



**Australian Government**

# **UEEEL0059 Plan low voltage switchboard and control panel layouts**

**Release: 1**

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## 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 plan low voltage (LV) switchboard and control panel layout.

It includes preparing and planning the layout of electrical switchboards and control panel operating at voltages up to 1,000 volts (V) alternating current (a.c.) or 1,500 V direct current (d.c.) and fault levels not exceeding 20 kiloamps (kA) for approval.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## 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 general electrical installations

UEEEL0020 Solve problems in low voltage a.c. circuits

UEEEL0023 Terminate cables, cords and accessories for low voltage circuits

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

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

UEEEL0021 Solve problems in 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 Solve problems in 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 Prepare to plan switchboard and control panel layout**

#### **2 Plan switchboard and control panel layout**

### PERFORMANCE CRITERIA

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

- 1.1** Work health and safety (WHS)/occupational health and safety (OHS) risk control measures and workplace procedures for carrying out work activities are identified, obtained and applied
- 1.2** Scope of switchboard and control panel layouts is determined from job specifications and/or design brief
- 1.3** Switchboard and control panel layout safety and regulatory requirements are identified, obtained and applied in accordance with WHS/OHS requirements and relevant industry standards
- 1.4** Equipment to be incorporated in the switchboard and control panel is determined from job specifications and/or design brief
- 2.1** WHS/OHS risk control measures and workplace procedures for carrying out work activities are documented
- 2.2** Equipment is selected in accordance with technical standards, job specifications and requirements
- 2.3** Switchboard and control panel layouts are planned to accommodate equipment with sufficient clearance to enable wiring/connecting and servicing from job

specifications

- 2.4 Switchboard and control panel layouts are planned in accordance with WHS/OHS and relevant industry standards
  - 2.5 Switchboard and control panel layout draft is checked with the design brief and in accordance with relevant industry standards
  - 2.6 Switchboard and control panel layout is documented for submission to appropriate person/s for acceptance and approval
  - 2.7 Unplanned situations are responded to in accordance with workplace procedures in a manner that minimises risk to personnel and equipment
- 3 Obtain approval for switchboard and control panel layout**
- 3.1 Requests for alterations to the layout are negotiated with appropriate person/s in accordance with workplace procedures
  - 3.2 Final layout design is documented and approval obtained from appropriate person/s
  - 3.3 Switchboard and control panel layout documentation is forwarded to appropriate person/s for production
  - 3.4 Quality of work is monitored 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 UEE Electrotechnology Training Package Companion Volume Implementation Guide.

Switchboard must be in more than one section and comprise essential and general supply controls, including:

- current transformer (CT) metering
- sub-main controls
- local distribution board
- load monitoring

Control panel must consist of controls for more than two electrical machines, electromechanical and/or electronic control devices, including:

- fault indication
- relays
- timers
- logic controllers
- indicators
- switches/push buttons

## Unit Mapping Information

This unit replaces and is equivalent to UEENEEG128A Plan low voltage switchboard and control panel layouts.

## Links

Companion Volume implementation guides are found in VETNet - -

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