



Australian Government

Department of Education, Employment and Workplace Relations

UEENEEG189A Install and maintain emergency lighting systems

Release: 1

UEENEEG189A Install and maintain emergency lighting systems

Modification History

Not applicable.

Unit Descriptor

Unit Descriptor

1) Scope:

1.1) Descriptor

This unit covers the installation and maintenance of emergency exit lighting systems in buildings and premises. It encompasses working safely and to installation and maintenance standards, complying with maintenance schedules and completing the necessary documentation.

Application of the Unit

Application of the Unit 2)

This unit is intended for competency development in entry-level employment based programs incorporated in approved contracts of training.

Licensing/Regulatory Information

License to practice 3)

During Training: Competency development activities are subject to regulations directly related to licencing, occupational health and safety and where applicable contracts of training such as apprenticeships.

In the workplace: The application of the skills and knowledge described in this unit require a license to practice in the workplace where work is carried out on electrical equipment or installations which are designed to operate at voltages greater than 50 V a.c. or 120 V d.c.

Other conditions may apply under State and Territory

License to practice**3)**

legislative and regulatory requirements.

Pre-Requisites**Prerequisite Unit(s)****4)****Competencies****4.1)**

Granting competency in this unit shall be made only after competency in the following unit(s) has/have been confirmed.

UEENEEE1 01A	Apply Occupational Health and Safety regulations, codes and practices in the workplace
UEENEEE1 02A	Fabricate, dismantle, assemble of utilities components
UEENEEE1 04A	Solve problems in d.c circuits
UEENEEE1 05A	Fix and secure electrotechnology equipment
UEENEEE1 07A	Use drawings, diagrams, schedules, standards, codes and specifications
UEENEEE1 37A	Document and apply measures to control OHS risks associated with electrotechnology work
UEENEEG0 06A	Solve problems in single and three phase low voltage machines
UEENEEG0 33A	Solve problems in single and three phase electrical apparatus and circuits
UEENEEG0 63A	Arrange circuits, control and protection for general electrical installations
UEENEEG1 01A	Solve problems in electromagnetic devices and related circuits
UEENEEG1	Solve problems in low voltage a.c. circuit

Prerequisite Unit(s)**4)**

02A

UEENEEG1 03A Install low voltage wiring and accessories

UEENEEG1 04A Install appliances, switchgear and associated accessories for low voltage electrical installations

UEENEEG1 06A Terminate cables, cords and accessories for low voltage circuits

UEENEEG1 07A Select wiring systems and cables for low voltage general electrical installations

UEENEEG1 08A Trouble-shoot and repair faults in low voltage electrical apparatus and circuits

UEENEEG1 09A Develop and connect electrical control circuits

Further Information:

For the full prerequisite chain details for this unit please refer to Table 2 in Volume 1, Part 2

Literacy and numeracy skills**4.2)**

Participants are best equipped to achieve competency in this unit if they have reading, writing and numeracy skills indicated by the following scales. Description of each scale is given in Volume 2, Part 3 'Literacy and Numeracy'

Reading 4 Writing 4 Numeracy 4

Employability Skills Information**Employability Skills****5)**

The required outcomes described in this unit of competency contain applicable facets of Employability Skills. The Employability Skills Summary of the

Employability Skills**5)**

qualification in which this unit of competency is packaged will assist in identifying Employability Skill requirements.

Elements and Performance Criteria Pre-Content

6) Elements describe the essential outcomes of a competency standard unit

Performance Criteria describe the required performance needed to demonstrate achievement of the element.
Assessment of performance is to be consistent with the Evidence Guide.

Elements and Performance Criteria**ELEMENT****PERFORMANCE CRITERIA**

1 Prepare to install and maintain emergency systems	1.1	OHS procedures for a given work area are identified, obtained and understood.
	1.2	Health and safety risks are identified and established risk control measures and procedures in preparation for the work are followed.
	1.3	Safety hazards that have not previously been identified are noted and established risk control measures are implemented.
	1.4	Installation/maintenance is prepared in consultation with other affected by the work and sequenced appropriately.
	1.5	The nature and location of the work is determined from documentation or appropriate person to establish the scope of work to be undertaken.
	1.6	Location of apparatus and associated equipment is planned within the constraints of the building structure, significant and regulations.
	1.7	Advice is sought from appropriate persons to ensure the work is coordinated effectively with others.

ELEMENT	PERFORMANCE CRITERIA
2 Install and maintain emergency systems	1.8 Material needed for the installation work is obtained in accordance with established procedures and checked against job requirements.
	1.9 Tools, equipment and testing devices needed to for the installation work are obtained in accordance with established procedures and checked for correct operation and safety.
	1.10 Preparatory work is checked to ensure no damage has occurred and complies with requirements.
	2.1 OHS risk control measures and procedures for carrying out the work are followed.
	2.2 The need to test or measure live is determined in strict accordance with OHS requirements and when necessary conducted within established safety procedures.
	2.3 Circuits/machines/plant are checked as being isolated where necessary in strict accordance OHS requirements and procedures.
	2.4 Apparatus and associated equipment are installed and maintained to comply with technical standards and job specifications and requirements with sufficient access to affect terminations, adjustment and maintenance.
	2.5 Wiring is terminated at apparatus and associated equipment in accordance with manufacture's specifications and functional and regulatory requirements.
	2.6 Established methods for dealing with unexpected situations are discussed with appropriate person or persons and documented.
	2.7 Unexpected situations are dealt with safely and with the approval of an authorised person.
	2.8 Ongoing checks of the quality of installed apparatus are undertaken in accordance with established procedures.

ELEMENT	PERFORMANCE CRITERIA
3 Completion and report installation and maintenance activities.	2.9 Apparatus installation is carried out efficiently without unnecessary waste of materials or damage to apparatus, circuits, the surrounding environment or services and using sustainable energy principles.
	3.1 OHS work completion risk control measures and procedures are followed.
	3.2 Work site is cleaned and made safe in accordance with established procedures.
	3.3 Final checks are made to that the installed and maintained apparatus conforms to requirements.
	3.4 'As-installed' emergency systems apparatus and associated equipment is documented and an appropriate person or persons notified in accordance with established procedures.

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

8) This describes the essential skills and knowledge and their level, required for this unit.

Evidence shall show that knowledge has been acquired of safe working practices and installing and maintaining emergency systems.

All knowledge and skills detailed in this unit should be contextualised to current industry practices and technologies.

KS01-EG189A Safety service — emergency lighting installation and maintenance

Evidence shall show an understanding of emergency lighting installation and maintenance to an extent indicated by the following aspects:

- T1 Emergency lighting luminaires and exit signs
- T2 Emergency lighting control systems including wired and wireless control.
- T3 Arrangements and control encompassing:
 - Labelling of devices operation of emergency lighting
- T4 Emergency power supplies for centrally supplied systems encompassing:
 - emergency power source
 - batteries and their installation
 - battery charger assembly
 - inverters
 - alarm systems
- T5 Design of emergency escape luminaire installation encompassing:
 - provision of emergency luminaires
 - acceptable emergency escape luminaires
 - installations employing direct lighting
 - installations employing indirect lighting
 - lighting of stairways
 - identification and marking of emergency escape luminaires
- T6 Installation of electrical wiring and equipment for centrally supplied systems encompassing:
 - circuit voltage drop
 - protection against overcurrent
 - protection of the electrical installation against fire
 - segregation or identification of submains
 - arrangement of final subcircuits
- T7 Particular requirements for self-contained emergency escape luminaires and

REQUIRED SKILLS AND KNOWLEDGE

exit signs encompassing:

- suitability for operating temperatures
- arrangement and control
- batteries
- battery chargers
- control equipment
- electrical requirements
- self-contained automatic discharge testing facilities

T8 Battery systems used in emergency lighting encompassing:

- Types of batteries and their characteristics
- Recharging arrangements
- Procedures for testing emergency lighting

T9 Maintenance and inspection requirements encompassing:

- Compliance standards include AS/NZS2293 series and Building Code of Australia (BCA)
- information required for maintaining the system
- operating and maintenance manual
- provision for the recording of maintenance

T10 Inspection and maintenance procedures for central systems encompassing:

- required procedures.
- six-monthly procedures
- twelve-monthly procedures

T11 Inspection and maintenance procedures for single-point systems encompassing:

- required procedures
- six-monthly procedures
- twelve-monthly procedures
- battery replacement
- cleaning of emergency luminaires

Evidence Guide

EVIDENCE GUIDE

9) This provides essential advice for assessment of the unit. It must be read in conjunction with the performance criteria and the range statement of the unit and the Training Package Assessment Guidelines.

The Evidence Guide forms an integral part of this unit. It must be used in conjunction with all parts of this unit and performed in accordance with the Assessment Guidelines of this Training Package.

Overview of Assessment

9.1)

Longitudinal competency development approaches to assessment, such as Profiling, require data to be reliably gathered in a form that can be consistently interpreted over time. This approach is best utilised in Apprenticeship programs and reduces assessment intervention. It is the Industry's preferred model for apprenticeships. However, where summative (or final) assessment is used it is to include the application of the competency in the normal work environment or, at a minimum, the application of the competency in a realistically simulated work environment. It is recognised that, in some circumstances, assessment in part or full can occur outside the workplace. However, it must be in accordance with industry and regulatory policy.

Methods chosen for a particular assessment will be influenced by various factors. These include the extent of the assessment, the most effective locations for the assessment activities to take place, access to physical resources, additional safety measures that may be required and the critical nature of the competencies being assessed.

The critical safety nature of working with electricity, electrical equipment, gas or any other hazardous substance/material carries risk in deeming a person competent. Sources of evidence need to be 'rich' in nature to minimise error in judgment.

Activities associated with normal every day work have a bearing on the decision as to how much and how detailed the data gathered will contribute to its 'richness'. Some skills are more critical to safety and operational requirements while the same skills may be more or less frequently practised. These points are raised for the assessors to consider when choosing an assessment method and developing assessment instruments. Sample assessment instruments are included for Assessors in the Assessment Guidelines of this Training Package.

**Critical aspects
of evidence
required to
demonstrate
competency in
this unit**

Before the critical aspects of evidence are considered all prerequisites shall be met.

Evidence for competence in this unit shall be considered holistically. Each element and associated performance criteria shall be demonstrated on at least two occasions in accordance with the 'Assessment Guidelines – UEE11'. Evidence shall also comprise:

- A representative body of work performance demonstrated within the timeframes typically expected of the discipline, work function and industrial environment. In particular this shall incorporate evidence that shows a candidate is able to:
 - Implement Occupational Health and Safety workplace procedures and practices including the use of risk control measures as specified in the performance criteria and range statement
 - Apply sustainable energy principles and practices as specified in the performance criteria and range statement
 - Demonstrate an understanding of the essential knowledge and associated skills as described in this unit. It may be required by some jurisdictions that RTOs provide a percentile graded result for the purpose of regulatory or licensing requirements.
 - Demonstrate an appropriate level of skills enabling employment
 - Conduct work observing the relevant Anti Discrimination legislation, regulations, policies and workplace procedures
- Demonstrated consistent performance across a representative range of contexts from the prescribed items below:
 - Install and maintain emergency lighting systems as described in 8) and including:

- | | |
|---|--|
| A | Determining the operating parameters of existing electrical systems. |
| B | Using established problem solving methods. |
| C | Directing personnel to take relevant measurements. |

- D Interpreting measured values appropriately.
- E Providing effective solutions to electrical system problems.
- F Giving written justification of solutions provided.
- G Dealing with unplanned events by drawing on essential knowledge and skills to provide appropriate solutions incorporated in the holistic assessment with the above listed items.

**Context of and
specific
resources for
assessment** **9.3)**

This unit should be assessed as it relates to normal work practice using procedures, information and resources typical of a workplace. This should include:

OHS policy and work procedures and instructions.

Suitable work environment, facilities, equipment and materials to undertake actual work as prescribed by this unit.

These should be part of the formal learning/assessment environment.

Note:

Where simulation is considered a suitable strategy for assessment, conditions must be authentic and as far as possible reproduce and replicate the workplace and be consistent with the approved industry simulation policy.

The resources used for assessment should reflect current industry practices in relation to installing and maintaining emergency lighting systems.

**Method of
assessment** **9.4)**

This unit shall be assessed by methods given in Volume 1, Part 3 'Assessment Guidelines'.

Note:

Competent performance with inherent safe working practices is expected in the industry to which this unit applies. This requires

assessment in a structured environment which is primarily intended for learning/assessment and incorporates all necessary equipment and facilities for learners to develop and demonstrate the essential knowledge and skills described in this unit.

**Concurrent
assessment and
relationship with
other units**

9.5)

For optimisation of training and assessment effort, competency development in this unit may be arranged concurrently with unit:

UEENEEG10 3A Install wiring and accessories for low voltage circuits

UEENEEG10 4A Install appliances, switchgear and associated accessories for low voltage electrical installations

The critical aspects of occupational health and safety covered in Unit UEENEEG101A and other discipline specific occupational health and safety unit(s) shall be incorporated in relation to this unit.

Range Statement

RANGE STATEMENT

10) This relates to the unit as a whole providing the range of contexts and conditions to which the performance criteria apply. It allows for different work environments and situations that will affect performance.

This unit shall be demonstrated in relation to installing and maintaining emergency lighting systems.

Generic terms used throughout this Vocational Standard shall be regarded as part of the Range Statement in which competency is demonstrated. The definition of these and other terms that apply are given in Volume 2, Part 2.1.

Unit Sector(s)

Not applicable.

Competency Field

Competency Field 11)

Electrical