National Certificate in Electricity Supply (Distribution Faultman) (Level 4) with strands in Line Mechanic, and Electrician

Level **4**

Credits **76-78**

This qualification has been **reviewed**. The last date to meet the requirements is 31 December 2020.

Transition Arrangements

This qualification has been reviewed and replaced by the New Zealand Certificate in Electricity Supply (Fault Response and Switching) (Level 4) with strands in Distribution Fault Response, Distribution Network Switching, Transmission Switching, and Transmission Switching Control [Ref: 3586].

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

People may either complete the qualification requirements by 31 December 2020 or transfer to a programme leading to the replacement qualification.

For detailed information see Review Summaries on the NZQA website.

This qualification contains an expired 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 – see table below.

Credit for	Exempt from
28112	10510

NZQF National Qualification Registration Information

Process	Version	Date	Last Date for Assessment
Registration	1	March 2011	December 2020
Revision	2	July 2011	December 2020
Revision	3	September 2012	December 2020
Review	4	March 2017	December 2020

Standard Setting Body

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National Certificate in Electricity Supply (Distribution Faultman) (Level 4) with strands in Line Mechanic, and Electrician

Level **4**

Credits **76-78**

Purpose

This qualification is awarded to people who have demonstrated competence in the skills and knowledge required for locating and diagnosing faults likely to occur in a distribution network.

It is designed to upskill people who are qualified to work on distribution networks as faultmen. The qualification has two strands recognising that both line mechanics and electricians may progress into this role: the Line Mechanic strand of the qualification provides line mechanics with the additional electrical skills required to undertake fault work; and the Electrician strand provides electricians with the line mechanic skills required to undertake fault work.

A faultman is a recognised role within the electricity supply industry into which experienced line mechanics and electricians may make a career progression. Faultmen are responsible for identifying faults on electricity supply lines, analysing the cause of those faults and recommending remedial work to fix them, and undertaking that work if qualified and competent to do so. The nature of the job means faultmen are often working alone so the role demands strong analytical skills, responsibility, and an ability to work and make decisions alone – faultmen must also be able to take responsibility for their decisions.

The role calls for a mixture of line mechanic and electrician skills; therefore this qualification is designed to upskill candidates with the particular skills they would require to become competent faultmen. Faultman skills generic to both line mechanics and electricians include locating and repairing or replacing faulty components, operating switch gear and receiving and returning transfer of control, and these are covered in the compulsory section of the qualification. Line mechanics are further required to have a good understanding of three-phase theory, the multiple earthed neutral system, electromotive force and insulation resistance testing, amongst other electrical knowledge and skills covered within the Line Mechanic Strand. Electricians require such line mechanic skills as climbing and working on electricity network structures, jointing overhead conductors, determining the condition of electrical lines and being able to dismantle electrical lines and structures, which are all covered in the Electrician Strand.

This qualification builds upon the knowledge and skills found in the National Certificate in Electricity Supply (Line Mechanic Distribution) (Level 4) [Ref: 0874] and the National Certificate in Electricity Supply (Electrical) (Level 4) with strands in Electricity Supply Electrician, Electrical Fitter, and Electrical Technician [Ref: 1295]. While this qualification does not directly lead on to any specific higher qualification it is a good basis from which to progress on to higher study.

In addition, this qualification includes optional standards which cover a range of additional skills and knowledge suitable for both electricians and line mechanics. Although these standards are not required to achieve the qualification, they may be considered necessary for some faultman roles within the electricity supply industry.

Special Notes

Prerequisite:
Candidates undertaking the Line Mechanic Strand must hold the National Certificate in Electricity Supply (Line Mechanic Distribution) (Level 4) [Ref: 0874]. Candidates undertaking the Electrician Strand must hold the National Certificate in Electricity Supply (Electrical) (Level 4) with strands in Electricity Supply Electrician, Electrical Fitter, and Electrical Technician [Ref: 1295], or demonstrate equivalent knowledge and skills.

The award of this qualification involves following some complex prerequisite standard and qualification relationships. Candidates are encouraged to discuss these relationships with the Electricity Supply Industry Training Organisation.

Credit Range

	Compulsory	Line Mechanic Strand	Electrician Strand	Optional standards
Level 2 credits	-	21	-	-
Level 3 credits	2	7	29	15
Level 4 credits	21	25	26	12
Minimum totals	23	53	55	-
Qualification total with strand		76	78	0

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

One of the following strands is required
- Line Mechanic Strand
- Electrician Strand

Detailed Requirements

Compulsory
The following standards are required

Engineering and Technology > Electricity Supply > Electricity Supply - Core Skills

ID	Title	Level	Credit
12387	Operate electrical switchgear in the electricity supply industry	4	6
20090	Carry out switching operations on metal clad switchgear	4	3
20094	Receive and return transfer of control in the electricity supply industry	4	4

Engineering and Technology > Electricity Supply > Electricity Supply - Distribution Networks

ID	Title	Level	Credit
25074	Locate and repair or replace faulty components or repair faults in a distribution network	4	8

Engineering and Technology > Electricity Supply > Electricity Supply - Power System Management

ID	Title	Level	Credit
27654	Demonstrate knowledge of SCADA systems in the Electricity Supply power system	3	2

Line Mechanic Strand
The following standards are required

Engineering and Technology > Electrical Engineering > Core Electrical

ID	Title	Level	Credit
2017	Describe and use complex electrical instruments	4	2
2031	Demonstrate knowledge of three-phase theory	4	4
15847	Demonstrate knowledge of mathematics and mechanics for electrical trades	2	4
15853	Demonstrate knowledge of alternating current (a.c.) theory	4	7
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

Engineering and Technology > Electrical Engineering > Electrical Installation and Maintenance

ID	Title	Level	Credit
2016	Install earthing systems for multiple earthed neutral installations	3	3

Engineering and Technology > Electricity Supply > Electricity Supply - Core Skills

ID	Title	Level	Credit
19323	Demonstrate knowledge of single and three phase transformers used in the electricity supply industry	3	4

Engineering and Technology > Electricity Supply > Electricity Supply - Distribution Networks

ID	Title	Level	Credit
20417	Replace or repair single phase electrical components	4	6
20418	Replace or repair three phase electrical components	4	6

Engineering and Technology > Electricity Supply > Electricity Supply - Testing

ID	Title	Level	Credit
20190	Conduct introductory insulation resistance testing in the electricity supply industry	2	2

Electrician Strand
The following standards are required

Engineering and Technology > Electricity Supply > Electricity Supply - Core Skills

ID	Title	Level	Credit
10509	Climb and work on electricity network structures	3	6
17027	Demonstrate the requirements for holding access permits on high voltage electrical lines	3	2
18272	Operate power-operated elevating work platforms (EWP) in a electricity supply environment	3	5
23899	Carry out phasing tests on HV electricity networks	3	2

Engineering and Technology > Electricity Supply > Electricity Supply - Distribution Networks

ID	Title	Level	Credit
10510	Use machinery, plant and equipment in an electricity network environment	4	6
10511	Develop work plans for construction and servicing of overhead electrical lines and equipment	4	6
10512	Joint electricity network overhead conductors	3	4

ID	Title	Level	Credit
10513	Determine condition of electrical lines	3	6
10522	Install low voltage (LV) electricity network overhead conductors	4	8
10526	Operate ground and structure mounted electrical equipment associated with electric lines up to 66kV	3	4
10529	Dismantle electricity network lines and structures	4	6

Optional standards

The following standards are optional

Humanities > Communication Skills > Interpersonal Communications

ID	Title	Level	Credit
11097	Listen actively to gain information in an interactive situation	3	3

Humanities > Communication Skills > Writing

ID	Title	Level	Credit
12336	Write a user guide or technical text	4	4

Engineering and Technology > Electrical Engineering > Electrical Installation and Maintenance

ID	Title	Level	Credit
1204	Demonstrate knowledge of earthing	3	2
15855	Demonstrate knowledge of circuit protection	3	3
15870	Inspect and test an electrical installation for compliance with AS/NZS 3000	4	3

Engineering and Technology > Electricity Supply > Electricity Supply - Core Skills

ID	Title	Level	Credit
20421	Demonstrate knowledge of earthing in the electricity supply industry	3	5
23898	Carry out polarity and phasing on LV electricity networks	3	2

Engineering and Technology > Electricity Supply > Electricity Supply - Testing

ID	Title	Level	Credit
20191	Conduct advanced insulation resistance testing in the electricity supply industry	4	5

Previous versions of the qualification

Version 3 was issued following a revision in order to remove standard 19479 from the compulsory section, and substitute it with standard 27654. Changes to structure and content included: total credits reduced from 77-79 to 76-78 credits; standard 19479 removed from the compulsory set; standard 27654 added to the compulsory set; titles of standards 11097 and 15870 updated; level and credits for standard 12387 updated.

This qualification contains standards that replace or have substituted for earlier standards. For the purposes of this qualification, people who have gained credit for the earlier standards are exempt from the requirement to gain credit for the replacement or substitution standards – see table below.

Credit for	Exempt from
755, 1207, 1708	15855
1176, 5912	15847
2027	15870
15843	25070, 25071, 25072
18029	23898, 23899
19479	27654

Version 2 was issued in order to amend the prerequisite requirements to ensure only qualified line mechanics undertake the Line Mechanic Strand, and only qualified electricians undertake the Electrician strand.

Other standard setting bodies whose standards are included in the qualification

The Skills Organisation
NZQA

Certification

This certificate will display the logos of NZQA, the Infrastructure ITO 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**
318	Engineering and Technology > Electricity Supply	031311	Engineering and Related Technologies > Electrical and Electronic Engineering and Technology > Power Line Installation and Maintenance

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.