

601/6010/X – ETCAL Level 3 Diploma in Engineering (QCF)

Introduction to the Qualification

1.1 Who is the qualification for?

- Individuals who wish to follow an Apprenticeship or Advanced apprenticeship
- Employees who are looking for career progression within the engineering industry
- Individuals who wish to further develop their skills

1.2 Learner entry requirements

There are no formal entry requirements for learners undertaking this qualification. However, centres must ensure that learners have the potential and opportunity to gain the qualification successfully.

1.3 Age restrictions

This qualification is not approved for use by learners under the age of 16, and ETA cannot accept any registrations for learners in this age group.

1.4 What does the qualification provide?

- Opportunity to gain knowledge and develop skills required to undertake a an appropriate role
- Optional units covering areas that underpin additional skills to allow for career progression

1.5 Progression

Progression is available into specialist Engineering areas or into a qualification such as the ETCAL Level 4 Diploma in Management.

2 Qualification Structure

Learners must achieve a minimum of 54 credits to gain the qualification. 18 credits must be achieved by completing the 2 mandatory units, Group A. A minimum of 18 credits from Option Group B, with a maximum of 7 credits from Option Group B. With the final 18 credits being from one of the 8 Pathways

Mandatory Units A – both units must be completed in this group

Ofqual code	Unit Title	Level	CV	GLH
Y/503/0334	Engineering health and safety	3	9	80
D/503/0433	Engineering Principles	3	9	80

Option Group B – The learner must achieve a minimum of 18 credits from this group

Ofqual code	Unit Title	Level	CV	GLH
F/503/0344	Manual metal arc welding of materials	3	9	80
R/503/0347	MIG welding of materials	3	9	80
D/503/0349	TIG welding of materials	3	9	80
F/503/0375	Platework fabrication of materials	3	9	80
A/503/0374	Sheet Metalwork fabrication of materials	3	9	80
J/503/0376	Fabrication and erection of structural steelwork	3	9	80
Y/503/0379	Pattern development for fabrication	3	9	80
R/503/0381	Maintenance of machine systems	3	9	80
R/503/0383	Maintenance of Utility systems	3	9	80
H/503/0384	Maintenance of plant services	3	9	80
T/503/0390	Maintenance of hydraulic systems	3	9	80
R/503/0395	Maintenance of pneumatic systems	3	9	80
K/503/0435	Power generation systems and ancillary equipment	3	9	80
T/503/0437	Machining materials by turning	3	9	80
M/503/0436	Machining materials by milling	3	9	80
A/503/0438	Machining materials by grinding	3	9	80
D/503/0416	CNC machining of materials	3	9	80
M/503/0419	Detailed fitting of materials	3	9	80
H/503/0420	Maintenance of electrical equipment and systems	3	9	80
M/503/0422	Produce drawing using CAD	3	9	80
A/503/0424	Organising and managing engineering operations	3	9	80
K/503/0449	Advanced mathematics and science	3	9	80
R/503/0428	Mechatronics systems principles and fault finding	3	9	80
R/503/0431	Computer automated and robotic systems principles and control	3	9	80
Y/503/0432	Power supply and analogue and digital circuit principles and fault finding	3	9	80

H/503/0434	Electronic power control principles and practice	3	9	80
H/503/0353	MIG welding of aluminium	3	9	80
Y/503/0351	TIG welding of aluminium	3	9	80
K/503/0354	Flux-cord arc welding of materials	3	9	80

The learner must achieve 18 credits from one of the optional pathway groups

Option Group C – Welding

This mandatory unit must be completed

D/503/0335	Principles of Welding	3	9	80
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The remainder of the credits for this pathway must be taken from the group below

Ofqual code	Unit Title	Level	CV	GLH
F/503/0344	Manual metal arc welding of materials	3	9	80
R/503/0347	MIG welding of materials	3	9	80
D/503/0349	TIG welding of materials	3	9	80

Option Group D – Fabrication

This mandatory unit must be completed

H/503/0366	Principles of Fabrication	3	9	80
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The remainder of the credits for this pathway must be taken from the group below

Ofqual code	Unit Title	Level	CV	GLH
F/503/0375	Platwork fabrication of materials	3	9	80
A/503/0374	Sheet metalwork fabrication of materials	3	9	80
J/503/0376	Fabrication and erection of structural steelwork	3	9	80
Y/503/0379	Pattern development for fabrication	3	9	80

Option Group E – Fabrication and Welding

This mandatory unit must be completed

K/503/0337	Principles of Fabrication and Welding	3	9	80
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The remainder of the credits for this pathway must be taken from the group below

Ofqual code	Unit Title	Level	CV	GLH
F/503/0344	Manual metal arc welding of materials	3	9	80
R/503/0347	MIG welding of materials	3	9	80
D/503/0349	TIG welding of materials	3	9	80
F/503/0375	Platework fabrication of materials	3	9	80
A/503/0374	Sheet metalwork fabrication of materials	3	9	80
J/503/0376	Fabrication and erection of structural steelwork	3	9	80
Y/503/0379	Pattern development for fabrication	3	9	80

Option Group F – Engineering Maintenance

This mandatory unit must be completed

M/503/0338	Principles of Engineering Maintenance, Installation and commissioning	3	9	80
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The remainder of the credits for this pathway must be taken from the group below

Ofqual code	Unit Title	Level	CV	GLH
R/503/0381	Maintenance of machine systems	3	9	80
D/503/0383	Maintenance of Utility systems	3	9	80
H/503/0384	Maintenance of plant services	3	9	80
T/503/0390	Maintenance of hydraulic systems	3	9	80
R/503/0395	Maintenance of pneumatic systems	3	9	80

K/503/0435	Power generation systems and ancillary equipment	3	9	80
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Option Group G – Manufacturing Engineering

This mandatory unit must be completed

T/503/0339	Principles of mechanical manufacturing engineering	3	9	80
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The remainder of the credits for this pathway must be taken from the group below

Ofqual code	Unit Title	Level	CV	GLH
T/503/0437	Machining materials by turning	3	9	80
M/503/0436	Machining materials by milling	3	9	80
A/503/0438	Machining materials by grinding	3	9	80
D/503/0416	CNC machining of materials	3	9	80
M/503/0419	Detailed fitting of materials	3	9	80

Option Group H – Electrical and Electronic Engineering

This mandatory unit must be completed

K/503/0340	Principles of Electrical and electronic engineering	3	9	80
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The remainder of the credits for this pathway must be taken from the group below

Ofqual code	Unit Title	Level	CV	GLH
H/503/0420	Maintenance of electrical equipment and systems	3	9	80
R/503/0428	Mechatronics systems principles and fault finding	3	9	80
R/503/0431	Computer automated and robotic systems principles and control	3	9	80
Y/503/0342	Power supply and analogue and digital circuit principles and fault finding	3	9	80
H/503/0434	Electronic power control principles and practice	3	9	80

Option Group I – Shipbuilding

This mandatory unit must be completed

M/503/0341	Principles of shipbuilding	3	9	80
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The remainder of the credits for this pathway must be taken from the group below

Ofqual code	Unit Title	Level	CV	GLH
F/503/0344	Manual metal arc welding of materials	3	9	80
R/503/0347	MIG welding of materials	3	9	80
D/503/0349	TIG welding of materials	3	9	80
F/503/0375	Platwork fabrication of materials	3	9	80
A/503/0374	Sheet metalwork fabrication of materials	3	9	80
J/503/0376	Fabrication and erection of structural steelwork	3	9	80
Y/503/0379	Pattern development for fabrication	3	9	80
R/503/0381	Maintenance of machine systems	3	9	80
D/503/0383	Maintenance of utility systems	3	9	80
D/503/0384	Maintenance of plant services	3	9	80
T/503/0390	Maintenance of hydraulic systems	3	9	80
R/503/0395	Maintenance of pneumatic systems	3	9	80
K/503/0435	Power generation systems and ancillary equipment	3	9	80

Option Group I – Composites

These mandatory units must be completed

Ofqual code	Unit Title	Level	CV	GLH
L/505/2427	Principles of composite materials	3	9	80
D/505/2433	Principles of composite manufacture	3	9	80

2.1 Unit requirements are available as separate documents

2.2 Unit Endorsement

These units are endorsed by the Sector Skills Council for Science, Engineering and Manufacturing Technologies (SEMTEA).

3 Centre & Qualification Approval

Centres wishing to offer the qualification will need to gain ETA's approval to do so. Current ETA centres can do this via Quartz Web. For non ETA Centres to gain approval to run the qualification please provide your details via <http://quartz.etawards/quartz-system.com> and the ETA team will start the process of approval.

4 Resource Requirements

4.1 Assessors

Assessment must be carried out by competent assessors who hold, or are working towards, a current assessor qualification. They will be expected to regularly review their skills, knowledge and understanding and, where applicable, undertake continuing professional development to ensure that they are carrying out workplace assessment to the most up to date national occupational standards.

Assessors must be able to demonstrate that they have relevant and sufficient technical competence to evaluate and judge performance and knowledge evidence of this qualification, the units being taken and the associated assessment criteria. This will be demonstrated either by holding a relevant technical qualification or by proven experience in the learner's industry. The assessor's competence must, at the very least, be at the same level as that required of the learner in the assessment so that they are able to demonstrate the skills needed.

4.2 Internal Quality Assurer

Internal quality assurance (IQA) must be carried out by competent quality assurers who should hold or be working towards, a current internal quality assurance qualification. They will be expected to regularly review their skills, knowledge and understanding and, where applicable, undertake continuing professional development to ensure that they are carrying out workplace assessment to the most up to date national occupational standards.

Persons carrying out the role of internal quality assurance will also be expected to be fully conversant with the ETA requirements for IQA in centres. These are detailed in the centre manual.

IQAs must be able to demonstrate that they have relevant and sufficient technical competence to understand performance and knowledge evidence of this qualification, the units being taken and the associated assessment criteria. This will be demonstrated either by holding a relevant technical qualification or by proven experience in the learner's industry. The IQA's competence must be sufficient to recognise what constitutes acceptable performance, knowledge and understanding as required by this qualification.

4.3 External Quality Assurance Advisors

ETA will appoint an appropriately qualified person to provide advice and guidance to the centre team and act as their external quality assurance advisor (EQAA).

External quality assurance (EQA) must be carried out by competent quality assurers who should hold, or be working towards, a current external quality assurance qualification. They will be expected to regularly review their skills, knowledge and understanding and where applicable undertake continuing professional development to ensure that they are carrying out workplace assessment to the most up to date national occupational standards.

EQAAs must be able to demonstrate that they have relevant and sufficient technical competence to recognise performance and knowledge evidence of this qualification as required by the units being taken and the associated assessment criteria.

4.4 Assessment environment

The evidence of a learner's competence, knowledge and understanding for this qualification can only be regarded as valid, reliable, sufficient and authentic if demonstrated in a real working environment.