



Australian Government

UEEFS2010 Explore heavy electrical mobile plant in mining and resource industries

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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 how electrical energy is used to power and control heavy electrical mobile plant in mining and resource industries, with a focus on the electrical systems and components that support safe and reliable operation.

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 the purpose, components, and electrical features of heavy electrical mobile plant, how energy flows through these systems, and the types of entry-level roles, emerging energy-related roles and career pathways in related energy sector industries. They will have the skills to interpret project information, assemble, operate, test and adjust an ELV direct current (d.c.) model energy system that replicates energy flow and basic control functions, and communicate information about the model, task outcomes, and the electrical features represented using appropriate energy sector terminology.

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:
 - how electrical energy is used to power and control heavy electrical mobile plant in mining and resource operations
 - the role of electrical trades in installing, operating, maintaining and fault-finding electrical systems and components
 - entry-level occupations, emerging energy-related roles and career pathways in the energy sector related to electrical work in the mining and resource industries
- basic technical knowledge of:

- the main types of heavy electrical mobile plant
- the key electrical systems and components used in heavy electrical mobile plant
- how electrical energy flows through energy sources, connections, control points, and loads
- how energy flow can be represented in ELV d.c. models of heavy electrical mobile plant
- basic numerical concepts including identifying voltage levels, comparing loads, and estimating the effect of different connections or control points on energy flow
- faults relevant to ELV d.c. models of heavy electrical mobile plant
- the use of digital tools where required to record, represent, or communicate project information.

Skills

On successful completion of this unit, learners will have:

- cognitive skills to:
 - access and interpret information and project briefs about heavy electrical mobile plant and its electrical systems used in mining and resource operations
- technical and procedural skills to:
 - select and check a limited range of tools, equipment, and ELV d.c. model components
 - apply safety procedures when working with ELV d.c. model energy systems
 - assemble, operate, test and adjust an ELV d.c. model that represents basic control functions in heavy electrical mobile plant
 - use digital tools where required to record, represent, or present project information
- communication skills to:
 - communicate technical information about electrical features of heavy electrical mobile plant
 - 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:

- plan and manage tasks to explore how electrical energy is used to power and control heavy electrical mobile plant in mining and resource operations
- record and communicate information about the model, task outcomes, and the electrical features represented using appropriate energy sector terminology
- interpret a project brief
- apply core principles of electrical energy flow in heavy electrical mobile plant
- use tools, equipment and ELV d.c. model components to assemble, operate, test and adjust an ELV d.c. model that represents basic control functions and shows how energy is directed through a source, connections and a control point to operate a load
- use digital tools where required to record, represent, or present project information.

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 UEEFS2010 Explore heavy electrical mobile plant in mining and resource industries

Performance Evidence

The individual must demonstrate the ability to:

- interpret a project brief to identify the requirements and plan a basic ELV d.c. model that represents how electrical energy flows through components in heavy electrical mobile plant
- select and check ELV components, tools, and materials for correct function and safe condition
- apply safety procedures, including shut-down and isolation procedures, before working on the system
- assemble and operate a basic ELV d.c. model to represent control functions in heavy electrical mobile plant by connecting an energy source, wiring, and a control point to manage the flow of electrical energy to a load
- test the model to identify basic faults or performance issues
- make a basic adjustment to improve model performance
- record actions and results clearly using written notes, labelled diagrams or digital tools
- communicate information about the model while participating in project activities with others, using appropriate energy sector terminology to describe the task outcomes and the electrical features represented.

Knowledge Evidence

The individual must demonstrate knowledge of:

- entry-level occupations, emerging energy-related roles and career pathways in the energy sector related to mining and resource work
- the types of tasks performed by electricians and electrical fitters when working on heavy electrical mobile plant, including:
 - installation
 - testing
 - maintenance
 - fault identification
- the basic purpose and function of electrical systems and components in heavy electrical mobile plant, including:
 - isolation points
 - motors

- battery systems
 - control systems
 - wiring
 - switching devices
- conceptual understanding of how electrical energy flows through a heavy electrical mobile plant electrical system, including:
 - energy sources
 - connections
 - control points
- how energy flow can be replicated or represented in an ELV d.c. model of heavy electrical mobile plant, including a supply from a source through connections and a control point to a load
- safety principles when working with ELV d.c. model energy systems relating to heavy electrical mobile plant course project work
- basic numerical concepts relevant to ELV d.c. models of heavy electrical mobile plant, including identifying voltage levels, comparing loads such as motors or lights, and estimating the effect of different connections or control points on energy flow
- faults or problems that might affect ELV d.c. models of heavy electrical mobile plant energy systems, and simple solutions to improve performance.

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 they 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>.