600/2653/4 - ETCAL Level 2 NVQ Diploma in Mechanical Manufacturing Engineering (QCF)

1 Introduction to the Qualification

1.1 Who is the qualification for?

- This qualification has been designed to cover those learners who are:
  - 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 5 optional pathways, Machine Operating, CNC Machine Operating, Production Assembly, Composite Manufacture and Optional Engineering offering a choice of units applicable to individual workplaces and working environments

2 Qualification Structure

Learners must achieve a minimum of 54 credits to gain the qualification. 15 credits must be achieved by completing the 3 mandatory units and the remaining credits can be achieved by completing the unit requirements from the selected pathway.

Mandatory Units – all units must be completed

Ofqual code	Unit Title	Level	CV	GLH
A/601/5013	Complying with Statutory Regulations and Organisational Safety Requirements	2	5	35
Y/601/5102	Using and Interpreting Engineering Data and Documentation	2	5	25
Y/601/5052	Carrying Out Engineering Activities Efficiently and Effectively	2	5	25

Machine Operating Optional Pathway – 1 unit must be selected from the following.				
Ofqual code	**Unit Title**	**Level**	**CV**	**GLH**
R/600/5409	Operating Capstan or Turret Lathes	2	49	151
A/600/5419	Operating Centre Lathes	2	49	151
R/600/5426	Operating Single Spindle Automatic Turning Machines	2	39	130
D/600/5431	Operating Multi-Spindle Automatic Turning Machines	2	39	130
T/600/5435	Operating Milling Machines	2	49	151
L/600/5442	Operating Single and Multi-Spindle Drilling Machines	2	49	151
H/600/5446	Operating Grinding Machines	2	49	151
A/600/5453	Operating Special-Purpose Machines	2	49	151
D/600/5459	Operating Gear Cutting Machines	2	49	151
K/600/5464	Operating Electro-Discharge Machines	2	49	151
M/600/5479	Operating Honing and Lapping Machines	2	39	130
L/600/6008	Operating Broaching Machines	2	39	130
R/600/6012	Operating Shaping, Planing or Slotting Machines	2	39	151
D/600/6014	Operating Gear Grinding Machines	2	49	151
K/600/6016	Operating Power Presses	2	39	130
CNC Machine Operating Optional Pathway – 1 unit must be selected from the following.				
M/600/6020	Operating CNC Turning Machines	2	39	130
D/600/6031	Operating CNC Milling Machines	2	39	130
H/600/6032	Operating CNC Grinding Machines	2	39	130

K/600/6033	Operating CNC Punching Machines	2	39	130
M/600/6034	Operating CNC Laser Profiling Machines	2	39	130
F/600/6037	Operating CNC Electro-Discharge Machines	2	39	130
J/600/6038	Operating CNC Gear Cutting Machines	2	39	130
L/600/6039	Operating CNC Machining Centres	2	39	130
Production Assembly Optional Pathway – 1 unit must be selected from the following.				
F/600/6040	Producing Mechanical Sub-Assemblies/Assemblies	2	49	151
L/600/6042	Assembling Fluid Power Components to Mechanical Equipment	2	49	151
R/600/6043	Assembling Electrical or Electronic Components to Mechanical Equipment	2	49	151
D/600/6045	Assembling Pipework Components to Mechanical Equipment	2	49	151
Composite Manufacture Optional Pathway – 2 units must be selected from the following.				
H/600/6046	Producing Composite Mouldings using Wet Lay-Up Techniques	2	42	151
M/600/6048	Producing Composite Mouldings using Pre-Preg Laminating Techniques	2	42	151
K/600/6050	Producing Components by Acrylic Moulding	2	32	130
M/600/6051	Vacuum Forming Composite Materials	2	32	130
T/600/6052	Trimming Composite Mouldings using Hand Tools	2	32	130
F/600/6054	Identifying Defects in Composite Mouldings	2	22	95
J/600/6055	Carrying Out Repairs to Composite Mouldings	2	42	151
L/600/6056	Applying Surface Finishes to Composite Mouldings	2	32	130
Y/600/6058	Bonding Composite Mouldings	2	22	95
D/600/6059	Producing Composite Assemblies	2	42	151

Optical Engineering Mandatory Pathway – this unit must be selected.				
R/600/6060	Carrying Out Inspection Activities on Optical Components	2	42	151
Optical Engineering Optional Pathway – 1 unit must be selected from the following.				
Y/600/6061	Operating Infra-Red/Special Material Lens Process Machines	2	42	151
D/600/6062	Operating Optical Glass Lens Process Machines	2	42	151
K/600/6064	Operating Optical Prism and Flat Process Machines	2	42	151
A/600/6067	Operating CNC Aspheric Optical and Diamond Turning Machines	2	32	130
J/600/6069	Operating CNC Grinding and Polishing Machines	2	32	130
F/600/6071	Operating Optical Cylinder and Dome Process Machines	2	42	151
R/600/6074	Operating Vacuum Coating Optical Process Machines	2	32	130
Y/600/6075	Operating Optical Plastic Process Machines	2	42	151

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 (SEMTA).

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.