

1 Module Details	
Module Name	Electronic Fault Finding
Nominal duration	It is expected that students with the appropriate entry knowledge and skills will successfully complete this module in 18 to 20 hours.
Module code	NUE154
Discipline code	0703230
2 Module purpose	This module aims to provide students with the knowledge and skills to undertake appropriate approaches to repair electronic and electrical equipment.
3 Prerequisites	NE180 Digital Electronics 2 NE183 Amplifiers 2
4 Relationship to competency standards	This module provides some of the knowledge and skills underpinning competency in the following standards: National Electrotechnology Industry Standards, Units: NES106, NES206, NES301, NES402, NES501; Metals and Engineering Industry Standards, Units 12.2A, 12.4A, 12.5B, 18.45A, 18.48A, 18.56A, 18.57A, 18.65A
5 Content	Customer relations Equipment repair <ul style="list-style-type: none">- philosophy- techniques of fault finding- appropriate repair agency- packaging of damaged equipment- power supply check- test equipment- functional testing after repair Circuit repair <ul style="list-style-type: none">- philosophy- techniques of fault finding- visual inspection- split half method- power supply check- test equipment- functional testing after repair
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	Learning and assessment will take place in a

assessment	classroom/laboratory environment.
7 Learning Outcome Details	
Learning Outcome 1	Demonstrate an accurate description of the fault situation by appropriate questioning of client or operator.
Assessment criteria	<ul style="list-style-type: none">1.1 Demonstrate questioning techniques to efficiently and effectively obtain from a client/operator a description of a fault situation.1.2 In the absence of the client or operator, establish the symptoms through application of systematic tests and observation.1.3 Identify appropriate diagnostic tests for given symptoms using manufacturer's charts, handbooks, specification sheets.
Learning Outcome 2	Demonstrate safe working practices when carrying out faultfinding work.
Assessment criteria	<ul style="list-style-type: none">2.2 Describe and apply safety precautions for faultfinding work.
Learning Outcome 3	Demonstrate the knowledge of the various types of common faults of equipment and techniques used to find the faults.
Assessment criteria	<ul style="list-style-type: none">3.1 Specify the various types of common faults and their causes in electrical and electronic equipment.3.2 Explain a logical approach to the effective troubleshooting process.3.3 Describe and apply troubleshooting techniques and procedures.3.4 Use flow-charts to diagnose simple faults.3.5 Interpret a service manual.3.6 Use a troubleshooting guide from a service manual
Learning Outcome 4	Demonstrate the knowledge and skills related to the use of common test equipment.
Assessment criteria	<ul style="list-style-type: none">4.1 List typical test equipment used to repair electronic and electrical equipment4.2 Demonstrate the use of typical test equipment.4.3 Use appropriate equipment to locate fault/faults.
Learning Outcome 5	Identify and rectify common faults in electrical and/or electronic equipment.
Assessment criteria	<ul style="list-style-type: none">5.1 Identify the problems in electrical/electronic equipment.5.2 Interpret the cause of the above problem.5.3 Identify and replace faulty components in malfunctioning equipment.5.4 Perform functional testing after repair.
Learning Outcome 6	Perform tests to identify power supply faults in electronic equipment.
Assessment criteria	<ul style="list-style-type: none">6.1 Describe the various symptoms of a power supply fault as evidenced in electronic equipment.

	<p>6.2 List the hazards that may be encountered when performing tests on functional and non-functional power supplies in and out of equipment.</p> <p>6.3 Describe diagnostic procedures to isolate faults to a power supply unit.</p> <p>6.4 Perform tests to isolate power faults in non-functional electronic equipment.</p> <p>6.5 Replace a defective power supply in electronic equipment and test for correct operation.</p>
Learning Outcome 7	Demonstrate the knowledge of the various types of common faults of circuits and techniques used to find the faults.
Assessment criteria	<p>7.1 Specify the various types of common faults and their causes in electrical electronic circuits</p> <p>7.2 Describe and apply faultfinding techniques and procedures.</p> <p>7.3 Describe and apply a split half method.</p> <p>7.4 Identify and replace faulty components in a circuit.</p> <p>7.5 Perform functional testing for correct operation.</p>
8 Delivery of module	
Delivery strategy	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 students learn by experimentation, research and reports. It is recommended that learning and assessment be facilitated in a holistic manner that may require learning outcome sequence other than that indicated in the module.
Resource requirements	<p>Resources should be sufficient for students to carry out learning activities on an individual basis.</p> <p>Useful references include:</p> <p>Jenneson, J.R. Electrical Principles for the Electrical Trades, McGraw-Hill ISBN 0-07-470222-X</p> <p>Edwards, Rodney, C. and Meyer, Douglas, F. Electrical and Electronics Trades, ISBN 0-07-470135-5</p> <p>Boylestad, R., Nashelsky, L. Electronic Devices and Circuit Theory, Prentice Hall ISBN 9-13-375734-X</p> <p>Floyd, T. L. Electronic Devices, Prentice Hall ISBN 0-13-362963-5</p> <p>Lowe, J. F. Electronics for Electrical Trades, McGraw-Hill</p>
Occupational Health and Safety Requirements	A safe and healthy environment will be provided for students and teachers as well as the particular safety procedures followed as part of the learning / teaching content.

