



Australian Government

UEEEL0069 Select and arrange equipment for special LV electrical installations

Release: 2

UEEEL0069 Select and arrange equipment for special LV electrical installations

Modification History

Release 2. Minor change. Typographic error in prerequisites corrected.

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 and arrange electrical equipment into distribution circuits for installations associated with construction and demolition sites, transportable structures and vehicles, including their site supplies, marinas, electromedical treatment areas (patient areas), and shows and carnivals operating up to 1,000 volt (V) alternating current (a.c.) or 1,500 V direct current (d.c.).

It includes arranging the installation for correct functioning and safe connection to supply by the selection of switchgear, control gear, protection devices and wiring based on calculated and deemed-to-comply solutions. It also includes completing electrical installation documentation.

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 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 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 Prepare to select equipment

2 Arrange installation into circuits

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 Safety and relevant regulatory electrical installation requirements are identified and applied

2.1 Circuits are arranged to ensure safe and functional operation of the installation

2.2 Circuits are arranged to comply with applicable technical industry standards and job specification

		requirements
	2.3	Earthing is arranged to comply with the multiple earthed neutral (MEN) system requirements
3 Select cables, protection and switchgear	3.1	Wiring is selected for suitability for the environments in which they are installed
	3.2	Cable conductor sizes are selected to meet current-carrying capacity requirements and voltage-drop and fault-loop impedance limitations
	3.3	Protection methods and devices are selected to meet coordination requirements for overload and short circuit protection
	3.4	Switchgear and control gear are selected to meet current, voltage and ingress protection (IP) ratings and functional requirements
	3.5	Earthing system components are selected to meet requirements of the MEN system
	3.6	Evidence is obtained that electrical equipment selected complies with safety requirements
4 Document electrical installation	4.1	Electrical installation equipment selections and calculations are documented in accordance with workplace procedures
	4.2	Electrical installation arrangement and specifications for 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 and arranging low voltage (LV)

- caravan parks

electrical equipment must include at least two of the following types of special installations:

- construction and demolition sites
- marinas
- medical treatment areas
- moveable premises
- shows and carnivals

Special LV electrical installations must include the following:

- consumer mains
- main earthing system and main switchboard
- sub-mains
- earthing system and distribution boards
- final sub-circuits and requirements particular to the installation type

Unit Mapping Information

This unit replaces and is equivalent to UEENEEG120A Select and arrange equipment for special LV electrical installations.

Links

Companion Volume implementation guides are found in VETNet - -

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

Assessment Requirements for UEEEL0069 Select and arrange equipment for special LV electrical installations

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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, performance criteria and range of conditions on at least two separate occasions and include:

- applying relevant work health and safety (WHS)/occupational health and safety (OHS) requirements and workplace procedures and practices, including using risk control measures
- applying sustainable energy principles and practices
- completing workplace documentation
- dealing with unplanned events/situations in accordance with workplace procedures in a manner that minimises risk to personnel and equipment
- selecting and arranging equipment for special electrical installations, including:
 - arranging special electrical installations to comply with safety, other regulatory and functional requirements, technical industry standards and job specifications
 - documenting installation arrangements, specifications for items selected and reasons for the selections made
 - selecting appropriate earthing components that meet multiple earthed neutral (MEN) system requirements in special installations
 - selecting appropriate type and size of cables that are suitable for the environment requirements and meet current-carrying capacity, voltage-drop and fault-loop impedance requirements
 - selecting protection methods and devices that meet coordination requirements for overload and short circuit protection
 - selecting switchgear and control gear that meet current, voltage and ingress protection (IP) ratings and functional requirements.

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the elements, performance criteria and range of conditions and include knowledge of:

- relevant manufacturer specifications

- relevant workplace documentation
- relevant workplace policies and procedures
- technical industry standards, regulations and codes for special electrical installations, including:
 - scope of relevant industry standards for special installations, including additional industry standard wiring rules requirements
 - transportable structures and vehicles, including their site supplies
 - construction and demolition sites
 - marinas
 - electromedical treatment areas (patient areas)
 - shows and carnivals
- awareness of high voltage (HV) consumer installations standards.

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 suitable workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in suitable simulated workplace operational situations that replicate 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
- applicable documentation, including workplace procedures, equipment specifications, regulations, relevant industry standards, codes of practice and operation manuals.

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