National Certificate in Electrical Engineering (Motor Rewinding and Repair)

Level **4**

Credits **133**

This qualification has been **revised**. The last date to meet the requirements is 31 December 2021.

Transition Arrangements

Version 4 of this qualification was republished to extend the last date for entry from 31 December 2016 to 31 December 2017.

This qualification has been reviewed and replaced by New Zealand Certificate in Electrical Engineering (Electromechanical Maintenance and Repair) (Level 4) with an optional strand in Electrical Service Technician [Ref: 2565].

The last date for entry into programmes leading to the replaced qualifications is 31 December 2017. The last date to meet the requirements of the replaced qualifications is 31 December 2021. People working towards the replaced qualification may either complete the requirements by 31 December 2021 or transfer their results to the replacement qualification.

For detailed information see Review Summaries on the NZQA website.

It is anticipated that no existing candidates will be disadvantaged by these transition arrangements. However, anyone who feels that they have been disadvantaged may appeal to The Skills Organisation at the address below:

This qualification contains standards that replace or are substitutes for 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 standards – see table below.

Credit for	Exempt from
15863	20962
12299	24890

NZQF National Qualifications Registration Information

Process	Version	Date	Last Date for Assessment
Registration	1	November 1997	December 2005
Review	2	January 2003	December 2009
Review	3	August 2008	December 2021
Review	4	February 2015	December 2021
Republication	4	June 2016	December 2021

Standard Setting Body

The Skills Organisation
FREEPOST 5164
PO Box 24469
Royal Oak
Auckland

Telephone 09 525 2590
Email support@skills.org.nz

National Certificate in Electrical Engineering (Motor Rewinding and Repair)

Level **4**

Credits **133**

Purpose

This qualification is for people wishing to pursue a career in the electric motor rewinding and repair industry. People awarded this certificate have demonstrated the skills and knowledge required to safely and productively rewind and repair electric rotating machinery, transformers, and related electrical apparatus.

Typically, the qualification will be gained during a three year apprenticeship/traineeship, incorporating learning in the workplace as well as on courses conducted by accredited training providers. The trainee first completes the National Certificate in Electrical Engineering (Level 2) [Ref: 0174], and then this National Certificate in Electrical Engineering (Motor Rewinding and Repair) [Ref: 0412].

Although it is a stand-alone qualification, it is frequently undertaken in conjunction with an electrical apprenticeship, and has credits in common with the National Certificate in Electrical Engineering (Level 3) [Ref: 0223] and the National Certificate in Electrical Engineering (Electrician for Registration) [Ref: 1195].

Holders of this qualification may progress to the National Certificate in Electrical Engineering (Electrician for Registration) or the National Diploma in Engineering (Electrotechnology) (Level 6) [Ref: 1313].

Prerequisite

National Certificate in Electrical Engineering (Level 2) [Ref: 0174] or demonstration of equivalent skills and knowledge.

Credit Range

Level 2 credits	11
Level 3 credits	33
Level 4 credits	89
Total	133

Requirements for Award of Qualification

Award of NQF 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 in section 7 of the New Zealand Qualifications Authority (NZQA) Rules and Procedures publications available at http://www.nzqa.govt.nz/ncea/acrp/index.html.

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

The following standards are required

Engineering and Technology > Electrical Engineering > Core Electrical

ID	Title	Level	Credit
1178	Follow safe practices in an electrical workplace	2	3
1206	Demonstrate knowledge of a.c. power and power factor	4	4
2017	Describe and use complex electrical instruments	4	2
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
10935	Demonstrate knowledge of regulations and codes of practice for Electrical Service Technicians - A	3	2
10936	Demonstrate practical skills required for Electrical Service Technicians - A	3	3
10937	Demonstrate knowledge of electrical theory for Electrical Service Technician - B	3	3
10938	Demonstrate knowledge of appliance isolation, connection, and testing procedures for EST - B	3	2
10939	Demonstrate knowledge of regulations and codes of practice for Electrical Service Technicians - B	3	2
10940	Demonstrate practical skills required for Electrical Service Technicians - B	3	3
15850	Demonstrate knowledge of single-phase transformers	3	3
15853	Demonstrate knowledge of alternating current (a.c.) theory	4	7
15857	Demonstrate knowledge of three-phase transformers	4	3
16407	Use and maintain hand and power tools for electrical work	3	4

Engineering and Technology > Electrical Engineering > Electrical Installation and Maintenance

ID	Title	Level	Credit
5922	Use cutting tools and machines in the performance of electrical installation and maintenance	2	2
5925	Recognise the requirements of routine maintenance of electrical equipment	2	2
16414	Carry out planned electrical maintenance work of electrical equipment	4	6
20962	Demonstrate knowledge of a.c. electric motor control and installation	4	8

Engineering and Technology > Electrical Engineering > Electrical Machines

ID	Title	Level	Credit
1184	Test, and locate and diagnose faults in electrical machine windings	3	2
1185	Prepare electrical machines for rewinding	4	6
2014	Overhaul a.c. rotating machines and control equipment	4	5
5928	Overhaul d.c. rotating machines and control equipment	4	5
15858	Demonstrate knowledge of a.c. motors	4	7
15865	Demonstrate knowledge of d.c. machines	4	5
16413	Fault-find, repair, and test electric motors	4	8
16416	Service bearings and seals in electrical rotating machines	2	1
19469	Demonstrate knowledge of electric machine winding	4	5
19470	Rewind electric machines	4	10
19471	Reassemble and test electric machines following rewinding	4	8
24890	Lift and transport electrical machines and associated repair equipment within a motor rewinding workshop environment	2	3

Humanities > Communication Skills > Writing

ID	Title	Level	Credit
3492	Write a short report	2	3

Transition Arrangements

Version 3

Version 3 was issued following the review of the Electrical Machines standards by the industry. The review reflected the experience of several years of training, assessment, and industry experience. It also took into account the future skill requirements of the industry.

Changes to structure and content

- standard 20962 replaced standard 15863
- standard 24890 was substituted for standard 12299
- title of standard 15865 was updated
- credit total was changed from 126 to 133.

For detailed information see Review Summaries on the NZQA website.

Candidates may choose to complete version 2 or transfer to version 3. All new candidates will be enrolled in version 3 of the qualification.

This qualification contains standards that replace or are substitutes for 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 standards – see table below.

Credit for	Exempt from
15863	20962
12299	24890

It is not intended that anyone be disadvantaged by this review. Anyone who feels they have been disadvantaged may appeal to the ElectroTechnology Industry Training Organisation at the address below.

Previous versions of the qualification

Version 2 was issued following a review of the in the Electrical Engineering standards.

Version 1 of the qualification replaced the Trade Certificate in Electric Motor Rewinding.

Trade Certificates in Electric Motor Rewinding will continue to be recognised by industry and there is no need to convert those qualifications to the National Certificate in Electrical Engineering (Motor Rewinding and Repair) [Ref: 0412].

Other standard setting bodies whose standards are included in the qualification

Competenz
NZQA

Certification

This certificate will display the logos of NZQA, the Electrotechnology Industry Training Organisation and the accredited organisation.

Classification

This qualification is classified according to the NQF classification system and the New Zealand Standard Classification of Education (NZSCED) system as specified below.

DAS Classification		**NZSCED**	
Code	**Description**	**Code**	**Description**
204	Engineering and Technology > Electrical Engineering	031301	Engineering and Related Technologies > Electrical and Electronic Engineering and Technology > Electrical Engineering

Quality Management Systems
Providers and Industry Training Organisations must be accredited by a recognised Quality Assurance Body before they can register credits from assessment against standards. Accredited providers and Industry Training Organisations assessing against standards must engage with the moderation system that applies to those standards. Accreditation requirements and the moderation system are outlined in the associated Accreditation and Moderation Action Plan (AMAP) for each standard.

Prerequisite Diagram