National Certificate in Boatbuilding (Marine Electrical and Electronic Installation) (Level 4)

Level **4**

Credits **126**

This qualification has been **reviewed**. The last date to meet the requirements is 31 December 2019.

Transition Arrangements

This replaced qualification version 2 was republished in October 2017 to extend its last date for entry into training programmes from 31 December 2017 to 31 May 2018 and last date for assessment against the replaced qualification from 31 December 2018 to 31 December 2019.

This qualification has been reviewed and replaced by the New Zealand Certificate in Marine Systems (Level 4) with strands in Systems Engineering, and Electrical - Electronics [Ref: 3124].

The last date for entry into programmes leading to this qualification is 31 May 2018.

The last date for assessment against the replaced qualification is 31 December 2019.

It is recommended that candidates currently enrolled in this qualification who will be unable to complete the qualification by the 31 December 2019 transfer to the replacement qualification listed above.

This qualification contains an expiring unit standard for which a replacement unit standard has now been registered. For the purposes of this qualification, people who have gained credit for the replacement unit standard are exempt from the requirement to gain credit for the expiring unit standard.

Credit for	Exempt from
28083	2663

It is the intention of NZ Marine & Composites Industry Training Organisation that no existing trainee should be disadvantaged by these transition arrangements. Any person who considers they have been disadvantaged may appeal to the NZ Marine & Composites Industry Training Organisation, below.

For detailed information see Review Summaries on the NZQA website.

NZQF National Qualification Registration Information

Process	Version	Date	Last Date for Assessment
Registration	1	July 2011	31 December 2018
Review	2	December 2016	31 December 2018
Republication	2	October 2017	31 December 2019

Standard Setting Body

NZ Marine Industry Training Organisation
PO Box 90 448
Victoria Street West
Auckland 1142

Telephone 0800 600 242
Email training@bia.org.nz

National Certificate in Boatbuilding (Marine Electrical and Electronic Installation) (Level 4) – Last Date of Assessment 31 December 2019

Level **4**

Credits **126**

Purpose

This qualification is for people in the electrical or electronic sector of the boatbuilding industry. The qualification is designed to recognise the theoretical and practical skills required to be a competent tradesperson in the electrical or electronic sectors of the boatbuilding industry.

This qualification builds on the technical skills and knowledge recognised by the National Certificate in Boatbuilding (Marine Electrical and Electronic Installation) (Level 3) [Ref: 0930].

The Compulsory section includes standards that cover skills and knowledge related to electrical worker licensing, digital switching installation technology and process control, galvanic protection of vessels, system documentation requirements, marine system power distribution, marine electronic equipment types, functions and connection, system fault finding, and commissioning, NMEA and proprietary on-board data communication systems, and AC and DC earthing and isolation.

The Elective section allows people to choose from specified standards according to their area of interest or workplace. These standards cover skills and knowledge related to radar, electronic measurement, electronic test equipment use, electronic schematic and connection drawings, diagnostics and repair of electronic components, programmable logic controllers, hydraulic control equipment, switching power supplies; and genset installation, maintenance and fault finding.

Special Notes

People in the workforce may have demonstrated competence in the outcomes specified in individual standards in this qualification. These candidates should seek recognition of their current competence wherever it is relevant to this qualification.

Recognition of current competence must be carried out by accredited providers or registered assessors in accordance with NZQA guidelines.

Credit Range

	Compulsory	Elective
Level 3 credits	23	0-9
Level 4 or above credits	53	41-50
Minimum totals	76	50

Requirements for Award of Qualification

Award of NZQF National Qualifications

Credit gained for a standard may be used only once to meet the requirements of this qualification.

Unit standards and achievement standards that are equivalent in outcome are mutually exclusive for the purpose of award. The table of mutually exclusive standards is provided on the New Zealand Qualifications Authority (NZQA) website: http://www.nzqa.govt.nz/qualifications-standards/standards/standards-exclusion-list/.

Reviewed standards that continue to recognise the same overall outcome are registered as new versions and retain their identification number (ID). Any version of a standard with the same ID may be used to meet qualification requirements that list the ID and/or that specify the past or current classification of the standard.

Summary of Requirements

- Compulsory standards
- Elective – A minimum of 50 credits as specified

Detailed Requirements

Compulsory

The following standards are required

Engineering and Technology > Electrical Engineering > Core Electrical

ID	Title	Level	Credit
10933	Demonstrate knowledge of electrical theory for Electrical Service Technicians - A	3	4
10934	Demonstrate knowledge of safety, protection, and testing for Electrical Service Technicians - A	3	2
15862	Demonstrate knowledge of industrial process control	4	3

Engineering and Technology > Electronic Engineering > Core Electronics

ID	Title	Level	Credit
8195	Test and select batteries used in electronic applications and select suitable chargers	3	4
20716	Demonstrate and apply knowledge of transducers and their interfaces with digital circuits	4	10

Manufacturing > Boating Industries > Boatbuilding

ID	Title	Level	Credit
11795	Commission marine electrical and electronic systems and equipment	4	10
26092	Explain cathodic protection for marine vessels	5	6
27319	Demonstrate knowledge of marine electrical power supply, monitoring and charging systems	4	15

ID	Title	Level	Credit
27320	Demonstrate knowledge of documentation and compliance requirements for marine electrical systems	4	5
27321	Demonstrate knowledge of digital switching marine electrical systems	4	4
27322	Demonstrate knowledge of marine electronic equipment types, functions and connection	3	6
27325	Demonstrate knowledge of NMEA and proprietary on-board data communication systems	3	4
27326	Explain AC and DC system earthing and isolation safety requirements on vessels	3	3

Elective
A minimum of 50 credits

Engineering and Technology > Electrical Engineering > Core Electrical

ID	Title	Level	Credit
5926	Demonstrate knowledge of programmable logic controllers (PLCs)	4	5

Engineering and Technology > Electrical Engineering > Electrotechnology

ID	Title	Level	Credit
26727	Describe and apply techniques for identifying and locating faults in electrotechnology products or systems	3	5

Engineering and Technology > Electronic Engineering > Core Electronics

ID	Title	Level	Credit
8211	Demonstrate and apply knowledge of switching power supplies	4	4
20720	Demonstrate knowledge of radar principles for electronics technicians	4	15
26725	Demonstrate and apply knowledge of electronic product reliability and advanced electronic measurement and diagnosis	4	10

Engineering and Technology > Electronic Engineering > Electronic Installation and Maintenance

ID	Title	Level	Credit
6061	Performance test and repair faulty radar equipment to unit or component level	4	12
26726	Diagnose and repair faulty electronic equipment to component level	4	40

Engineering and Technology > Industrial Measurement and Control > Industrial Measurement and Control - Theory

ID	Title	Level	Credit
2663	Demonstrate knowledge of hydraulic control equipment used in industry	3	4

Manufacturing > Boating Industries > Boatbuilding

ID	Title	Level	Credit
27323	Demonstrate knowledge of marine genset electrical installation, maintenance and troubleshooting	4	4
27324	Explain and interpret electronic schematic and connection drawings on vessels	4	3

Transition Arrangements

This qualification contains a standard that replaces earlier standards. For the purposes of this qualification, people who have gained credit for the expiring standards are exempt from the requirement to gain credit for the replacement standard – see table below.

Credit for	Exempt from
1711, 2026	15862

Other standard setting bodies whose standards are included in the qualification

ElectroTechnology Industry Training Organisation

Certification

This certificate will display the logos of NZQA, the NZ Marine Industry Training Organisation and the organisation that has been granted consent to assess against standards that meet the requirements of the qualification (accredited).

Classification

This qualification is classified according to the classification system listed on the Directory of Assessment Standards (DAS) and the New Zealand Standard Classification of Education (NZSCED) system as specified below.

DAS Classification		NZSCED	
Code	**Description**	**Code**	**Description**

DAS Classification		NZSCED	
Code	**Description**	**Code**	**Description**
1769	Manufacturing > Boating Industries > Boatbuilding	030703	Engineering and Related Technologies > Mechanical and Industrial Engineering and Technology > Industrial Engineering

Quality Management Systems
Providers and Industry Training Organisations must be granted consent to assess by a recognised Quality Assurance Body before they can register credits from assessment against standards. Organisation with consent to assess and Industry Training Organisations assessing against standards must engage with the moderation system that applies to those standards. Consent to assess requirements and the moderation system are outlined in the associated Consent and Moderation Requirements (CMR) for each standard.