
ENGINEERING - ROBOTICS
**Find and repair electrical faults and
perform test routines on robotic
equipment**

level:	4
credit:	5
planned review date:	August 2004
sub-field:	Mechanical Engineering
purpose:	<p>This unit standard is for qualified electricians who need to attend to electrical faults in robotic equipment.</p> <p>People credited with this unit standard are able to: find and repair electrical faults in robots, associated input/output devices, and robotic safety circuits; and perform test routines on robotic equipment.</p>
entry information:	Open.
accreditation option:	Evaluation of documentation and visit by NZQA and industry.
moderation option:	A national moderation system of regional panels and assessor networks has been established by Competenz.
special notes:	<p>1 Legislation, codes of practice and standards relevant to this unit standard: Health and Safety in Employment Act 1992, and associated regulations; Electricity Act 1992; Electricity Regulations 1997; New Zealand Electrical Codes of Practice (Ministry of Commerce, ISSN 0114-0663);</p>

ENGINEERING - ROBOTICS
Find and repair electrical faults and
perform test routines on robotic
equipment

AS/NZS 3760:2001, In-service safety inspection and testing of electrical equipment;
Safe Working Practices for Electricians and Electrical Workers, (Ministry of Commerce, 1990);
and their subsequent amendments and replacements.

2 Definitions

Organisational procedures refer to documents that include: worksite rules, codes, and practices; equipment maintenance instructions and status requirements; and health and safety requirements.

Robotic equipment for the purposes of this unit standard refers to robots, input/output devices, and safety circuits.

Elements and Performance Criteria

element 1

Find and repair electrical faults and perform test routines on robots.

Range: AC drive, DC drive.

performance criteria

1.1 Documentation for robot is assembled in the work area before fault diagnosis is commenced.

Range: manufacturer's information, maintenance instructions, safety procedures.

1.2 Testing for faults is conducted in accordance with organisational procedures.

ENGINEERING - ROBOTICS
Find and repair electrical faults and
perform test routines on robotic
equipment

- 1.3 The cause/s of electrical faults are correctly diagnosed.
- 1.4 Robot is repaired and tested in accordance with organisational procedures.
- 1.5 Fault and repair details are documented in accordance with organisational procedures.

element 2

Find and repair electrical faults and perform test routines on robotic input/output devices.

Range: input, output.

performance criteria

- 2.1 Documentation for input/output device is assembled in the work area before fault diagnosis is commenced.

Range: manufacturer's information, maintenance instructions, safety procedures.
- 2.2 Testing for faults is conducted in accordance with organisational procedures.
- 2.3 The cause/s of electrical faults is/are correctly diagnosed.
- 2.4 Input/output device is repaired and tested in accordance with organisational procedures.
- 2.5 Fault and repair details are documented in accordance with organisational procedures.

ENGINEERING - ROBOTICS
Find and repair electrical faults and
perform test routines on robotic
equipment

element 3

Find and repair electrical faults and perform test routines on robotic safety circuits.

Range: a minimum of two circuits.

performance criteria

- 3.1 Safety issues to be considered when working on hardwired emergency stop circuits are described.
- 3.2 Documentation for safety circuit is assembled in the work area before fault diagnosis is commenced.
- Range: manufacturer's information, maintenance instructions, safety procedures.
- 3.3 Testing for faults is conducted in accordance with organisational procedures.
- 3.4 The cause/s of electrical faults is/are correctly diagnosed.
- 3.5 Safety circuit is repaired and tested in accordance with organisational procedures.
- 3.6 Fault and repair details are documented in accordance with organisational procedures.

Comments on this unit standard

Please contact the Competenz j.broadhead@competenz.org.nz if you wish to suggest changes to the content of this unit standard.

Please Note

Providers must be accredited by the Qualifications Authority or a delegated inter-institutional body before they can register credits from assessment against unit standards or deliver courses of study leading to that assessment.

Industry Training Organisations must be accredited by the Qualifications Authority before they can register credits from assessment against unit standards.

ENGINEERING - ROBOTICS
Find and repair electrical faults and
perform test routines on robotic
equipment

Accredited providers and Industry Training Organisations assessing against unit standards must engage with the moderation system that applies to those standards.

Accreditation requirements and an outline of the moderation system that applies to this standard are outlined in the Accreditation and Moderation Action Plan (AMAP). The AMAP also includes useful information about special requirements for providers wishing to develop education and training programmes, such as minimum qualifications for tutors and assessors, and special resource requirements.

This unit standard is covered by AMAP 0013 which can be accessed at <http://www.nzqa.govt.nz/framework/search/index.do>.