



Australian Government

UEEEL0021 Solve problems in magnetic and electromagnetic devices

Release: 2

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Modification History

Release 2. This is the second release of this unit of competency in the UEE Electrotechnology Training Package.

Assessor requirements updated in Assessment Conditions.

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

Application

This unit involves the skills and knowledge required to determine correct operation of electromagnetic devices and related circuits and provide solutions as they apply to electrical installations and equipment.

It includes working safely; applying power circuit problem-solving processes, including the use of testing and measuring devices; and providing solutions derived from measurements and calculations to predictable problems in electromagnetic devices and related circuits.

The skills and knowledge described in this unit require a licence or permit to practice in the workplace where work is carried out on electrical installations which are designed to operate at voltages greater than 50 volt (V) alternating current (a.c.) or 120 V direct current (d.c.).

Competency development activities in this unit are subject to regulations directly related to licensing. Where a licence or permit to practice is not held, a relevant contract of training, such as an Australian Apprenticeship, may be required.

Additional and/or other conditions may apply in some jurisdictions subject to regulations related to electrical work. Practice in the workplace and during training is also subject to work health and safety (WHS)/occupational health and safety (OHS) regulations.

Pre-requisite Unit

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

UEECD0043 Solve problems in direct current circuits

or

UEECD0044 Solve problems in multiple path circuits

UEECD0046 Solve problems in single path circuits

Competency Field

Electrical

Unit Sector

Electrotechnology

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Prepare to work with electromagnetic devices and circuits

PERFORMANCE CRITERIA

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

1.1 WHS/OHS requirements and workplace procedures for a given work area are identified and applied

1.2 Device/s and/or circuit/s problems are identified from documentation or work supervisor to determine scope of work

1.3 Hazards are identified, risks are assessed and control measures are implemented

1.4 Tools, equipment and testing devices to carry out work are obtained and checked for correct operation and safety

1.5 Circuits are checked and isolated in accordance with workplace procedures and regulatory requirements

1.6 Advice is sought from the work supervisor to ensure work is coordinated effectively with others

2 Solve electromagnetic device and/or circuit problems

2.1 WHS/OHS risk control measures and workplace procedures for carrying out work are followed

2.2 Need to test or measure live work is determined in accordance with WHS/OHS job safety assessment requirements and work is conducted using safety control measures workplace procedures

2.3 Relevant circuits and devices are checked as being isolated, as required, in accordance with WHS/OHS

requirements and workplace procedures

- 2.4 Operating parameters of an existing circuit with an electromagnetic device are determined
- 2.5 Methodical techniques are used to resolve circuit problems from measured and calculated values as they apply to electromagnetic devices/circuits
- 2.6 Existing circuit with an electromagnetic device is altered to comply with specified operating parameters
- 2.7 Circuit with electromagnetic device is developed to comply with a specified function and operating parameters
- 2.8 Electrical equipment is connected and tested to determine correct operation
- 2.9 Unplanned situations are responded to in accordance with workplace procedures in a manner that minimises risk to personnel and equipment
- 2.10 Problems are resolved without damage to apparatus, circuits, the surrounding environment or services using sustainable energy practices

3 Complete work and documentation

- 3.1 WHS/OHS work completion risk control measures and workplace procedures are followed
- 3.2 Worksite is cleaned and made safe in accordance with workplace procedures
- 3.3 Justification for solutions used to resolve problems is documented in accordance with established workplace procedures
- 3.4 Work completion is documented and appropriate person/s notified in accordance with workplace procedures

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.

Electromagnetic devices must include at least three of the following devices:

- reed switches
- solenoids
- relays
- contactors
- inductive limit switches
- lifting magnets
- core balance devices
- magnetic overloads
- magnetic brakes
- magnetic circuit breakers.

Unit Mapping Information

No equivalent unit

Links

Companion Volume Implementation Guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b8a8f136-5421-4ce1-92e0-2b50341431b6>