



Australian Government

UETDRDS021 Design public lighting systems

Release: 1

UETDRDS021 Design public lighting systems

Modification History

Release 1. This is the first release of this unit of competency in the UET Transmission, Distribution and Rail Sector Training Package Release 4.0.

Application

This unit includes the skills and knowledge required to design public lighting systems in the electricity supply industry (ESI).

It includes basic public lighting principles, including layout, principles of colour, behaviour of light, and factors that affect illumination.

It also includes factors affecting external lighting design, calculation of light output and illuminance, and special lighting situations.

The application of the skills and knowledge described in this unit may require a licence/registration to practice in the workplace.

Other conditions may also apply under state and territory legislative and regulatory licensing requirements which must be confirmed prior to commencing this unit.

Pre-requisite Unit

UEECD0007 Apply work health and safety regulations, codes and practices in the workplace

UEECD0044 Solve problems in multiple path circuits

UEECD0046 Solve problems in single path circuits

UEECD0051 Use drawings, diagrams, schedules, standards, codes and specifications

UEEEL0020 Solve problems in low voltage a.c. circuits

UEEEL0021 Solve problems in magnetic and electromagnetic devices

UETDREL005 Work safely in the vicinity of live electrical apparatus

Competency Field

Design

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

PERFORMANCE CRITERIA

Elements describe the essential outcomes.

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

1 Prepare to design public lighting systems

- 1.1** Project requirements are determined
- 1.2** Design specifications are determined in accordance with workplace requirements
- 1.3** Tools, equipment and personal protective equipment (PPE) required for site inspections are determined, obtained and confirmed in working order
- 1.4** Requirements for site inspections are determined in accordance with workplace requirements
- 1.5** Work is prioritised and sequenced for completion in accordance with workplace requirements

2 Design public lighting systems

- 2.1** Site inspection is performed
- 2.2** Public lighting system is designed in accordance with workplace requirements
- 2.3** Sustainable energy principles are used to evaluate and determine best outcomes in accordance with workplace requirements
- 2.4** Environmental sustainability principles are used to evaluate and determine best outcomes in accordance with workplace requirements
- 2.5** Design is checked for compliance against legislation, regulations, standards and codes of practice
- 2.6** Health and safety risks are identified and minimised or eliminated by using safety and control measures in the design process
- 2.7** Quality checks of work are undertaken in accordance with workplace requirements

3 Complete work and documentation

- 3.1** Completed work is checked against project and workplace requirements

- 3.2** Work records, reports and documentation are completed, approved and appropriate personnel notified in accordance with workplace requirements

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 UET Transmission, Distribution and Rail Sector Training Package Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is not equivalent to UETDRDS004 Design power system public lighting systems.

Links

Companion Volume Implementation Guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=229bace1-b7bc-4653-9300-dffb13ecfad7>

Assessment Requirements for UETDRDS021 Design public lighting systems

Modification History

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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 and performance criteria on at least two (2) separate occasions and include:

- designing of public lighting systems, including:
 - specifications
 - requirements for site inspection
 - sustainable energy principles and practices
 - compliance against legislation, regulations, standards and codes of practice, project and workplace requirements
 - identifying, minimising or eliminating health and safety risks by using safety and control measures
 - environmental sustainability principles
 - obtaining, inspecting and using relevant personal protective equipment (PPE) for site inspection
 - prioritising and sequencing work for completion in accordance with workplace requirements
- performing at least one (1) site inspection
- performing ongoing quality checks of work in accordance with workplace requirements
- checking final design against project and workplace requirements
- completing relevant work records, reports and documentation
- completing six (6) designs of a public lighting system using at least three (3) of the following project types:
 - single light on existing assets
 - main road/minor road schemes
 - intersections
 - traffic management requirements
 - alteration to existing assets
 - multi-circuit systems
- completing all of the following for each design:
 - design control checklist
 - rectifying errors.

Knowledge Evidence

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

- public lighting systems design, including:
 - project requirements
 - design specifications
 - hazard, risk assessment and risk control requirements, including potential hazards
 - types and application of PPE
 - site inspections
 - prioritisation and sequencing of work for completion
 - application of environmental sustainability principles and practices
 - application of sustainable energy principles and practices
 - compliance with legislation, regulations, standards, codes of practice, and project and workplace requirements
 - work records, reports and documentation
 - manuals, diagrams and drawings
- public lighting principles, including:
 - light design layout
 - electromagnetic spectrum
 - principles of colour
 - behaviour of light
 - factors that affect illumination
 - tools, equipment, and techniques used for installation, maintenance, and testing
 - types and function of lanterns/luminaires/lamps, control equipment, poles and associated hardware used for street lighting
- types of tariffs and charges
- types of street lighting components and circuits
- factors affecting external lighting design
- calculation of light output and illuminance
- rated life of luminaries
- special lighting situations, including security lighting, hazardous street locations and emergency lighting
- principles of surveying
- principles of computer-aided drafting.

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 workplace operational situations where it is appropriate to do so.

Where this is not appropriate, assessment must occur in simulated conditions involving realistic and authentic activities that replicate operational 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:

- relevant and appropriate materials, tools, facilities, equipment and PPE currently used in industry
- applicable documentation, including workplace requirements, relevant industry standards, equipment specifications, regulations, codes of practice and operation manuals.

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