

1. Module details

Module name

Circuit Development 2

Suggested structured learning time

A learner possessing the prerequisite skills and knowledge should achieve the module purpose in 36 to 40 hours.

Module code

NUE066

Discipline code

2. Module purpose

This Module further develops Learners knowledge and skills in working with electric motor circuits.

Learners will gain knowledge and skills in developing motor circuits with advance control features and apply this to installation and fault-finding practices.

3. Learning pathway

Intended use in the structured learning program

This module is intended to supplement work place experience in planning, installing and fault finding motor and motor control circuits In particular it applies to advance feature of motor control circuits.

Therefore before undertaking this module a learner should have a clear understanding of motor types, connections, and applications and the need to work safely.

Recommended prerequisites

For the most effective learning this module should be undertaken until Modules NUE 046 and NE 032 have been completed.

4. Relationship to competency standards

This module provides part of the underpinning knowledge and skills in the ‘Evidence Guide’ of specific units of competency in the National Electrotechnology Training Package and provides similar support, where mapped, to equivalent units in the National Metals and Engineering Competency Standards. For details refer to the module to unit maps, available from EEQSBA.

This module supports the development of essential capabilities required for electrical licensing.

5. Content

1. Motor control circuit with advanced features
 - developing circuit diagram from a brief
 - connecting and testing
2. Find and correcting functional faults in a control circuit

	<ol style="list-style-type: none"> 3. Modify an existing control circuit 4. Documentation for a motor circuits> <ul style="list-style-type: none"> • circuit diagrams • written description
6. Assessment strategy	
Assessment methods	Assessment should be progressive reflecting a holistic approach to ensure the module purpose is met. To assist in ensuring validity, reliability and fairness assessment instruments should include practical exercises, assignments and written tests consisting of a number of item types, such as multiple choice, short answer and problem solving.
Conditions of assessment	Normally learning and assessment will take place in a formal learning environment.
7. Learning outcome details	
Learning outcome 1	Given a design brief develop and connect an electric motor control circuit incorporating advanced control features.
Assessment criteria	<ol style="list-style-type: none"> 1.1 Sketch an electrical control circuit using standard drawing conventions to comply with a given design brief. 1.2 Connect and test the operation of a circuit developed from a design brief
Learning outcome 2	Find and correct functional faults an existing circuit.
Assessment criteria	<ol style="list-style-type: none"> 2.1 Find faults in the operation of a control circuit that does not conform to its design brief and make modifications so that the circuit performs as intended
Learning outcome 3	Modify a control circuit from a amended design brief
Assessment criteria	<ol style="list-style-type: none"> 3.1 Given a design brief develop modifications to an existing working electrical control circuit to amend or extend the operations of the circuit
Learning outcome 4	Develop a documentation of a control circuit for inclusion in customer's records
Assessment criteria	<ol style="list-style-type: none"> 4.1 Develop circuit diagrams of a circuit for inclusion in the customer's records

8. Delivery of the module

Delivery strategy

4.2 Develop a written description of the operating sequence of a control circuit for inclusion in the customer's records

Delivery strategies must be suitable for learning both theoretical and practical aspects described in the module purpose. It is considered that the most effective method to achieve this is by integration of theory and practice where learners learn by experimentation, research and reports. It is recommended that learning and assessment be facilitated in a holistic manner that may require a learning outcome sequence other than that indicated in the module.

Resource requirements

Resources should be sufficient for learners to carry out learning activities on an individual basis.

Suggested Learning Resource:

Jenneson, J. R. 1995, *Electrical Principles for Electrical Trade*. 4th Ed. McGraw Hill, Sydney

AS/NZS 4836 Safe working practice on low-voltage electrical installations

Manufacturer's motor control equipment technical manuals

WorkCover Codes of Practice

Where this module is used in an approved Traineeship or Apprenticeship program learners should be advised to obtain, where available, respective EEQSBA¹ **User Guides** (*these outline in detail what training and work performance the Learner is required to undertake for the program*).

Occupational health and safety requirements

A safe and healthy environment will be provided for learners and teachers. Safety procedures for the particular learning facilities shall be followed as part of the learning / teaching activity and assessment.

¹ EEQSBA – ElectroComms and EnergyUtilities Qualifications Standards Body of Australia Ltd.