



Level 3 NVO Diploma in

Electrical and Electronic Engineering

ENGINEERING

Qualification Specification

Overview

This qualification is a National Vocational Qualification (NVQ). It involves the skills and knowledge needed for electrical and electronic engineering. NVQs are based on national occupational standards, which the learner must meet to be competent in a particular task

Typical Job

The qualification is applicable to a wide variety of electrical/electronic occupations within the sector, dependent on the pathway chosen.

Qualification code:	600/9590/8
Level:	3
Total qualification time:	900 Hours
Guided learning hours:	309
Credits:	90
Minimum age	16

Issue 1.1

Purpose of the qualification

It involves the skills and knowledge needed for electrical and electronic engineering in one or more of a wide variety of activities including:

- designing electronic circuits
- controlling semiconductor manufacturing processes
- controlling printed circuit and allied circuit assembly
- leading electronic component manufacture
- leading printed circuit and allied circuit assembly
- leading electronic assembly
- testing electronic circuits
- manufacturing of transformers and inductors
- manufacturing electrical motors and generators
- manufacturing electrical control systems equipment
- testing electrical equipment.

It is designed for learners who are undertaking a SEMTA apprenticeship.

Who supports this qualification?

The qualification is supported by SEMTA.

What could this qualification lead to?

A career in the engineering sector, further or higher study such as project management and supervision.

Entry Requirements

Learners must have the potential to achieve the assessment criteria set out in the units

How is the qualification achieved?

The learner must present evidence (portfolio) which clearly shows they have met the assessment criteria and learning outcomes. The learner must achieve the mandatory and optional units relevant to their pathway (occupational role).

What will be assessed?

All evidence submitted by the learner against the assessment criteria.

How will it be assessed?

Evidence for this qualification will be assessed in accordance with the SEMTA engineering assessment strategy, which has been created from engagement with stakeholders (employers etc.) in the engineering sector.

The qualification is not graded and only a pass can be achieved – which indicates the learner's occupational competence.

Structure of the EAL Level 3 NVQ Diploma

This qualification can be obtained by following either one of the following pathways. The learner is required to complete the mandatory assessment routes, and may also be able to choose from a selection of optional assessment routes.

Pathway EEA: Designing Electronic Circuits

Mandatory assessment routes: All three assessment routes must be completed:

EAL code	Assessment route title	Level	Credit value	GLH	Ofqual code
QEEE3/001N	Complying with Statutory Regulations and Organisational Safety Requirements	2	5	35	A/601/5013
QEEE3/002N	Using and Interpreting Engineering Data and Documentation	2	5	25	Y/601/5102
QEEE3/003N	Working Efficiently and Effectively in Engineering	3	5	25	K/601/5055

Optional assessment routes: All three of the following assessment routes must be taken:

EAL code	Assessment route title	Level	Credit value	GLH	Ofqual code
QEEE3/004N	Designing Electronic Circuit Layouts Using CAD Tools	3	60	126	K/504/9745
QEEE3/005N	Evaluating and Recommending Circuit Design Options	3	70	154	M/504/9746
QEEE3/006N	Providing Technical Guidance to Others	3	35	70	T/504/9747

Pathway EEB: Controlling Semiconductor Manufacturing Processes

Mandatory assessment routes: All three assessment routes must be completed:

EAL code	Assessment route title	Level	Credit value	GLH	Ofqual code
QEEE3/001N	Complying with Statutory Regulations and Organisational Safety Requirements	2	5	35	A/601/5013
QEEE3/002N	Using and Interpreting Engineering Data and Documentation	2	5	25	Y/601/5102
QEEE3/003N	Working Efficiently and Effectively in Engineering	3	5	25	K/601/5055

Optional assessment routes: All three of the following assessment routes must be taken:

EAL code	Assessment route title	Level	Credit value	GLH	Ofqual code
QEEE3/007N	Identifying and Following Clean Room/Clean Work Area Protocols	3	7	28	F/504/9749
QEEE3/008N	Monitoring and Analysing Data from Semiconductor Processes	3	35	77	A/504/9751
QEEE3/009N	Adjusting and Sustaining Semiconductor Processes	3	40	77	F/504/9752

Plus one assessment route from the following:

EAL code	Assessment route title	Level	Credit value	GLH	Ofqual code
QEEE3/010N	Selecting and Preparing Materials and Components for Manufacturing	3	18	63	L/504/9754
QEEE3/011N	Preparing Manufacturing Systems Equipment for Operation	3	18	63	R/504/9755
QEEE3/006N	Providing Technical Guidance to Others	3	35	70	T/504/9747

Pathway EEC: Controlling Printed Circuit and Allied Circuit Assembly

Mandatory assessment routes: All three assessment routes must be completed:

EAL code	Assessment route title	Level	Credit value	GLH	Ofqual code
QEEE3/001N	Complying with Statutory Regulations and Organisational Safety Requirements	2	5	35	A/601/5013
QEEE3/002N	Using and Interpreting Engineering Data and Documentation	2	5	25	Y/601/5102
QEEE3/003N	Working Efficiently and Effectively in Engineering	3	5	25	K/601/5055

Optional assessment routes: All of the following assessment routes must be taken:

EAL code	Assessment route title	Level	Credit value	GLH	Ofqual code
QEEE3/007N	Identifying and Following Clean Room/Clean Work Area Protocols	3	7	28	F/504/9749
QEEE3/012N	Monitoring and Analysing Data from Electronic Circuit Manufacturing Processes	3	35	77	Y/504/9756
QEEE3/013N	Adjusting and Sustaining Electronic Circuit Manufacturing Processes	3	40	77	H/504/9758

Plus one assessment route from the following:

EAL code	Assessment route title	Level	Credit value	GLH	Ofqual code
QEEE3/010N	Selecting and Preparing Materials and Components for Manufacturing	3	18	63	L/504/9754
QEEE3/011N	Preparing Manufacturing Systems Equipment for Operation	3	18	63	R/504/9755
QEEE3/006N	Providing Technical Guidance to Others	3	35	70	T/504/9747



Pathway EED: Leading Electronic Component Manufacture

Mandatory assessment routes: All three assessment routes must be completed:

EAL code	Assessment route title	Level	Credit value	GLH	Ofqual code
QEEE3/001N	Complying with Statutory Regulations and Organisational Safety Requirements	2	5	35	A/601/5013
QEEE3/002N	Using and Interpreting Engineering Data and Documentation	2	5	25	Y/601/5102
QEEE3/003N	Working Efficiently and Effectively in Engineering	3	5	25	K/601/5055

Optional assessment routes: Both of the following assessment routes must be taken:

EAL code	Assessment route title	Level	Credit value	GLH	Ofqual code
QEEE3/006N	Providing Technical Guidance to Others	3	35	70	T/504/9747
QEEE3/014N	Processing Electronic Components within the Manufacturing System	3	50	126	D/504/9760

Plus one assessment route from the following:

EAL code	Assessment route title	Level	Credit value	GLH	Ofqual code
QEEE3/010N	Selecting and Preparing Materials and Components for Manufacturing	3	18	63	L/504/9754
QEEE3/011N	Preparing Manufacturing Systems Equipment for Operation	3	18	63	R/504/9755
QEEE3/015N	Checking the Compliance of Electronic Components	3	20	56	R/504/9805

Pathway EEE: Leading Printed Circuit and Allied Circuit Assembly

Mandatory assessment routes: All three assessment routes must be completed:

EAL code	Assessment route title	Level	Credit value	GLH	Ofqual code
QEEE3/001N	Complying with Statutory Regulations and Organisational Safety Requirements	2	5	35	A/601/5013
QEEE3/002N	Using and Interpreting Engineering Data and Documentation	2	5	25	Y/601/5102
QEEE3/003N	Working Efficiently and Effectively in Engineering	3	5	25	K/601/5055

Optional assessment routes: All of the following assessment routes must be taken:

EAL code	Assessment route title	Level	Credit value	GLH	Ofqual code
QEEE3/006N	Providing Technical Guidance to Others	3	35	70	T/504/9747
QEEE3/007N	Identifying and Following Clean Room/Clean Work Area Protocols	3	7	28	F/504/9749
QEEE3/016N	Assembling and Checking Printed and Allied Electronic Circuits	3	55	98	H/504/9808

Plus one assessment route from the following:

EAL code	Assessment route title	Level	Credit value	GLH	Ofqual code
QEEE3/010N	Selecting and Preparing Materials and Components for Manufacturing	3	18	63	L/504/9754
QEEE3/011N	Preparing Manufacturing Systems Equipment for Operation	3	18	63	R/504/9755

Pathway EEF: Leading Electronics Assembly

Mandatory assessment routes: All three assessment routes must be completed:

EAL code	Assessment route title	Level	Credit value	GLH	Ofqual code
QEEE3/001N	Complying with Statutory Regulations and Organisational Safety Requirements	2	5	35	A/601/5013
QEEE3/002N	Using and Interpreting Engineering Data and Documentation	2	5	25	Y/601/5102
QEEE3/003N	Working Efficiently and Effectively in Engineering	3	5	25	K/601/5055

Optional assessment routes: Both of the following assessment routes must be taken:

EAL code	Assessment route title	Level	Credit value	GLH	Ofqual code
QEEE3/006N	Providing Technical Guidance to Others	3	35	70	T/504/9747
QEEE3/017N	Assembling and Wiring Electronic Equipment and Systems	3	45	84	M/504/9813

Plus one assessment route from the following:

EAL code	Assessment route title	Level	Credit value	GLH	Ofqual code
QEEE3/010N	Selecting and Preparing Materials and Components for Manufacturing	3	18	63	L/504/9754
QEEE3/011N	Preparing Manufacturing Systems Equipment for Operation	3	18	63	R/504/9755

Pathway EEG: Testing Electronic Circuits

Mandatory assessment routes: All three assessment routes must be completed:

EAL code	Assessment route title	Level	Credit value	GLH	Ofqual code
QEEE3/001N	Complying with Statutory Regulations and Organisational Safety Requirements	2	5	35	A/601/5013
QEEE3/002N	Using and Interpreting Engineering Data and Documentation	2	5	25	Y/601/5102
QEEE3/003N	Working Efficiently and Effectively in Engineering	3	5	25	K/601/5055

Optional assessment routes: Both of the following assessment routes must be taken:

EAL code	Assessment route title	Level	Credit value	GLH	Ofqual code
QEEE3/018N	Testing Post-Production Electronic Components and Circuits	3	45	77	A/504/9815
QEEE3/019N	Locating and Diagnosing Faults in Post-Production Electronic Components and Circuits	3	47	77	J/504/9817

Plus one assessment route from the following:

EAL code	Assessment route title	Level	Credit value	GLH	Ofqual code
QEEE3/020N	Preparing Facilities for Testing Electronic Components and Circuits	3	18	63	J/504/9820
QEEE3/021N	Writing Specifications for Testing Electronic Components or Circuits	3	30	70	Y/504/9823
QEEE3/006N	Providing Technical Guidance to Others	3	35	70	T/504/9747

Pathway EEH: Manufacturing Transformers and Inductors

Mandatory assessment routes: All three assessment routes must be completed:

EAL code	Assessment route title	Level	Credit value	GLH	Ofqual code
QEEE3/001N	Complying with Statutory Regulations and Organisational Safety Requirements	2	5	35	A/601/5013
QEEE3/002N	Using and Interpreting Engineering Data and Documentation	2	5	25	Y/601/5102
QEEE3/003N	Working Efficiently and Effectively in Engineering	3	5	25	K/601/5055

Optional assessment routes: Two of the following assessment routes must be taken:

EAL code	Assessment route title	Level	Credit value	GLH	Ofqual code
QEEE3/022N	Assembling Large Transformer and Inductor Cores	3	55	126	H/504/9825
QEEE3/023N	Winding Transformer and Inductor Coils	3	45	112	M/504/9830
QEEE3/024N	Assembling Transformers and Inductors	3	48	119	T/504/9831
QEEE3/025N	Fitting Small Transformer and Inductor Cores	3	30	112	F/504/9833

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Pathway EEI: Manufacturing Electrical Motors and Generators

Mandatory assessment routes: All three assessment routes must be completed:

EAL code	Assessment route title	Level	Credit value	GLH	Ofqual code
QEEE3/001N	Complying with Statutory Regulations and Organisational Safety Requirements	2	5	35	A/601/5013
QEEE3/002N	Using and Interpreting Engineering Data and Documentation	2	5	25	Y/601/5102
QEEE3/003N	Working Efficiently and Effectively in Engineering	3	5	25	K/601/5055

Optional assessment routes: Four of the following assessment routes must be taken:

EAL code	Assessment route title	Level	Credit value	GLH	Ofqual code
QEEE3/026N	Assembling Rotor and Armature Windings	3	25	56	J/504/9834
QEEE3/027N	Assembling Stator Windings	3	25	56	R/504/9836
QEEE3/028N	Assembling and Fitting Commutators	3	20	42	Y/504/9837
QEEE3/029N	Balancing Assembled Rotors or Armatures	3	30	63	D/504/9838
QEEE3/030N	Assembling and Fitting Electrical Rotating Equipment	3	50	105	Y/504/9840

Pathway EEJ: Manufacturing Electrical Control Systems Equipment

Mandatory assessment routes: All three assessment routes must be completed:

EAL code	Assessment route title	Level	Credit value	GLH	Ofqual code
QEEE3/001N	Complying with Statutory Regulations and Organisational Safety Requirements	2	5	35	A/601/5013
QEEE3/002N	Using and Interpreting Engineering Data and Documentation	2	5	25	Y/601/5102
QEEE3/003N	Working Efficiently and Effectively in Engineering	3	5	25	K/601/5055

Optional assessment routes: All three of the following assessment routes must be taken:

EAL code	Assessment route title	Level	Credit value	GLH	Ofqual code
QEEE3/031N	Mounting Electrical Components in Enclosures	3	55	133	D/504/9841
QEEE3/032N	Wiring Electrical Components and Equipment in Enclosures	3	60	147	K/504/9843
QEEE3/033N	Selecting and Preparing Materials and Components for Electrical Assembly	3	18	63	M/504/9844

Pathway EEK: Testing Electrical Equipment

Mandatory assessment routes: All three assessment routes must be completed:

EAL code	Assessment route title	Level	Credit value	GLH	Ofqual code
QEEE3/001N	Complying with Statutory Regulations and Organisational Safety Requirements	2	5	35	A/601/5013
QEEE3/002N	Using and Interpreting Engineering Data and Documentation	2	5	25	Y/601/5102
QEEE3/003N	Working Efficiently and Effectively in Engineering	3	5	25	K/601/5055

Optional assessment routes: All three of the following assessment routes must be taken:

EAL code	Assessment route title	Level	Credit value	GLH	Ofqual code
QEEE3/034N	Carrying Out Functional Tests on Electrical Equipment	3	50	105	A/504/9846
QEEE3/035N	Locating and Diagnosing Faults in Electrical Systems and Equipment	3	50	105	J/504/9848
QEEE3/036N	Checking the Compliance of Electrical Equipment	3	20	56	L/504/9849

