

National Certificate in Electronic Manufacturing (Level 4) with strands in Manufacturing Technology, and Manufacturing Leadership

Level	4
Credits	120

Purpose

The National Certificate in Electronic Manufacturing (Level 4) with strands in Manufacturing Technology, and Manufacturing Leadership [Ref: 0435] provides recognition of employment skills for a range of advanced technical or leadership roles in the production environment of the electronic manufacturing industry. It shares many standards in common with, and builds on, the National Certificate in Electronic Manufacturing (Level 3) [Ref: 0434].

The emphasis is on practical skills, which are gained primarily from relevant on-job experience.

Holders of this qualification are expected to deliver work that meets industry quality standards without technical supervision.

The qualification is available in two strands:

- Manufacturing Technology – for production people employed in technical roles involving testing, adjusting, and repair of products; and
- Manufacturing Leadership – for production team leaders.

The qualification comprises the following components:

- elective components to suit different production environments and job roles; and
- strand compulsory standards that cover common core knowledge and skills of basic safety, electrostatic precautions, component recognition, and hand soldering; and other skills for the chosen strand.

Credits achieved for the National Certificate in Electronic Manufacturing (Level 3) [Ref: 0434] may be used towards gaining this certificate.

The qualification may lead to a variety of management and technical qualifications, depending on elective standards chosen.

Credit Range

	Core Compulsory	Core Electives	Manufacturing Technology Strand	Manufacturing Leadership Strand
Level 2 credits	12	0-58	-	-
Level 3 credits	10	0-58	-	-
Level 4 credits	-	0-58	40	45
Minimum totals	22	53-58	40	45

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

- A minimum of 120 credits at Level 2 or above
- Core Compulsory standards
- Core Elective 1 – A minimum of 30 credits as specified
- Core Elective 2 – Balance

One of the following strands is required

- Manufacturing Technology Strand
- Manufacturing Leadership Strand

Detailed Requirements

Core Compulsory

The following standards are required

Engineering and Technology > Electronic Engineering > Electronic Manufacturing

ID	Title	Level	Credit
12579	Perform hand soldering in electronic manufacturing	3	10
20402	Identify and follow safety practices and procedures in an electronic manufacturing environment	2	5
20403	Identify electronic components	2	5
20405	Describe and use electrostatic discharge control procedures in electronic manufacturing	2	2

Core Elective 1

A minimum of 30 credits

Engineering and Technology > Electronic Engineering > Electronic Manufacturing

ID	Title	Level	Credit
12573	Deal with hazardous materials in an electronic manufacturing environment	3	10
12574	Pack electronic products	2	10

ID	Title	Level	Credit
12575	Assemble through-hole printed circuit boards manually	3	10
12576	Assemble surface mount printed circuit boards manually	3	15
12577	Assemble electronic products	3	15
12578	Assemble electronic components	3	15
12580	Operate printed circuit board flow soldering equipment	3	10
12581	Operate automatic assembly equipment for printed circuit boards	3	35
12582	Control printed circuit board fabrication operations	3	30
12583	Control printed circuit board manufacturing processes	3	30
12584	Control printed circuit board screenprinting processes	3	30
12585	Prepare screenprinting stencils for printed circuit board processes	3	20
12586	Apply protective coatings to electronic products	3	10
12587	Inspect electronic products visually	3	10
12588	Conduct go/no-go testing of electronic products in electronic manufacturing	3	10
20400	Rework surface mount printed circuit boards	3	10
20401	Rework through-hole printed circuit boards	3	10
20404	Assemble electronic equipment racks or cabinets	3	20
20524	Assemble through-hole printed circuit boards using semi-automatic assembly equipment	3	10

Core Elective 2

The balance of credits to achieve

A minimum of 120 credits at Level 2 or above

May come from the following

Field	Subfield	Domain
Business	Business Environment	Business Culture and Environment
	Business Operations and Development	Quality Management
		Systems and Resources Management
	Financial Management	Financial Skills
Computing and Information Technology	Computing	Generic Computing

Field	Subfield	Domain
Engineering and Technology	Electrical Engineering	Core Electrical Electrotechnology
	Electronic Engineering	Any

Manufacturing Technology Strand

The following standards are required

Engineering and Technology > Electronic Engineering > Electronic Manufacturing

ID	Title	Level	Credit
12589	Test and adjust electronic products in electronic manufacturing	4	20
12590	Repair printed circuit boards	4	20

Manufacturing Leadership Strand

The following standards are required

Engineering and Technology > Electronic Engineering > Electronic Manufacturing

ID	Title	Level	Credit
12591	Prepare production batches for manufacture of electronic products	4	15
12592	Manage the production of electronic products within a manufacturing cell	4	30

Transition Arrangements

Version 5

Version 5 was issued following revision to maintain currency until a thorough review can take place.

Changes to structure and content

- A Core Compulsory section was added using standards 12579, 20402, 20403 and 20405, which were requirements for both strands.
- The lapsing First Line Management domain was replaced by the Business Culture and Environment, Systems and Resources Management, and Financial Skills domains in Core Elective 2.
- The Quality Management domain from the lapsing Management subfield was replaced by the Quality Management domain from the Business Operations and Development subfield in Core Elective 2.

For detailed information see [Review Summaries](#) on the NZQA website.

All existing candidates for versions 3 and 4 of the qualification may either complete its requirements or transfer their existing achievements to this version.

This qualification contains classifications that replace or are used as substitutes for earlier classifications. People who have gained credit for standards in the expiring classifications may use those credits to meet the requirements of the qualification.

Standards from	Are treated as Standards from
Business > Management > First Line Management	Business > Business Environment > Business Culture and Environment
Business > Management > First Line Management	Business > Business Operations and Development > Systems and Resources Management
Business > Management > First Line Management	Business > Financial Management > Financial Skills
Business > Management > Quality Management	Business > Business Operations and Development > Quality Management

It is not intended that anyone be disadvantaged by this revision. However, 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 4 was issued to correct the NQF classification associated with the qualification. It had inadvertently been classified in the expired Electronic Manufacturing domain in the lapsing Electronics Technology subfield, rather than the domain in the Electronic Engineering subfield.

Version 3 was issued following the review of the Electronic Manufacturing standards. The purpose of the review was to incorporate feedback from assessment and develop additional standards seen as important in the industry.

NQF Registration Information

Process	Version	Date	Last Date for Assessment
Registration	1	February 1998	December 2005
Revision	2	October 1999	December 2005
Review	3	March 2004	N/A
Revision	4	February 2007	N/A
Revision	5	April 2010	N/A

Standard Setting Body

ElectroTechnology Industry Training Organisation
PO Box 24469
Royal Oak
Auckland 1345

Telephone 09 525 2590
Email reviewcomments@etito.co.nz
Website www.etito.co.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	2013
-------------	------

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.

NQF Classification		NZSCED	
Code	Description	Code	Description
1891	Engineering and Technology > Electronic Engineering > Electronic Manufacturing	031303	Engineering and Related Technologies > Electrical and Electronic Engineering and Technology > Electronic 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.