

NATIONAL CERTIFICATE IN BOATBUILDING **MARINE ELECTRICAL AND ELECTRONIC INSTALLATION (Level 3)**

83 CREDITS

Version 2

An apprentice completing this NZQA registered qualification will gain the knowledge and skills required to be Marine Industry recognized and qualified as a competent **Marine Electrical and Electronic Installer (DC only)**.

This qualification is designed for apprentices working as installers in the electrical or electronic sector of the Marine industry, specialising in 12 and 24 volt systems.

In this qualification, apprentices gain a general knowledge of the boatbuilding sector of the Marine Industry, health and safety and how to test and install electrical and electronic marine components and equipment on vessels. They also train in systems testing, plumbing, electrical, hydraulic, air conditioning, refrigeration, power plant installation and the application of multi axis CAD/CAM.

There is a huge range of electric and electronic applications which can be fitted to boats and these need to be fitted by trained marine electrical and electronic installers. Boats are the vehicles that enable all the modern electric and electronic devices to be taken to sea and so marine electrical and electronic installers, with their specialist knowledge and commitment to the highest standards of safety, are key members of the boatbuilding team.

This qualification takes on average 1.5 to 2 years to complete.

Pre-requisite Requirement

National Certificate in Electrical Engineering (Level 2)

Morgan Ford



Morgan Ford completed an auto electrician apprenticeship straight after leaving school. After working on a friend's boat in Vanuatu and Tonga, he developed a strong interest in working on boats and putting in to practice the skills he had learned during his training.

Morgan works at Mainland Batteries Ltd. and building up on his interest in boats, he is now enrolled in the National Certificate in Boatbuilding (Marine Electrical and Electronic Installer) level 3. He is due to graduate at the end of 2010.

After graduating, Morgan has plans to complete further industry training at levels 4 and 5.

"Moving from cars to boats is a logical, straight forward transition" – Morgan Ford

NATIONAL CERTIFICATE IN ELECTRICAL ENGINEERING (Level 2) (Version 7)

Total Credits: 44

The NZ Marine ITO does not deliver and assess this compulsory pre-requisite qualification.
The NZ Marine ITO will provide full details of delivery and assessment options with approved Training Providers.

Unit Standard Content

Unit Number	Unit Title	Level	Credit Value
750	Demonstrate knowledge of electrical test instruments and take measurements	2	2
1978	Identify basic employment rights and responsibilities, and sources of information and assistance	1	2
6401	Provide first aid	2	1
6402	Provide resuscitation level 2	1	1
15844	Select and install flexible cords	2	3
15845	Draw and explain simple electrical diagrams	2	4
15846	Demonstrate knowledge of capacitors and semiconductor diodes	2	3
15847	Demonstrate knowledge of mathematics and mechanics for electrical trades	2	4
15848	Demonstrate knowledge of safeguards for use with portable electrical appliances	2	2
15849	Perform manual soldering and de-soldering procedures for electro technology work	2	2
15851	Demonstrate knowledge of electrical safety and safe working practices for electrical workers	2	3
15852	Isolate and test low-voltage electrical subcircuits	2	2
25070	Explain the properties of conductors, insulators, and semiconductors and their effect on electrical circuits.	2	7
25071	Demonstrate knowledge of electromotive force (e.m.f.) production	2	3
25072	Demonstrate knowledge of electromagnetism theory	2	5

NATIONAL CERTIFICATE IN BOATBUILDING (Marine Electrical and Electronic Installation) (Level 3) (Version 2)

Unit Standard Content

Unit Number	Unit Title	Level	Credit Value
5433	Demonstrate knowledge of electrical and electronic applications for marine use	4	8
9913	Demonstrate a knowledge of the New Zealand marine industry	2	3
11794	Install marine electrical and electronic systems and equipment	3	20
18162	Calculate quantities and costs for boatbuilding projects	3	4
18163	Demonstrate a knowledge of boatbuilding construction drawings and produce related freehand sketches	3	2
18165	Demonstrate knowledge of computer technology used in the boating industry	3	6
18166	Participate in a project team in the boating industry	2	4
18170	Contribute to a project team in the boating industry	3	3
20029	Demonstrate knowledge of navigation aids	3	5
20430	Demonstrate and apply introductory knowledge of d.c. principles for electronics technicians	3	7
23243	Identify and explain the causes and prevention of material deterioration in the marine environment	4	8
23244	Identify and apply health and safety procedures for the boatbuilding industry	3	4
25344	Demonstrate a knowledge of marine trades and expectations of employees	2	3
26542	Demonstrate basic knowledge of the operation of pleasure craft by day	2	6

- National Certificate in Electrical Engineering (Level 2) v7 44
 - National Certificate in Boatbuilding (Marine Electrical and Electronic Installation) Level 3 v1 83
- Total Credits:** 127