



Australian Government

UEEFS2004 Use basic tools and electronic components in the energy sector

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Modification History

Release	Comments
1	This unit of competency was first released in UEE Electrotechnology Training Package Release 10.0.

Unit outcomes

This unit introduces learners to the safe use, care, handling and basic maintenance of tools and electronic components commonly used in the energy sector.

It supports the development of foundation and employability skills, preparing learners for further vocational training, apprenticeships, or employment in the energy sector.

On completion of this unit, learners will be able to demonstrate basic knowledge of common tools, electronic components, extra-low voltage (ELV) direct current (d.c.) circuit arrangements, and safe work practices relevant to routine energy sector tasks. They will have the skills to select, inspect, use, maintain, and store basic tools, identify and handle electronic components, assemble an ELV d.c. circuit model, and test circuit operation using basic test instruments.

Licensing/Regulatory Information

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

Knowledge

On successful completion of this unit, learners will have:

- basic factual knowledge of:
 - the names, features, functions, selection, inspection and maintenance of common hand tools, battery-powered tools, and electronic components used in entry-level energy sector contexts
- basic technical knowledge of:
 - how ELV d.c. circuits operate
 - the function of components in series (single-path), parallel (multi-path), and series-parallel d.c. circuit arrangements
 - the purpose of common circuit testing methods
 - the safe use of multimeter test instruments in ELV applications
- basic procedural knowledge of:

- how to follow instructions to assemble basic d.c. circuits
- how to identify typical indicators of correct and incorrect circuit operation
- how to interpret basic voltage, current and continuity readings
- how to apply safety principles, including reporting hazards or faults, shut-down and isolation procedures, and the use of personal protective equipment (PPE) when working with electrical components
- how to record and communicate actions and results using written notes, labelled diagrams, or digital tools where required.

Skills

On successful completion of this unit, learners will have:

- cognitive skills to:
 - follow instructions
 - apply safe work practices
 - interpret diagrams or written information relevant to routine project tasks
- technical and procedural skills to:
 - set up and pack down a workstation
 - identify and handle basic electrical/electronic components
 - inspect tools and components for visible faults or serviceability
 - use, maintain and store a limited range of hand and battery-powered tools
 - shut down and confirm isolation
 - assemble a basic ELV d.c. circuit model
 - test circuit operation using a multimeter to obtain voltage, current and continuity
- communication skills to:
 - communicate technical information about faults or issues during routine tasks
 - use appropriate energy sector terminology effectively
- collaboration skills to:
 - participate in project activities with others.

Application of Knowledge & Skills

Learners will apply their knowledge and skills in a structured learning environment. They will use autonomy and limited judgement to:

- safely use tools and equipment to assemble and test an ELV d.c. circuit model by following labelled diagrams or written instructions
- communicate faults and issues using appropriate energy sector terminology

- set up and pack down a workstation
- select and inspect tools and components
- shut down and confirm isolation before work
- assemble an ELV d.c. circuit model
- maintain and store tools appropriately after use
- record actions and results using written notes, labelled diagrams, or digital tools.

Pre-requisite unit(s)

No pre-requisite units

Competency field(s)

Foundational Skills

Unit sector(s)

Electrotechnology

Range of conditions

N/A

Assessment Requirements for UEEFS2004 Use basic tools and electronic components in the energy sector

Performance Evidence

The individual must demonstrate the ability to:

- follow safe work practices, including the use of PPE and the correct handling, maintenance and storage of tools
- set up and pack down a workstation in accordance with instructions and procedures
- identify and select hand tools, battery-powered tools, and electrical/electronic components for a given task
- conduct a visual inspection of tools for serviceability and report issues to a supervisor
- conduct a visual inspection of electrical components to identify faults and report issues to a supervisor
- check and confirm circuits are isolated before working with ELV d.c. electronic components
- use hand and battery-powered tools to secure or assemble electrical/electronic components
- assemble an ELV d.c. circuit model using electrical/electronic components, following a diagram or written instructions
- test the ELV d.c. circuit using a multimeter to confirm correct operation and interpret basic voltage, current, or continuity readings
- record actions and results clearly using written notes, labelled diagrams or digital tools.

Knowledge Evidence

The individual must demonstrate knowledge of:

- considerations for the safe and effective use of common hand and battery-powered tools used to assemble and connect ELV components, including:
 - key features and functions
 - intended purpose
 - safe handling and use of PPE
 - manufacturer's guidelines
 - work health and safety practices
- criteria for selecting appropriate tools for a given project task, and the risks associated with incorrect or unsafe tool use

- procedures for inspecting tools and equipment before use to identify visible damage or faults, and the appropriate actions to take if issues are found
- basic cleaning and maintenance practices that keep tools and equipment in safe and serviceable condition
- the function, purpose, and visual identification of common electrical/electronic components, including:
 - resistors
 - capacitors
 - diodes
 - switches
 - power supply
 - fuses
 - load
- differences between series (single-path), parallel (multi-path), and series-parallel d.c. circuit arrangements, including how current and voltage behave in each.
- procedures for assembling d.c. circuits using a breadboard or circuit model
- purpose and basic methods of testing ELV d.c. circuits, including continuity, voltage, and polarity checks
- safe use and handling of multimeter test instruments in extra-low-voltage applications
- typical indicators of correct and incorrect circuit operation, including open circuit, reversed polarity, and incorrect connections
- common electrical safety principles relevant to ELV d.c. components, including:
 - the dangers of short circuits
 - the importance of having clean, dry hands when handling electrical tools and components
 - avoiding contact with exposed conductors
 - the importance of isolating ELV d.c. circuits before working on them, including identifying and using the correct point of isolation
 - electrostatic discharge (ESD) precautions when handling sensitive electronic components
- the purpose and correct use of PPE when working with ELV systems, including:
 - safety glasses
 - gloves
 - insulating mats or surfaces
- appropriate methods for reporting damaged tools, faulty components, and safety hazards to a supervisor

- the importance of seeking clarification or assistance using clear and respectful communication.

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

All practical activities and projects involving electrical components must be limited to ELV d.c. systems as defined by relevant jurisdictional standards, to ensure tasks can be safely delivered and undertaken by individuals who do not require an electrical licence.

Mandatory Workplace Requirements

There are no mandatory workplace requirements for assessment. Assessment of performance evidence may be in a structured learning environment.

Unit Mapping Information

Previous Code and Title	Equivalence	Comments
	Newly created	This unit has been created to address a skill or task required by industry that is not covered by an existing unit of competency

Links

Companion volumes, including implementation guides, are found on the national training register - <https://training.gov.au/training/details/UEE>.