



Australian Government

UEEEL0018 Select wiring systems and select cables for low voltage electrical installations

Release: 2

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Modification History

Release 2. This is the second release of this unit of competency in the UEE Electrotechnology Training Package.

Workplace evidence requirements updated in Performance Evidence and Assessment Conditions.
Assessor requirements updated in Assessment Conditions.

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 wiring systems and cables for electrical installations operating at voltages up to 1,000 volt (V) alternating current (a.c.) or 1,500 V direct current (d.c.).

It includes application of wiring systems and cable types, selecting wiring system compatible with the installation conditions, selecting cables that comply with required current-carrying capacity and voltage drop and earth fault-loop impedance limitations, coordinating between protective devices and conductors, and documenting selection 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 V a.c. or 120 V 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

UEEEL0003 Arrange circuits, control and protection for electrical installations

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

UEEEL0008 Evaluate and modify low voltage heating equipment and controls

UEEEL0009 Evaluate and modify low voltage lighting circuits, equipment and controls

UEEEL0010 Evaluate and modify low voltage socket outlets circuits

UEEEL0024 Test and connect alternating current (a.c.) rotating machines

UEEEL0025 Test and connect transformers

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

Elements describe the essential outcomes.

1 Plan wiring systems for general electrical installations

PERFORMANCE CRITERIA

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

- 1.1** Scope and nature of the electrical installation is determined from job specifications
- 1.2** WHS/OHS requirements and workplace procedures and other regulatory requirements are identified and applied
- 1.3** Cable routes, the route lengths of cable, and the conditions in which the wiring system is to operate is determined from job specifications or from consultation

- with appropriate person/s
- 2 Select wiring systems and cables for general electrical installations**
- 2.1** Wiring system is selected and suitable for the environments in which it will operate
- 2.2** Cable conductor sizes are selected to meet current-carrying capacity requirements and voltage-drop and earth fault-loop impedance limitations in accordance with relevant industry standards
- 2.3** Circuit protective devices are selected to meet requirement for co-ordination with conductor current-carrying capacity in accordance with relevant industry standards
- 2.4** Earthing system components are selected to meet multiple earthed neutral (MEN) system in accordance with relevant industry standards
- 3 Document electrical installation**
- 3.1** Manufacturer data is referenced in selection of equipment to ensure materials comply with safety requirements and relevant industry standards
- 3.2** Rationale for wiring system selections and calculations are documented in accordance with workplace procedures
- 3.3** Electrical installation arrangement and specifications for all 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.

Selecting wiring systems and cables for at least two general electrical installations,

- a main switchboard, supplying more than one circuit each for:

including:

- lighting
- socket outlets
- fixed appliances
- one installation must include a circuit supplying a three phase load
- one installation must include a safety service or alternate supply
- one installation must include a distribution board separate from the main switchboard.

Unit Mapping Information

This unit replaces and is equivalent to UEENEEG107A Select wiring systems and select cables for low voltage electrical installations.

Links

Companion Volume Implementation Guides are found in VETNet -

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