

601/1688/2 - ETCAL Level 2 NVQ Diploma in Performing Engineering Operations (QCF)

1 Introduction to the Qualification

1.1 Who is the qualification for?

- This qualification has been designed to cover those learners who are either:
 - acquiring engineering competencies in a realistic, sheltered and controlled environment, or
 - employed but require additional engineering competencies as part of an existing job role or to enable career progression.

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 cover?

- Mandatory units cover those areas which have a common approach such as organisational safety requirements, team working and using technical information
- There are 2 optional pathways, Engineering Practices and Technical Support offering a choice of units applicable to individual workplaces and working environments

2 Qualification Structure

Learners must achieve a minimum of 40 credits to gain the qualification. 13 credits must be achieved by completing the 3 mandatory units and the remaining credits achieved by completing 3 units from the Engineering Practices pathway or 5 units from the Technical Support pathway.

Mandatory Units – all units must be completed

Ofqual code	Unit Title	Level	CV	GLH
L/600/5781	Working Safely in an Engineering Environment	2	5	33
D/600/5784	Carrying Out Engineering Activities Efficiently and Effectively	2	4	29

M/600/5790	Using and Communicating Technical Information	2	4	29
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Engineering Practices Optional Pathway – a minimum of 3 units must be selected.

Engineering Practices pathway excluded units:

If this unit is chosen	These units cannot be included in the choice of three
F/504/6348	R/504/6421, R/504/6452
R/504/6421	R/504/6452, F/504/6348
R/504/6452	R/504/6421, F/504/6348
K/504/6456	J/504/6349, F/504/6351, R/504/6354, Y/504/6372, K/504/6375, F/504/6382, L/504/6384, D/504/6387.
M/504/6457	L/504/6370, J/504/6402, L/504/6403, Y/504/6405, D/504/6406, K/504/6408, M/504/6409, H/504/6410Y/504/6419, D/504/6423
T/504/6458	Y/504/6422, H/504/6424, K/504/6425, F/504/6429
A/504/6459	T/504/6394, F/504/6401, M/504/6426, T/504/6427, A/504/6428, F/504/6429, R/504/6449, J/504/6450

Ofqual code	Unit Title	Level	CV	GLH
F/504/6348	Producing Mechanical Engineering Drawings using a CAD System	2	11	61
J/504/6349	Producing Components using Hand Fitting Techniques	2	14	64
F/504/6351	Producing Mechanical Assemblies	2	15	68
L/504/6353	Forming and Assembling Pipework Systems	2	14	64
R/504/6354	Carrying Out Aircraft Detail Fitting Activities	2	14	64
L/504/6367	Installing Aircraft Mechanical Fasteners	2	11	61
L/504/6370	Producing Aircraft Detail Assemblies	2	14	64
Y/504/6372	Preparing and Using Lathes for Turning Operations	2	15	68

K/504/6375	Preparing and Using Milling Machines	2	15	68
T/504/6377	Preparing and Using Grinding Machines	2	15	68
F/504/6379	Preparing and Proving CNC Machine Tool Programs	2	14	64
F/504/6382	Preparing and Using CNC Turning Machines	2	14	64
L/504/6384	Preparing and Using CNC Milling Machines	2	14	64
D/504/6387	Preparing and Using CNC Machining Centres	2	14	64
D/504/6390	Preparing and Using Industrial Robots	2	14	64
T/504/6394	Maintaining Mechanical Devices and Equipment	2	14	64
J/504/6397	Assembling and Testing Fluid Power Systems	2	14	64
F/504/6401	Maintaining Fluid Power Equipment	2	14	64
J/504/6402	Producing Sheet Metal Components and Assemblies	2	14	64
L/504/6403	Producing Platework Components and Assemblies	2	14	64
R/504/6404	Cutting and Shaping Materials using Thermal Cutting Equipment	2	14	64
Y/504/6405	Preparing and Proving CNC Fabrication Machine Tool Programs	2	14	64
D/504/6406	Preparing and Using CNC Fabrication Machinery	2	14	64
K/504/6408	Preparing and Using Manual Metal Arc Welding Equipment	2	15	68
M/504/6409	Preparing and Using Manual TIG or Plasma-arc Welding Equipment	2	15	68
H/504/6410	Preparing and Using Semi-automatic MIG, MAG and Flux cored arc Welding Equipment	2	15	68
Y/504/6419	Preparing and Using Manual Gas Welding Equipment	2	14	64
L/504/6420	Preparing and Using Manual Flame Brazing and Bronze Welding Equipment	2	11	61
R/504/6421	Producing Electrical or Electronic Engineering Drawings using a CAD System	2	11	61
Y/504/6422	Wiring and Testing Electrical Equipment and Circuits	2	14	64

D/504/6423	Forming and Assembling Electrical Cable Enclosure and Support Systems	2	13	65
H/504/6424	Assembling, Wiring and Testing Electrical Panels/Components Mounted in Enclosures	2	14	64
K/504/6425	Assembling and Testing Electronic Circuits	2	14	64
M/504/6426	Maintaining Electrical Equipment/Systems	2	15	68
T/504/6427	Maintaining Electronic Equipment/Systems	2	15	68
A/504/6428	Maintaining and Testing Process Instrumentation and Control Devices	2	15	68
F/504/6429	Wiring and Testing Programmable Controller Based Systems	2	15	68
T/504/6430	Using Wood for Pattern, Modelmaking and Other Engineering Applications	2	15	68
A/504/6431	Assembling Pattern, Model and Engineering Woodwork Components	2	14	64
F/504/6432	Producing Composite Mouldings using Wet Lay-up Techniques	2	14	64
L/504/6434	Producing Composite Mouldings using Pre-Preg Laminating Techniques	2	14	64
R/504/6435	Producing Composite Mouldings using Resin Infusion Techniques	2	14	64
Y/504/6436	Producing Composite Assemblies	2	14	64
D/504/6437	Producing Components by Rapid Prototyping Techniques	2	11	61
H/504/6438	Producing and Preparing Sand Moulds and Cores for Casting	2	14	64
K/504/6439	Producing and Preparing Molten Materials for Casting	2	14	64
D/504/6440	Producing Cast Components by Manual Means	2	13	65
H/504/6441	Fettling, Finishing and Checking Cast Components	2	11	61
M/504/6443	Finishing Surfaces by Applying Coatings or Coverings	2	9	41
T/504/6444	Finishing Surfaces by Applying Treatments	2	9	41
A/504/6445	Carrying Out Heat Treatment of Engineering Materials	2	9	41
F/504/6446	Carrying Out Hand Forging of Engineering Materials	2	9	41

J/504/6447	Stripping and Rebuilding Motorsport Vehicles (Pre-Competition)	2	14	64
L/504/6448	Inspecting a Motorsport Vehicle During a Competition	2	14	64
R/504/6449	Diagnosing and Rectifying Faults on Motorsport Vehicle Systems (During Competition)	2	15	68
J/504/6450	Carrying out Maintenance Activities on Motorsport Vehicle Electrical Equipment	2	15	68
L/504/6451	Stripping and Rebuilding Motorsport Engines (Pre-Competition)	2	14	64
R/504/6452	Producing CAD Models (Drawings) using a CAD System	2	11	61
K/504/6456	General Machining, Fitting and Assembly Applications	2	12	55
M/504/6457	General Fabrication and Welding Applications	2	12	55
T/504/6458	General Electrical and Electronic Engineering Applications	2	12	55
A/504/6459	General Maintenance Engineering Applications	2	12	55
L/503/4056	Joining Public Service Vehicle Components by Mechanical Processes	2	11	61
R/503/4057	Assembling Structural Sub-Assemblies to Produce a Public Service Vehicle	2	14	64
Y/503/4058	Fitting Sub-Assemblies and Components to Public Service Vehicles	2	14	64
R/503/7198	Preparing and Manoeuvring Fighting Vehicles AFVs for Maintenance and Transportation	2	14	64
J/504/3404	Producing Composite Mouldings using Resin Film Infusion Techniques	2	14	64
Technical Support Pathway				
Learners must complete one of the following units:				
F/504/6348	Producing Mechanical Engineering Drawings using a CAD System	2	11	61
R/504/6421	Producing Electrical or Electronic Engineering Drawings using a CAD System	2	11	61
R/504/6452	Producing CAD Models (Drawings) using a CAD System	2	11	61
Plus two more of the following units:				

Y/504/6453	Producing Engineering Project Plans	2	8	37
D/504/6454	Using Computer Software Packages to Assist with Engineering Activities	2	8	37
H/504/6455	Conducting Business Improvement Activities	2	8	37
Plus two more of the following units:				
K/504/6456	General Machining, Fitting and Assembly Applications	2	12	55
M/504/6457	General Fabrication and Welding Applications	2	12	55
T/504/6458	General Electrical and Electronic Engineering Applications	2	12	55
A/504/6459	General Maintenance Engineering Applications	2	12	55

2.1 Unit requirements are available as a separate document

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 Assurance Advisors

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.

IQAAs 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 IQAA'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.