

## National Graduate Diploma in Electricity Supply (High Voltage Line Construction and Maintenance) (Level 7)

<b>Level</b>	<b>7</b>
<b>Credits</b>	<b>210</b>

### Purpose

This graduate diploma is for engineering personnel working or intending to work in the construction or maintenance of high voltage lines. It provides a basis for the professional development of engineers already qualified from a range of disciplines, enabling them to up skill to the requirements necessary for the construction and maintenance of high voltage lines.

People awarded this qualification are able to apply management procedures to design and construction projects and can control design and construction project expenditure. They are also able to undertake project management in an electrotechnology engineering environment. They are able to construct transmission tower foundations; string, install, and attach transmission network conductors; and erect electricity transmission towers. They have knowledge of both electrical and mechanical overhead line design, an understanding of power system earthing, and are able to undertake high voltage overhead line route selection. As part of their project management responsibilities they can manage the storage, handling, and transportation of materials.

The elective section of the qualification recognises the diversity in construction and maintenance projects and enables people to specialise in construction or maintenance. They may choose to consolidate their construction expertise by undertaking standards covering engineering survey and set-out for civil construction, and setting out levels and positions in civil construction projects, or they may choose to specialise in maintenance by undertaking standards covering condition assessment of electricity supply wooden, concrete and steel pole structures; line patrols; and the selection of materials, including knowledge of corrosion and its prevention.

People undertaking this qualification are engineers, technologists and technicians and as such will already have extensive experience of, and the self discipline required to undertake, the study and tasks at the high level required to obtain this qualification. They will have the ability to undertake self-directed learning and have the intellectual independence and analytic rigour required to understand and evaluate new knowledge and ideas. Controlling design and construction project expenditure and undertaking project management demands a high degree of autonomy and responsibility, while selecting overhead line routes and designing overhead lines involves a high degree of self-determination.

This qualification provides for the professional development of engineers, technologists and technicians from engineering disciplines such as mechanical, civil, structural and electrical to progress to a career pathway in high voltage line construction and maintenance. Whilst this qualification does not lead on to any other national qualification, this qualification may be a pathway to advanced studies in other engineering disciplines.

## Special Notes

Prerequisite: one of the following

- Relevant Bachelor's degree in engineering
- National Diploma in Engineering (Electrotechnology) (Level 6) [Ref: 1313]
- National Diploma in Engineering (Level 6) with strands in Mechanical Engineering, Production Engineering, and Mechanical Services, and with an optional strand in Practical Endorsement [Ref: 0534]
- New Zealand Certificate of Engineering  
or be able to demonstrate equivalent knowledge and skills.

## Credit Range

	Compulsory	Elective
Level 4 and below credits	50	0-40
Level 5 credits	8	0-24
Level 6 credits	38	0-28
Level 7 credits	74	-
Minimum totals	170	40
Total	210	

## 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 40 credits as specified

## Detailed Requirements

### Compulsory

The following standards are required

Business > Business Operations and Development > Project Management

ID	Title	Level	Credit
25217	Apply risk management techniques to a project	4	5

Engineering and Technology > Design > Professional Practice in Design and Construction Consultancy

ID	Title	Level	Credit
2065	Apply management procedures to design and construction projects	5	8
2090	Control design and construction project expenditure	7	4

Engineering and Technology > Electrical Engineering > Electrotechnology

ID	Title	Level	Credit
22734	Demonstrate and apply introductory knowledge of electrotechnology engineering mathematics	4	15
22740	Demonstrate knowledge of project management in an electrotechnology engineering environment	6	15

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

ID	Title	Level	Credit
11578	Describe and apply electricity power transmission technology	6	15

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

ID	Title	Level	Credit
10519	Construct transmission tower foundations	4	10
18025	String, install, and attach transmission network conductors	4	10
24748	Erect electricity transmission towers	4	10
26013	Demonstrate knowledge of high voltage overhead line route selection	7	15

ID	Title	Level	Credit
26014	Demonstrate knowledge of the fundamentals of power system earthing	7	15
26015	Demonstrate knowledge of electrical overhead line design	7	20
26016	Demonstrate knowledge of mechanical overhead line design	7	20

## Engineering and Technology &gt; Engineering &gt; Process and Materials Engineering

ID	Title	Level	Credit
11378	Manage the storage, handling, and transportation of materials	6	8

**Elective**

A minimum of 40 credits

## Engineering and Technology &gt; Civil Works and Services &gt; Civil Construction Supervision

ID	Title	Level	Credit
6428	Demonstrate knowledge of engineering survey and set-out for civil construction work	4	20
22294	Set out levels and positions in civil construction projects	4	10

## Engineering and Technology &gt; Electricity Supply &gt; Electricity Supply - Transmission Networks

ID	Title	Level	Credit
20413	Carry out condition assessments of electricity supply wooden pole structures	4	6
20414	Carry out condition assessments of electricity supply concrete and steel pole structures	4	6
20415	Carry out condition assessments of electricity supply steel tower structures	4	5
20416	Carry out condition assessments of electricity supply line hardware and conductors	4	5
20847	Carry out a line patrol on an electricity supply network	4	6

## Engineering and Technology &gt; Engineering &gt; Process and Materials Engineering

ID	Title	Level	Credit
11365	Demonstrate knowledge of corrosion	6	8
11366	Select materials for manufacturing and construction	6	10
11369	Treat and coat surfaces	6	10
11370	Demonstrate knowledge of engineering materials	5	24

## Transition Arrangements

### Version 1

This qualification contains standards that replace 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
10520	24748
17499	22294

## NZQF National Qualification Registration Information

Process	Version	Date	Last Date for Assessment
Registration	1	February 2011	N/A

## Standard Setting Body

Electricity Supply Industry Training Organisation  
 PO Box 1245  
 Waikato Mail Centre  
 Hamilton 3240

Telephone 07 834 3038  
 Facsimile 07 834 8160  
 Email [info@esito.org.nz](mailto:info@esito.org.nz)

## Planned Review

Any person or organisation may contribute to the review of this qualification by sending feedback to the standard setting body at the above address.

Next Review	2014
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## Other standard setting bodies whose standards are included in the qualification

ElectroTechnology Industry Training Organisation  
 InfraTrain New Zealand  
 NZQA

## Certification

This certificate will display the logos 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 (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. 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.