accordance with work plan and workplace requirements
- 1.4** Plant, tools, equipment and personal protective equipment (PPE) required for work are determined, obtained and confirmed in working order
- 1.5** Work is prioritised and sequenced for completion in accordance with work plan and workplace requirements
- 1.6** Hazards are identified, risks assessed and control measures identified and applied
- 1.7** Safety observer role and responsibilities are discussed and confirmed in accordance with workplace requirements
- 1.8** Communication method between the workers and safety observer is determined and confirmed in accordance with workplace requirements
- 1.9** Safe approach distances for the work to be performed are determined and confirmed in accordance with workplace requirements

- 1.10** Work permits are received and signed in accordance with workplace requirements
 - 1.11** Worksite is prepared in accordance with the work plan and workplace requirements
 - 1.12** Traffic management plan is confirmed as being in place in accordance with workplace requirements
- 2 Carry out installation of electrical apparatus**
 - 2.1** Legislation, regulations, standards, codes of practice and organisational workplace requirements for the work to be performed are applied and monitored
 - 2.2** Lifting, climbing, working at heights and the use of plant, tools and equipment are carried out in accordance with workplace requirements
 - 2.3** Hazard control measures are monitored in accordance with workplace requirements
 - 2.4** Safety observer is positioned to observe the work in accordance with workplace requirements
 - 2.5** Communication methods between workers and safety observer are used in accordance with workplace requirements
 - 2.6** Safe approach distances are maintained when the work is being performed
 - 2.7** Electrical apparatus is assembled and tested in accordance with work plan and workplace requirements
 - 2.8** Electrical apparatus is erected and connected in accordance with work plan and workplace requirements
 - 2.9** Electrical apparatus is tested and commissioned in accordance with work plan and workplace requirements
 - 2.10** Incidents or unplanned events are responded to in accordance with workplace requirements
 - 2.11** Quality checks of work are undertaken in accordance with work plan and workplace requirements
- 3 Carry out maintenance of electrical apparatus**
 - 3.1** Legislation, regulations, standards, codes of practice and organisational workplace requirements for the work to be performed are applied and monitored

- 3.2 Lifting, climbing, working at heights and the use of plant, tools and equipment are carried out in accordance with workplace requirements
- 3.3 Hazard control measures are monitored in accordance with workplace requirements
- 3.4 Safety observer is positioned to observe the work in accordance with workplace requirements
- 3.5 Communication methods between workers and safety observer are used in accordance with workplace requirements
- 3.6 Safe approach distances are maintained when the work is being performed
- 3.7 Problem-solving methods are used to resolve problems from measured and calculated values in accordance with workplace requirements
- 3.8 Electrical apparatus faults are identified in accordance with workplace requirements
- 3.9 Electrical apparatus is repaired or replaced in accordance with workplace requirements
- 3.10 Electrical apparatus is tested and returned to service in accordance with workplace requirements
- 3.11 Incidents or unplanned events are responded to in accordance with workplace requirements
- 3.12 Quality checks of work are undertaken in accordance with work plan and workplace requirements

4 Complete work and documentation

- 4.1 Completed work is checked for compliance against the work plan and workplace requirements
- 4.2 Incidents or unplanned events are reported in accordance with workplace requirements
- 4.3 Worksite is rehabilitated, cleaned and made safe in accordance with workplace requirements
- 4.4 Plant, tools and equipment are cleaned, checked and returned to storage in accordance with workplace requirements

- 4.5 Surplus materials are returned to storage or disposed of in accordance with workplace requirements
- 4.6 Work permits are signed off in accordance with workplace requirements
- 4.7 Work records, reports and documentation are 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:

- UETTDRIS41 Install network infrastructure electrical equipment
- UETTDRIS42 Maintain network infrastructure electrical equipment

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 UETDRIS008 Install and maintain electrical apparatus

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 2.0.

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 legislation, regulations, standards, codes of practice and organisational workplace requirements, including:
 - work health and safety (WHS)/occupational health and safety (OHS)
- identifying hazards, assessing risks, identifying, applying and monitoring control measures
- obtaining, inspecting and using relevant personal protective equipment (PPE)
- connecting and terminating conductors and cables in accordance with workplace requirements
- installing and maintaining electrical apparatus for at least one (1) of the following:
 - transformers
 - reactors
 - regulators
 - capacitors
- installing and maintaining electrical switching apparatus, including least one (1) of the following:
 - reclosers
 - motorised switch
 - gas-filled switch
 - oil-filled switch
 - air-break switch
 - vacuum switch
- installing and maintaining electrical apparatus for at least three (3) of the following:
 - fuse switches
 - sectionalisers
 - dropout fuses
 - disconnectors
 - links
 - fuses

- surge arrestors
- line fault indicators
- conducting at least five (5) of the following tests:
 - voltage
 - phasing
 - current
 - insulation resistance
 - neutral identification
 - polarity
 - phase rotation
 - loop impedance
 - earth resistance
- dealing with an unplanned event on at least one (1) occasion
- recording test results in accordance with workplace requirements
- obtaining and signing on and off relevant work permits in accordance with workplace requirements
- completing relevant work records, reports and documentation.

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:

- relevant legislation, regulations standards, codes of practice and organisational workplace requirements, including:
 - WHS/OHS
- hazard, risk assessment and risk control requirements, including potential hazards
- types and application of PPE
- safe use of plant and equipment
- application, purpose and types of work permits
- events constituting an unplanned event or incident
- procedures for responding to an unplanned event or incident
- construction manuals, system diagrams/plans and drawings
- characteristics of a transformer, including:
 - basic construction of distribution transformers
 - operation under load/no-load conditions
 - types and basic operation of tap changing switches
 - efficiency and cooling
- installation and maintenance of a transformer, including:
 - basic connections
 - restrictions to parallel operation
 - testing

- fault-finding procedures
- earthing types and configurations
- types and function of electrical apparatus, including:
 - reactors
 - regulators
 - capacitors
 - surge arrestors
 - fault indicators
- types and function of various switchgear/protection apparatus, including:
 - isolators
 - air-break
 - gas-filled
 - oil-filled
 - vacuum type
 - links
 - fuses
 - sectionalisers
 - reclosers
 - operating characteristics
 - advantages and disadvantages of different types of switchgear
 - earthing functions
- installation and maintenance procedures for electrical apparatus
- procedures for diagnosing and rectifying faults
- procedures for testing and commissioning 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.

Evidence should show demonstrated competency working at heights, in limited spaces, with different structural/construction types and method and in a variety of environments.

Resources for assessment must include access to:

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

Links

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