Title	**Describe and apply techniques for identifying and locating faults in electrotechnology products or systems**		
Level	**3**	**Credits**	**5**

Purpose	This unit standard covers fundamental logical and systematic fault-finding techniques for electrotechnology products or systems. People credited with this unit standard are able to: – describe fundamental techniques to identify the location and cause of faults in electrotechnology products or systems; and – apply fundamental techniques to identify the location and cause of faults in electrotechnology products or systems.

Classification	Electrical Engineering > Electrotechnology

Available grade	Achieved

Guidance Information

1 This unit standard has been developed for learning and assessment on-job or off-job with realistic simulations.

2 References
Electricity Act 1992;
Electricity (Safety) Regulations 2010;
Health and Safety at Work Act 2015 and associated regulations;
and all subsequent amendments and replacements.

3 Definitions
Electrotechnology products or systems – may include but are not limited to – for example, a computer system, programmable logic controller system (PLC) for a single process, or telecommunications systems or services; or heavy electrical products, for example, factory generation system, components for national grid, industrial electric motor and controller, or equivalent.
Enterprise practice – those practices and procedures that have been promulgated by the company or enterprise for use by their employees.
Fundamental knowledge – for the purposes of this unit standard means having some relevant theoretical knowledge of the subject matter with the ability to use that knowledge to interpret available information.
Industry practice – those practices that competent practitioners within the industry recognise as current industry best practice.

4 Range
- a *Faults* may be at the level of electronic components, printed circuit boards, cards, wiring, electromechanical components, electromagnetic components, or other units or elements within larger systems such as telecommunications systems.
- b The emphasis is on diagnosis using logical analysis of symptoms, observation, and measurement, rather than by trial and error.
- c Electrical, radiation, and workshop or laboratory safety practices are to be observed at all times.
- d All measurements are to be expressed in Système Internationale (SI) units and multipliers.
- e All activities and evidence presented for all outcomes and performance criteria in this unit standard must be in accordance with legislation, policies, procedures, ethical codes, Standards, applicable site and enterprise practice, and industry practice; and, where appropriate, manufacturers' instructions, specifications, and data sheets.

Outcomes and performance criteria

Outcome 1

Describe fundamental techniques to identify the location and cause of faults in electrotechnology products or systems.

Performance criteria

1.1 Techniques used to diagnose faults in electrotechnology products or systems are described.

Range techniques include but are not limited to – observation, user reports, simulation, measurement, identification of function loss, comparison, previous fault data including frequency of occurrence, manufacturers' documentation and diagnostic data, built-in diagnostics.

Outcome 2

Apply fundamental techniques to identify the location and cause of faults in electrotechnology products or systems

Range evidence of ten different faults on electrotechnology products or systems is required.

Performance criteria

2.1 Faults are located and causes are found through logical analysis of symptoms, observation, simulation, and measurement with the aid of manufacturers' diagnostic data.

2.2 The logic of the diagnostic technique used to find each fault is explained.

2.3 The diagnostic process does not compromise the integrity of the products or systems.

Replacement information	This unit standard replaced unit standard 8191.

Planned review date	31 December 2027

Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	21 July 2011	31 December 2024
Review	2	2 March 2023	N/A

Consent and Moderation Requirements (CMR) reference	0003

This CMR can be accessed at http://www.nzqa.govt.nz/framework/search/index.do.

Comments on this unit standard

Please contact Waihanga Ara Rau Construction and Infrastructure Workforce Development Council at qualifications@waihangaararau.nz if you wish to suggest changes to the content of this unit standard.