



Australian Government

UEERE0059 Design energy management controls for electrical installations in buildings

Release: 1

UEERE0059 Design energy management controls for electrical installations in buildings

Modification History

Release 1. This is the first release of this unit of competency in the UEE Electrotechnology Training Package.

This unit replaces and is not equivalent to UEERE0010 Design energy management controls for electrical installations in buildings. Modifications include:

- Prerequisite changed
- Significant amendments made to Elements and Performance Criteria
- Range of conditions updated
- Updates to performance and knowledge evidence requirements.

Application

This unit involves the skills and knowledge required to design energy management controls for electrical installations in new buildings/structures.

It includes designing and developing energy management control methods to reduce energy use in new buildings/structures, and documenting strategies to effectively reduce energy use in the completed installation.

This unit is appropriate for Licenced Electricians or Electrical Engineers with responsibility for designing energy management controls for electrical installations in buildings.

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

Pre-requisite Unit

UEEIC0013 Develop, enter and verify discrete control programs for programmable controllers

Competency Field

Renewable Energy

Unit Sector

Electrotechnology

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 Identify energy management techniques for electrical installations in buildings

1.1 Work health and safety (WHS)/occupational health and safety (OHS) requirements and workplace procedures are identified and applied

1.2 Scope of the energy management electrical design is determined from specifications of building and its services, plant and machinery and in consultation with relevant person/s

1.3 People or organisations involved in the design and installation are identified and roles clarified

1.4 Industry regulations, legal obligations and job requirements are identified and applied to work in accordance with workplace procedures

2 Design energy management controls for electrical installations

2.1 Energy management controls' performance standards and compliance methods are applied to the design development

2.2 Inspection, tests and measurements are carried out in accordance with WHS/OHS requirements and workplace procedures

2.3 Energy use of building services, plant and machinery is obtained and applied to the energy management design control process

2.4 Energy evaluation tests are set up in accordance with inspection and test methods and workplace procedures

2.5 Strategies to reduce electrical system energy use without compromising occupancy standards are developed in accordance with energy management techniques and evaluation test results

2.6 Safety, functional and budgetary considerations are incorporated in design

2.7 Results of energy management design controls, recommended electrical installation strategies and their criterion for energy reduction are documented in

accordance with workplace procedures

- 2.8** Plans, wiring diagrams and specifications are completed and forwarded to relevant 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.

Designing energy management controls for electrical installations in buildings must include at least the following:

- two different building types.

Unit Mapping Information

This unit replaces and is not equivalent to UEERE0010 Design energy management controls for electrical installations in buildings.

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 UEERE0059 Design energy management controls for electrical installations in buildings

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- Range of conditions updated
- Updates to performance and knowledge evidence requirements.

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 occasions and includes:

- applying relevant workplace procedures and practices, work health and safety (WHS)/occupational health and safety (OHS) requirements, including using risk control measures
- designing energy management controls for electrical installations in accordance with design brief, site, client, safety and functional requirements and budget limitations
- documenting and presenting final design.

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:

- functions of a building management system (BMS) including:
 - protocol and priority of systems
 - different types and suppliers of building management systems
 - autonomous functions
 - input/output (I/O)
 - general I/O
 - installation management items
 - energy management
 - risk management
 - information processing

- objectives
- building running costs
- smoke control as per relevant industry standards
- BMS hardware including:
 - system architecture
 - communication devices
 - substations
 - personal computers
 - interfaces with other systems
- I/O functions including:
 - digital I/O
 - digital output with status feedback
 - analogue I/O
 - sensors
 - alarms
 - equipment data protocols
- energy management including:
 - night cycle
 - optimum stop/start
 - time and event programs
 - night purge
 - outside air percentage control
 - enthalpy control
 - power demand control
 - duty cycle
 - presence detection
 - lighting control
 - schemes to promote to incorporate renewables and energy storage optimisation
 - financial stability
 - maximise benefit/investment
- information processing functions including:
 - computer systems
 - central system management
 - programs
 - system configuration and security
 - operator - machine interface
 - data points
- risk and maintenance management including:
 - system files

- fire and intruder control
- access control
- relevant manufacturer specifications
- technical expertise required to support design and where/when they are required
- relevant WHS/OHS requirements
- relevant workplace documentation, policies and procedures.

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 simulated suitable 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 and equipment currently used in industry
- resources that reflect current industry practices in relation to designing energy management controls for electrical installations in buildings
- applicable documentation, including workplace procedures, equipment specifications, regulations, codes of practice and operation manuals.

Links

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