



# Level 2 Diploma in Engineering Operations (Knowledge)

## Qualification Specification

### Overview

This qualification provides learners with knowledge and understanding of a blend of skills, knowledge and occupational behaviours required across a range of engineering operations. The qualification covers the core knowledge and understanding that are required by an engineering operative involved in the Manufacturing and Engineering sector.

### Typical Job

Maintenance engineer, mechanical manufacturing engineer, electronic engineer, fabricator materials, processing or finishing engineer, technical support engineer.

Qualification code:	603/3195/1
Level:	2
Total qualification time:	420
Guided learning (hours):	370
Minimum learning age:	16

Issue 1.0

## Purpose of qualification

### What is this qualification?

The EAL Level 2 Diploma in Engineering Operations (Knowledge) is a Vocational Related Qualification (VRQ). It provides learners with the core knowledge, understanding and behaviours required for a range of Manufacturing and Engineering occupational roles. It takes a hands-on approach to training by providing the learner with:

- Core knowledge and understanding of a range of occupational roles from across the engineering and manufacturing sector.
- Core behaviours that will ensure success in their role and help them to achieve their potential.
- A wide range of core knowledge and behaviours that can be transferred across the manufacturing engineering industry sectors.

### What does this qualification cover?

This qualification has one mandatory unit, which provides learners with knowledge and understanding of engineering environment awareness and a variety of optional units, from which a learners must complete six from those listed on pages 3-5.

This qualification has a minimum 370 GL(H) and 420 Total Qualification Time.

### Who is this qualification for?

This qualification is predominantly for learners completing the Level 2 Engineering Operative Apprenticeship Standard. It is also suitable for learners in full time education who would like to gain core knowledge and understanding of a range of occupational roles from across the engineering and manufacturing sector. The qualification may also be suitable for learners who are considering a career change. The qualification has been specifically designed to provide learners with the core knowledge and behaviours required for a range of Manufacturing and Engineering occupational roles or to offer progression into a higher level of study or an Apprenticeship.

It is suitable for learners aged:

- 16-18
- 19+

## Who supports the qualification?

This qualification is:

- Accredited at Level 2.
- Endorsed by employers as facilitating completion of the core knowledge appropriate for the Engineering Operative Apprenticeship Standard.

## What could this qualification lead to?

### Typical job roles include:

Maintenance engineer, mechanical manufacturing engineer, electronic engineer, fabricator materials, processing or finishing engineer, technical support engineer.

This qualification relates to:

- EAL Level 2 Diploma in Engineering Operations (Skills)
- EAL Level 2 NVQ Diploma in Performing Engineering Operations.
- EAL Level 2 Certificates and Diplomas in Engineering Technologies.
- EAL Level 2 Diploma in Advanced Manufacturing and Engineering (foundation phase).
- EAL Level 3 Certificates and Diplomas in Engineering Technologies.
- Further EAL level 3 engineering and manufacturing competence qualifications.

## Entry requirements

Learners must be at least 16 years old. Any entry requirements for this qualification can be found in the relevant Advanced Manufacturing Engineering Standard. Learners must have the potential to achieve all aspects of the qualification. In particular, learners should be able to demonstrate that they have the minimum levels of literacy and numeracy required to comply with the health and safety aspects of the qualification, the completion of the learning outcomes, and the assessments.

## How is the qualification achieved?

This qualification will be achieved when the learner has successfully completed:

- One core mandatory unit, comprising an on-screen multiple-choice examination and Centre marked practical/theory assessments.
- Six optional units comprising on-screen multiple-choice examinations and Centre marked practical/theory assessments.

## What will be assessed?

This qualification is made up of units to which appropriate assessment methods have been applied. The units contain the learning outcomes and the assessment criteria that the learner is to be assessed against.

All learning outcomes within the qualification will be assessed. In order to meet this requirement, it is advised that centres should maintain an assessment and feedback record for each learner. This will detail the evidence evaluated against the learning outcome and the feedback given to the learner. All learner evidence must be available to the EAL External Quality Assurer.

## Grading Criteria

Learners must achieve a Pass in ALL components for the qualification to be awarded. If learners are unsuccessful in one or more of the assessment components then the overall result for the qualification will be 'referred' and a certificate will not be awarded.

Providing learners are successful in ALL assessment components, the learner will achieve a pass in their qualification.

## How will it be assessed?

Assessment methods within this qualification include an on-screen multiple-choice examination and Centre marked practical/theory assessments for the mandatory unit and on-screen multiple-choice examinations and/or Centre marked practical/theory assessments for all other optional units. Assessment methods have been designed to assess the knowledge, understanding and skills of learners for all units.

The on-screen multiple choice examinations are set by EAL and marked by EAL. The internal assessments are set by EAL and marked by members of the delivery team at the Centre.

Where the assessment takes the form of written/short answer or multiple choice question papers, these must be treated as controlled assessments.

All assessment decisions are then subject to internal and external quality assurance.

## Structure

This qualification will be obtained by the learner once they have successfully completed the **one mandatory unit**, and **six optional units**.

This qualification has a minimum 370 GL(H) and 420 Total Qualification Time.

**Mandatory unit:** This unit **must** be completed:

EAL Code	Unit Title	GL(Hrs)	Ofqual Code
EOK2/001	Engineering environment awareness	60	R/617/0084

**Optional Units: Six** units must be completed:

EAL Code	Unit Title	GL(Hrs)	Ofqual Code
EOK2/002	Engineering techniques	60	Y/617/0085
EOK2/003	Engineering mathematics and science principles	60	H/617/0087
EOK2/004	Electrical and electronic principles	50	K/617/0091
EOK2/005	Electrical and electronic testing methods	50	M/617/0092
EOK2/006	Electrical and electronic systems and devices	50	A/617/0094
EOK2/007	Fabrication and welding principles	50	L/617/0097
EOK2/008	Manual welding techniques	50	Y/617/0099
EOK2/009	Producing components from metal plate	50	R/617/0103
EOK2/010	Producing components from sheet metal	50	D/617/0105
EOK2/011	Sheet metalwork technology	50	K/617/0110
EOK2/012	Non-fusion thermal joining methods	50	T/617/0112
EOK2/013	Thermal cutting techniques	50	A/617/0113
EOK2/014	Engineering maintenance safety practices	50	L/617/0116
EOK2/015	Engineering maintenance techniques	50	R/617/0120
EOK2/016	Engineering maintenance planning	50	Y/617/0121
EOK2/017	Engineering materials processes	50	M/617/0125
EOK2/018	Fitting and assembly techniques	50	A/617/0127
EOK2/019	Manual turning techniques	50	F/617/0128
EOK2/020	Manual milling techniques	50	J/617/0129
EOK2/021	Principles of turning & milling	80	A/617/0130

## Structure

**Optional Units:** (continued):

EAL Code	Unit Title	GL(Hrs)	Ofqual Code
EOK2/022	Computer numerical control turning techniques	50	F/617/0131
EOK2/023	Computer numerical control milling techniques	50	T/617/0126
EOK2/024	Principles of Computer Numerical Control (CNC) machining /fabrication	80	K/617/0124
EOK2/025	Grinding techniques	50	H/617/0123
EOK2/026	Electrical installation methods, wiring and circuit protection	50	D/617/0122
EOK2/027	Basic electrical circuit inspection, testing and fault diagnosis	50	D/617/0119
EOK2/028	Building services pipework fixing, bending and jointing methods	50	Y/617/0118
EOK2/029	Building services engineering pipework fabrication processes and techniques	50	R/617/0117
EOK2/030	Building services pipework systems	50	F/617/0114
EOK2/031	Building services engineering systems and their layout requirements	50	M/617/0111
EOK2/032	Installation and servicing of refrigeration equipment	50	T/617/0109
EOK2/033	Installation and servicing of air-conditioning equipment	50	M/617/0108
EOK2/034	Installation of security systems	50	K/617/0107
EOK2/035	Security installation design	50	H/617/0106
EOK2/036	Understanding Computer Aided Drawing (CAD)	50	Y/617/0104
EOK2/037	Applied mathematics in engineering	50	L/617/0102
EOK2/038	Business improvement techniques	50	J/617/0101
EOK2/039	Leading a team in engineering	50	F/617/0100
EOK2/040	Plan and carry out a project in engineering	50	R/617/0098
EOK2/041	Engineering manufacturing techniques	50	J/617/0096

## Structure

**Optional Units:** (continued):

EAL Code	Unit Title	GL(Hrs)	Ofqual Code
EOK2/042	Engineering design techniques	50	F/617/0095
EOK2/043	Marketing an engineering product	50	T/617/0093
EOK2/044	Additive manufacturing (3D printing)	50	H/617/0090
EOK2/045	Understand effective working practices in an engineering environment when working on military vehicles and equipment	30	M/617/0089
EOK2/046	Understand the principles of military vehicle and equipment maintenance	60	K/617/0088
EOK2/047	Understand the procedures and processes for fault identification on military vehicles and mechanical systems	70	D/617/0086

### **Barred Combination/s:**

**If either unit EOK2/019 or unit EOK2/020 is chosen, the learner cannot choose unit EOK2/021.**

**If unit EOK2/021 is chosen, the learner cannot choose unit EOK2/019 or EOK2/020.**

**If either unit EOK2/022 or EOK2/023 is chosen, the learner cannot choose unit EOK2/024.**

**If unit EOK2/024 is chosen, the learner cannot choose unit EOK2/022 or EOK2/023.**

