National Certificate in Electricity Supply (Electrical) (Level 4) with strands in Electricity Supply Electrician, Electrical Fitter, and Electrical Technician

Level **4**

Credits **100-111**

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

Version 5 of this qualification was republished to extend the last date for entry from 31 December 2016 to 31 December 2017.

Version 5 of this qualification deleted unit standard 26019 from the Electrical Technician Strand and added unit standard 27655 in its place.

Transition Arrangements

This qualification has been reviewed and replaced by New Zealand Certificate in Electrical Engineering Theory and Practice (Trade) (Level 4) [Ref: 2388].

The last date for entry into programmes leading to this qualification is 31 December 2017.

For detailed information see Review Summaries on the NZQA website.

NZQF National Qualification Registration Information

Process	Version	Date	Last Date for Assessment
Registration	1	June 2007	December 2016
Revision	2	October 2007	December 2016
Revision	3	August 2013	December 2021
Review	4	November 2014	December 2021
Revision	5	April 2016	December 2021
Republication	5	June 2016	December 2021

Standard Setting Body

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National Certificate in Electricity Supply (Electrical) (Level 4) with strands in Electricity Supply Electrician, Electrical Fitter, and Electrical Technician

Level **4**

Credits **100-111**

Purpose

This national certificate is awarded to people who have demonstrated competence in the knowledge and skills required for employment in the electricity supply industry as an Electricity Supply Electrician, Electrical Fitter, or Electrical Technician. The qualification has been designed to prepare trainees for a productive role in the electricity supply industry, as well as covering the requirements for registration as an electrician under the Electricity Act 1992. This qualification incorporates nineteen compulsory standards out of a total of fifty nine standards that meet the core competencies required by the Electrical Workers Registration Board (EWRB) for electrical registration under the Electricity Act 1992.

Holders of this qualification will have accomplished a range of knowledge and skills, assessed both off-the-job (during training courses) and on-the-job (in the workplace). These include:

- knowledge of electrical theory, concepts, and trade practice, usually assessed during off-job training courses;
- knowledge and application of relevant legislation, codes of practice, and standards;
- competence in the practical skills of an electrician, usually assessed in the workplace - this includes installation of cables, equipment, and fittings in various environments, maintenance and repair of electrical equipment, and testing of installations;
- knowledge of the theory required for the registration of electricians.

The strands recognise a selection of Electricity Supply Electrician competencies at Level 4 and above, Electrical Fitter competencies, or Electrical Technician competencies required by employers in the electricity supply industry. Electricity Supply Electricians install and maintain electrical services associated with distribution networks, power stations, and substations. Electrical Fitters install and maintain electrical services associated with distribution networks and power stations, which require additional skills in mechanical construction and maintenance. Electrical Technicians install, maintain, test and commission electrical services associated with distribution networks, power stations, and substations.

When a person has completed the National Certificate in Electricity Supply (Electrical) (Level 4) with strands in Electricity Supply Electrician, Electrical Fitter, and Electrical Technician [Ref: 1295] in any one of the three strands, the holder of the certificate may apply to the EWRB for electrical registration and a practising license under the provisions of the Electricity Act 1992. They must do so if they wish to do prescribed electrical work as an electrician without the supervision of a Supervisor of Electrical Work.

This qualification can lead to the National Certificate in Electricity Supply (Power Technician) (Level 5) [Ref: 1260], National Certificate in Electrical Engineering (Advanced Trade) (Level 5) with strands in Electrotechnology Specialisation, Electrical Installation, and Industrial Electrical Engineering) [Ref: 0951] or the National Diploma in Engineering (Level 6) with strands in Computer Engineering, Electrical Engineering, Electronics, Industrial Measurement and Control, and Telecommunications [Ref: 0846].

Replacement Information

This qualification replaced the National Certificate in Electricity Supply (Electrical) (Level 4) [Ref: 0921].

Special Notes

Prerequisites: candidates wishing to be awarded this qualification must also hold

- the National Certificate in Electricity Supply (Electrical) (Level 3) with strands in Electricity Supply Electrician, Electrical Fitter, and Electrical Technician [Ref: 1294] with the matching strand; or
- the National Certificate in Electricity Supply (Electrical) (Level 3) [Ref: 0888], the additional standards identified in the diagram at the end of this qualification, and the requirements of one of the Level 3 strands that corresponds with the strand they will be taking at Level 4;or
- demonstrate equivalent knowledge and skills.

Achievement of the National Certificate in Electricity Supply (Electrical) (Level 4) with strands in Electricity Supply Electrician, Electrical Fitter, and Electrical Technician [Ref: 1295] indicates competence in the skills required for registration as an electrician under a Memorandum of Understanding (MOU) signed between EWRB and the Electricity Supply Training Organisation. However, the Electricity Act 1992 requires that all trainees be subject to supervision by a Supervisor of Electrical Work until they are registered as electricians.

The National Certificate in Electricity Supply (Electrical) (Level 4) with strands in Electricity Supply Electrician, Electrical Fitter and Electrical Technician [Ref: 1295] includes standard 21766, *Demonstrate knowledge of theory for registration of electricians*, which means that trainees who have completed the requirements of this qualification may apply to the EWRB for registration as an electrician.

Credit for standards 1702 and 21766 satisfies the requirements around the Critical Capabilities of the Essential Capabilities as specified by the EWRB. (The EWRB Regulations Examination is the only valid assessment tool for standard 1702 and the EWRB Theory Examination is the only valid assessment tool for standard 21766).

Credit Range

	Compulsory	Electricity Supply Electrician Strand	Electrical Fitter Strand	Electrical Technician Strand
Level 3 credits	7	-	13	-
Level 4 or above credits	68	25	23	33
Minimum totals	75	25	36	33
Qualification total with strand		100	111	108

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
- Electricity Supply Electrician Strand
- Electrical Fitter Strand
- Electrical Technician Strand

Detailed Requirements

Compulsory
The following standards are required

Engineering and Technology > Electrical Engineering > Core Electrical

ID	Title	Level	Credit
1206	Demonstrate knowledge of a.c. power and power factor	4	4
2017	Describe and use complex electrical instruments	4	2
5926	Demonstrate knowledge of programmable logic controllers (PLCs)	4	5
15857	Demonstrate knowledge of three-phase transformers	4	3
15862	Demonstrate knowledge of industrial process control	4	3

ID	Title	Level	Credit
15864	Demonstrate knowledge of semiconductor power devices	4	4
20961	Demonstrate knowledge of special electrical installations	4	4

Engineering and Technology > Electrical Engineering > Electrical Installation and Maintenance

ID	Title	Level	Credit
1205	Demonstrate knowledge of electrical switchboards	3	3
1710	Demonstrate knowledge of electric lighting	4	3
2021	Plan, install, and commission a power supply on a construction or demolition site	4	2
5931	Select and install electric switchboards	3	4
15866	Demonstrate procedures for examination and testing of electrical installations	4	2
15869	Install electrical equipment in damp situations	4	3
15870	Inspect and test an electrical installation for compliance with AS/NZS 3000	4	3
16410	Plan, install, test, and commission small electrical installations	4	5
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 Standards and Statutes

ID	Title	Level	Credit
1702	Demonstrate knowledge of, and apply electrical legislation, New Zealand Codes of Practice, and Standards	4	8
21766	Demonstrate knowledge of theory for registration of electricians	4	3

Electricity Supply Electrician Strand
A minimum of 25 credits at Level 4 or above

Field	Subfield	Domain
Engineering and Technology	Electricity Supply	Electricity Supply - Core Skills
		Electricity Supply - Distribution Networks
		Electricity Supply - Power System Maintenance

Field	Subfield	Domain
		Electricity Supply - Power System Management
		Electricity Supply - Testing

Electrical Fitter Strand
The following standards are required

Engineering and Technology > Mechanical Engineering > Maintenance and Diagnostics in Mechanical Engineering

ID	Title	Level	Credit
2406	Dismantle, inspect, assemble and test components	4	15
2408	Align machinery and equipment	4	8
2409	Level machinery and equipment	3	4
22901	Demonstrate knowledge of pumps, fans, and valves for mechanical engineering trades	3	3

Engineering and Technology > Mechanical Engineering > Welding

ID	Title	Level	Credit
2672	Weld steel in the downhand positions to a general purpose industry standard using the gas metal arc welding process	3	6

Electrical Technician Strand
The following standards are required

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

ID	Title	Level	Credit
27655	Demonstrate familiarity with common faults, relay systems, and components of diagrams in power system protection systems	3	4

Engineering and Technology > Electricity Supply > Electricity Supply - Testing

ID	Title	Level	Credit
14271	Carry out acceptance, commissioning and maintenance tests on power transformers	4	6
14272	Carry out maintenance and/or acceptance tests on high voltage circuit breakers	4	6
14273	Carry out maintenance and commissioning tests on instrument transformers	4	5
14297	Carry out commissioning and maintenance tests on single and multiple input protection systems	5	6

Transition Arrangements

Version 5 revised this qualification to replace unit standard 26019 with 27655.

For the purposes of this qualification, people who have gained credit for unit standard 26019 are exempt from the requirement to gain credit for the replacement standard 27655.

Credit for	Exempt from
26019	27655

Version 3

This qualification was revised and issued as version 3 to replace two expiring unit standards.

Changes to structure and content

- Expiring standard 19481 was removed from the Electrical Technician Strand and standard 26019 was substituted for it.
- Expiring standard 14280, also in the Electrical Technician Strand, was removed and standard 14297 substituted for it.

For detailed information see Review Summaries on the NZQA website.

All existing candidates may either complete the version of the qualification on which they are enrolled or transfer their existing achievements to version 3. All new trainees will be enrolled in programmes leading to version 3 of the qualification.

This qualification contains standards that replace or were substituted 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 or substituted standards – see table below.

Credit for	Exempt from
14280	14297
15863	20962
19841	26019

Reverse transition

Version 1 and 2 of this qualification contain standards that have been substituted for earlier standards. For the purposes of this qualification, people who have gained credit for the replacement standards are exempt from the requirement to gain credit for the expiring standards – see table below.

Credit for	Exempt from
14297	14280
26019	19841

It is not intended that anyone is disadvantaged by this revision and the above arrangements have been designed for a smooth transition. However, anyone who feels they have been disadvantaged may appeal to ESITO at the address below.

Previous version of the qualification

Version 2 was issued to add the Electricity Supply – Core Skills domain to the Electricity Supply Electrician Strand. An amendment was also made to the transition arrangements for version 1 to ensure all candidates transferring from the National Certificate in Electricity Supply (Electrical) (Level 4) [Ref: 0921] have completed unit standards 3492, 15850, 15854, 15860, and 15867.

Version 1 of this qualification was created to replace the National Certificate in Electricity Supply (Electrical) (Level 4) [Ref: 0921].

People currently working towards versions 1 or 2 of the National Certificate in Electricity Supply (Electrical) (Level 4) [Ref: 0921] may either complete that qualification or transfer their existing achievements to the National Certificate in Electricity Supply (Electrical) (Level 4) with strands in Electricity Supply Electrician, Electrical Fitter, and Electrical Technician [Ref: 1295]. Those transferring will need to complete unit standards 3492, 15850, 15854, 158560, and 15867. They will also be required to complete the requirements of the strand of the National Certificate in Electricity Supply (Electrical) (Level 3) with strands in Electricity Supply Electrician, Electrical Fitter, and Electrical Technician [Ref: 1294] that corresponds with the strand they will be taking at Level 4 (eg taking the Electrical Technician Strand at Level 4 will require the trainee to hold the Level 3 Electrical Technician Strand standards). If the strand they choose at Level 4 is the Electrical Fitter Strand they will also be required to meet the requirements of the Level 2 and Level 3 Electrical Fitter Strands, as detailed in the diagram at the end of this document.

From 1 January 2009 all training programmes and courses will lead to the award of the new qualification. All new trainees will be enrolled in programmes leading to the new qualification.

The last date for assessments to take place for the replaced qualification is 31 December 2009. Industry will continue to recognise the former qualification, and there should be no need to ‘upgrade’ by those who have already achieved it.

It is not intended that anyone be disadvantaged by this revision, and the above arrangements have been designed for a smooth transition. However, anyone who feels they have been disadvantaged may appeal to the Electricity Supply Industry Training Organisation at the address below.

Other standard setting bodies whose standards are included in the qualification

Competenz
The Skills Organisation

Certification

This certificate will display the logo of NZQA, the Electricity Supply Industry Training Organisation and the organisation that has been granted consent to assess against standards that meet the requirements of the qualification.

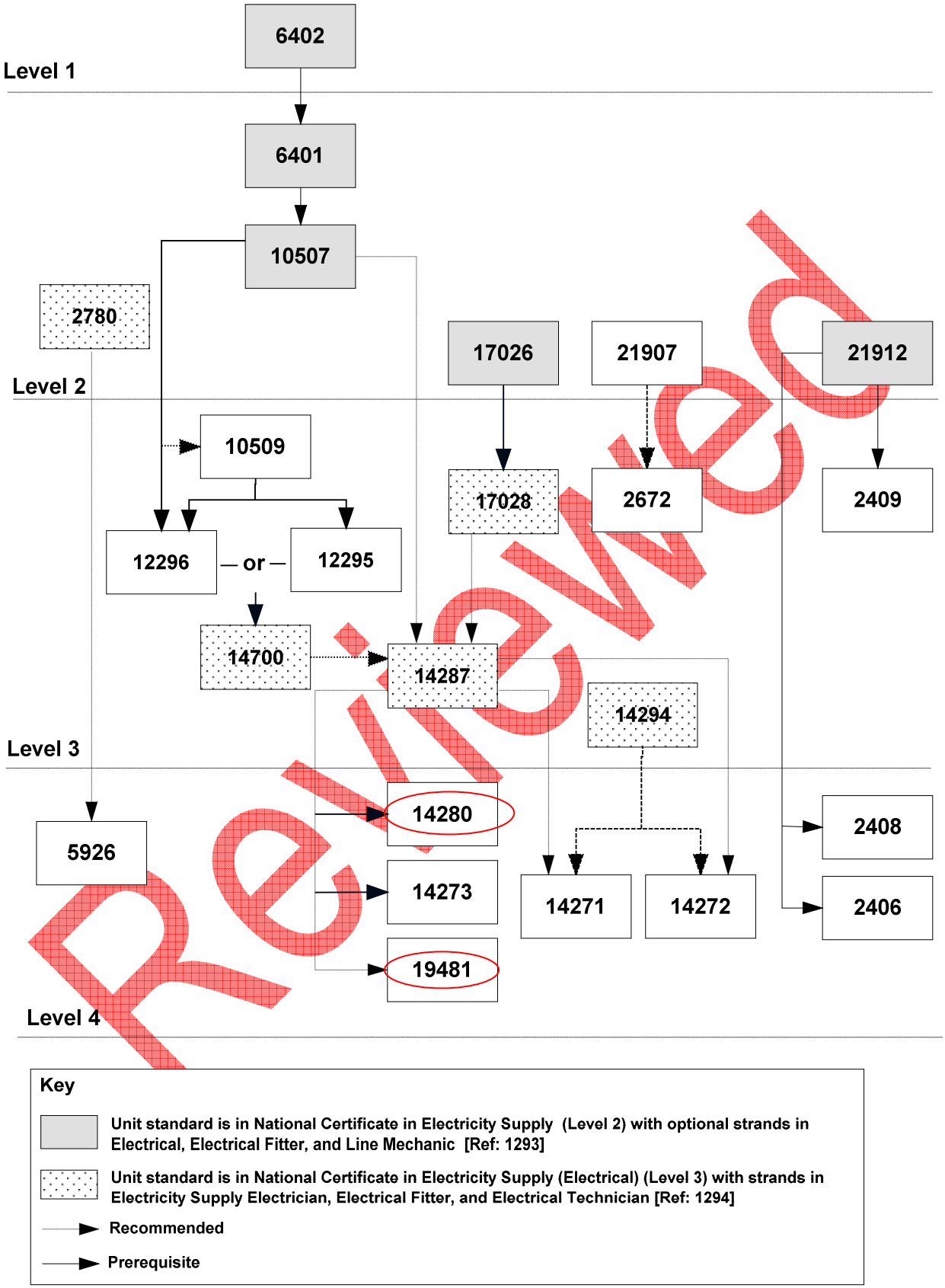
Classification

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.

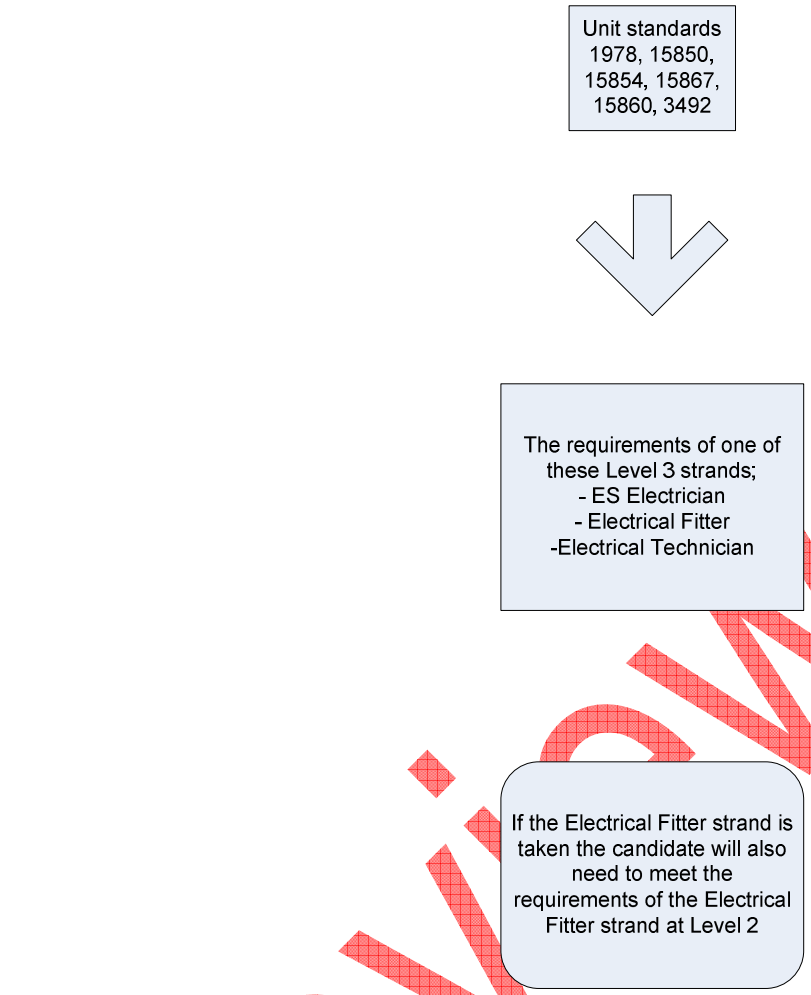
DAS Classification		**NZSCED**	
Code	**Description**	**Code**	**Description**
318	Engineering and Technology > Electricity Supply	031313	Engineering and Related Technologies > Electrical and Electronic Engineering and Technology > Electrical Fitting, Electrical Mechanics

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.

Prerequisite Diagram



Candidates holding the National Certificate in Electricity Supply (Electrical) (Level 3) [Ref: 0888] who wish to take the National Certificate in Electricity Supply (Electrical) (Level 4) with strands in Electricity Supply Electrician, Electrical Fitter, and Electrical Technician [Ref: 1295] will need to complete the following:



Candidates holding the National Certificate in Electricity Supply (Electrical) (Level 4) [Ref: 0921] who wish to transfer to the National Certificate in Electricity Supply (Electrical) (Level 4) with strands in Electricity Supply Electrician, Electrical Fitter, and Electrical Technician [Ref: 1295] Version 2 will need to complete, or have completed the following: