



Australian Government

UEEEL0003 Arrange circuits, control and protection for electrical installations

Release: 1

UEEEL0003 Arrange circuits, control and protection for electrical installations

Modification History

Release 1. This is the first release of this unit of competency in the UEE Electrotechnology Training Package.

Application

This unit involves the skills and knowledge required to select, arrange and terminate circuits, control and protection devices and systems for electrical installations operating at low voltage (LV).

It includes protection of persons and property, correct functioning, ensuring compatibility with the supply, arranging installation into circuits, selecting and arranging switchgear/control gear and protective devices to meet compliance requirements, and documenting arrangement decisions.

The skills and knowledge described in this unit require a licence or permit to practice in the workplace where work is carried out on electrical installations which are designed to operate at voltages greater than 50 volt (V) alternating current (a.c.) or 120 V direct current (d.c.).

Competency development activities in this unit are subject to regulations directly related to licensing. Where a licence or permit to practice is not held, a relevant contract of training, such as an Australian Apprenticeship, may be required.

Additional and/or other conditions may apply in some jurisdictions subject to regulations related to electrical work. Practice in the workplace and during training is also subject to work health and safety (WHS)/occupational health and safety (OHS) regulations.

Pre-requisite Unit

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

UEECD0019 Fabricate, assemble and dismantle utilities industry components

UEECD0020 Fix and secure electrotechnology equipment

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

UEEEL0020 Solve problems in low voltage a.c. circuits

UEEEL0023 Terminate cables, cords and accessories for low voltage circuits

UEEEL0019 Solve problems in direct current (d.c.) machines

UEEEL0021 Solve problems in magnetic and electromagnetic devices

and

UEECD0043 Solve problems in direct current circuits

or

UEECD0044 Solve problems in multiple path circuits

UEECD0046 Solve problems in single path circuits

Competency Field

Electrical

Unit Sector

Electrotechnology

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 electrical circuits, control and protection installation

1.1 The extent and nature of the electrical installation is determined from job specifications

1.2 Hazards are identified, risks are assessed and control measures are implemented

1.3 Load requirements for individual current-using equipment is determined from job specifications and/or consultation with appropriate persons

2 Arrange electrical circuits, control and protection

2.1 Circuits, control and protective devices are arranged to ensure safe and functional operation of the installation and to comply with relevant industry technical standards and job specification requirements

2.2 Earthing is arranged and terminated to comply with the multiple earthed neutral (MEN) system requirements

2.3 Protective devices are selected to meet the required switching and tripping currents coordination and discrimination for overload and short circuit protection in accordance with relevant industry technical standards

2.4 Residual current devices (RCDs) are selected to meet

the required circuit switching and tripping currents, in accordance with relevant industry technical standards

2.5 Switchgear/control gear is selected to meet current and voltage requirements and confirmed suitable for environmental conditions (ingress protection (IP) ratings) and functional requirements

2.6 Switchboards are arranged to accommodate control and protective devices, links, safety services and other distributor equipment in accordance with relevant industry technical standards

3 Document electrical installation circuits, control and protection arrangements

3.1 Evidence is obtained from manufacturer/suppliers that electrical equipment selected complies with safety requirements in accordance with workplace procedures

3.2 Device selection/s rationale and calculations are documented in accordance with workplace procedures

3.3 Electrical installation and specifications for selected items are documented in accordance with workplace procedures and forwarded to appropriate person/s

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 UEE Electrotechnology Training Package Companion Volume Implementation Guide.

Arranging circuits for control and protection must include at least two electrical installations comprising:

- a main switchboard, supplying more than one circuit each for:
 - lighting
 - socket outlets
 - fixed appliances
- one installation must include a circuit supplying a three-phase load
- one installation must include a distribution board separate from the main switchboard

Unit Mapping Information

This unit replaces and is equivalent to UEENEEG063A Arrange circuits, control and protection for electrical installations.

Links

Companion Volume implementation guides are found in VETNet - -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b8a8f136-5421-4ce1-92e0-2b50341431b6>