

600/2253/X - ETCAL Level 3 NVQ Diploma in Engineering Maintenance (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, using technical information and handing over and confirming the completion of the maintenance activity.
- There are 12 optional pathways, Mechanical Maintenance, Electrical Maintenance, Electronic Maintenance, Fluid Power Maintenance, Engineered Systems Maintenance, Services Maintenance, Lift Servicing, Lift Repair, Escalator Repair and Service, Communications Electronics Maintenance, Servicing Medical Equipment and Instrumentation and Control Maintenance offering a choice of units applicable to individual workplaces and working environments

2 Qualification Structure

Learners must achieve a minimum of 152 credits to gain the qualification. 35 credits must be achieved by completing the 4 mandatory units and the remaining credits 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
K/601/5055	Working Efficiently and Effectively in Engineering	3	5	25
T/600/5516	Handing Over and Confirming Completion of Maintenance Activities	3	20	35

Mechanical Maintenance Mandatory Pathway – both units must be selected.

Ofqual code	Unit Title	Level	CV	GLH
T/600/5533	Carrying Out Fault Diagnosis on Mechanical Equipment	3	50	60
H/600/5544	Maintaining Mechanical Equipment	3	70	119

Mechanical Maintenance Optional Pathway – plus 2 more units must be selected from the following.

A/600/5551	Restoring Mechanical Components to Usable Condition by Repair	3	47	91
H/600/5558	Producing Replacement Components for Maintenance Activities	3	47	91
A/600/5565	Carrying Out Preventative Planned Maintenance on Mechanical Equipment	3	38	74
A/600/5582	Carrying Out Condition Monitoring of Plant and Equipment	3	39	81
J/600/5634	Assisting in the Installation of Mechanical Equipment	3	48	161

Electrical Maintenance Mandatory Pathway – all 3 units must be selected.

H/600/5592	Carrying Out Fault Diagnosis on Electrical Equipment and Circuits	3	50	60
Y/600/5606	Maintaining Electrical Equipment	3	70	119
D/600/5610	Modifying or Rewiring Electrical Circuits	3	35	63

Electrical Maintenance Optional Pathway – plus 2 more units must be selected from the following.

H/600/5656	Testing Electrical Equipment and Circuits	3	50	60
F/600/5664	Carrying Out Preventative Planned Maintenance on Electrical Equipment	3	38	74
A/600/5582	Carrying Out Condition Monitoring of Plant and Equipment	3	39	81
H/600/5642	Assisting in the Installation of Electrical/Electronic Equipment	3	48	161

Electronic Maintenance Mandatory Pathway – all 3 units must be selected.				
Y/600/5671	Carrying Out Fault Diagnosis on Electronic Equipment and Circuits	3	50	60
A/600/5677	Testing Electronic Equipment and Circuits	3	50	60
D/600/5946	Repairing Electronic Equipment	3	62	81
Fluid Power Maintenance Mandatory Pathway – both units must be selected.				
T/600/5953	Carrying Out Fault Diagnosis on Fluid Power Equipment and Circuits	3	50	60
M/600/5983	Maintaining Fluid Power Equipment	3	70	119
Fluid Power Maintenance Optional Pathway – plus 2 more units must be selected from the following.				
J/600/5990	Carrying Out Preventative Planned Maintenance on Fluid Power Equipment	3	38	74
A/600/5582	Carrying Out Condition Monitoring of Plant and Equipment	3	39	81
D/600/6000	Testing Fluid Power Equipment and Systems	3	46	56
L/600/5649	Assisting in the Installation of Fluid Power Equipment	3	48	161
Engineered Systems Maintenance Mandatory Pathway – this unit must be selected.				
L/600/6011	Carrying Out Fault Diagnosis on Engineered Systems	3	53	95
Engineered Systems Maintenance Optional Pathway – plus 2 more units must be selected from the following.				
Y/600/5413	Maintaining Mechanical Equipment within an Engineered System	3	81	161
M/600/5417	Maintaining Electrical Equipment within an Engineered System	3	81	161
A/600/5422	Maintaining Fluid Power Equipment within an Engineered System	3	81	161
Y/600/5427	Maintaining Process Controller Equipment within an Engineered System	3	81	161
Engineered Systems Maintenance Optional Pathway – plus 1 more unit must be selected from the following.				
F/600/5440	Carrying Out Preventative Planned Maintenance on Engineered Systems	3	38	74
A/600/5582	Carrying Out Condition Monitoring of Plant and Equipment	3	39	81

T/600/5959	Assisting in the Installation of Equipment to Produce an Engineered System	3	48	161
Services Maintenance Mandatory Pathway - both units must be selected.				
J/600/5469	Reading and Extracting Information from Service Drawings and Specifications	3	5	25
R/600/5474	Carrying Out Fault Diagnosis on Services and Systems	3	50	60
Services Maintenance Optional Pathway – plus 2 more units must be selected from the following.				
K/600/5481	Maintaining Fresh Water Distribution Systems and Equipment	3	70	119
H/600/5494	Maintaining Waste/Foul Water Distribution Systems and Equipment	3	70	119
T/600/5497	Maintaining Workplace Environmental Control Systems	3	70	119
T/600/5502	Maintaining Emergency Power Generation Equipment	3	70	119
L/600/5506	Maintaining Heating and Ventilation Systems	3	70	119
H/600/5513	Maintaining Air Conditioning and Ventilation Systems	3	70	119
J/600/5519	Maintaining Gas Distribution Systems and Equipment	3	70	119
Y/600/5525	Maintaining Compressed Air Systems and Equipment	3	70	119
H/600/5530	Maintaining Process Control Systems	3	70	119
J/600/5536	Maintaining Instrumentation and Control Systems	3	70	119
L/600/5540	Maintaining Industrial Refrigeration Equipment	3	70	119
M/600/5546	Maintaining Environmental Control Equipment	3	70	119
K/600/5609	Maintaining Medical Device and Surgical Instrument Decontamination Equipment	3	70	119
J/600/5617	Maintaining Medical Gas Pipeline Systems and Equipment	3	70	119
Services Maintenance Optional Pathway – plus 1 more unit must be selected from the following.				
F/600/5552	Carrying Out Preventative Planned Maintenance on Services Systems and Equipment	3	38	74
A/600/5582	Carrying Out Condition Monitoring of Plant	3	39	81

	and Equipment			
R/600/5667	Assisting in the Installation of Engineering Services Equipment	3	48	161
Lift Servicing Mandatory Pathway – all 4 units must be selected.				
T/601/2224	Carrying Out Fault Diagnosis on Lifts	3	50	60
K/600/5495	Inspecting and Servicing Lift Equipment	3	38	74
R/600/5507	Checking Lift Function	3	50	60
A/600/5520	Rectifying Faults in Lifts	3	47	91
Lift Repair Mandatory Pathway – all 4 units must be selected.				
T/601/2224	Carrying Out Fault Diagnosis on Lifts	3	50	60
R/600/5507	Checking Lift Function	3	50	60
A/600/5520	Rectifying Faults in Lifts	3	47	91
A/600/5534	Repairing/Replacing Lift Doors, Chains, Ropes and Equipment	3	47	91
Escalator Repair and Service Mandatory Pathway – all 4 units must be selected.				
R/600/5541	Carrying Out Fault Diagnosis on Escalators	3	50	60
R/600/5555	Rectifying Faults in Escalators	3	47	91
R/600/5457	Inspecting and Servicing Escalators	3	38	74
T/600/5564	Testing and Reinstating Escalator Installations	3	46	56
Communications Electronics Maintenance Optional Pathway – 1 unit must be selected from the following.				
Y/600/5671	Carrying Out Fault Diagnosis on Electronic Equipment and Circuits	3	50	60
Y/600/5573	Carrying Out Fault Diagnosis on Communication Electronic Systems	3	50	60
Communications Electronics Maintenance Optional Pathway – plus 2 more units must be selected from the following.				
A/600/5677	Testing Electronic Equipment and Circuits	3	50	60
OR (both not both)				
A/600/5579	Testing Communication-Electronic Systems	3	50	60
D/600/5946	Repairing Electronic Equipment	3	62	81
OR (both not both)				
M/600/5465	Repairing Communication-Electronic Systems	3	62	81
D/600/5476	Carrying Out Preventative Planned Maintenance on Communication-Electronic Systems	3	38	74
L/600/5585	Modifying Communication-Electronic Systems	3	35	63

Y/600/5590	Configuring Communication-Electronic Systems	3	51	77
J/600/5598	Installing Communication-Electronic Systems	3	32	81
Servicing Medical Equipment Mandatory Pathway – all 3 units must be selected.				
A/600/5601	Carrying Out Fault Diagnosis on Medical Equipment	3	50	60
H/600/5608	Testing Medical Equipment	3	50	60
A/600/5484	Carrying Out Scheduled Servicing on Medical Equipment	3	38	74
Servicing Medical Equipment Optional Pathway – plus 3 units must be selected from the following.				
R/600/5491	Servicing Cardiovascular Equipment	3	70	119
F/600/5499	Servicing Physiological Monitoring and Infusion Equipment	3	70	119
Y/600/5508	Servicing Anaesthetic and Ventilation Equipment	3	70	119
F/600/5518	Servicing Operating Theatre and Surgical Equipment	3	70	119
T/600/5581	Servicing Medical Imaging Equipment	3	70	119
R/600/5586	Servicing Laboratory Equipment	3	70	119
D/600/5591	Servicing Dental Equipment	3	70	119
F/600/5597	Servicing Medical Therapeutic Equipment	3	70	119
F/600/5602	Servicing Mechanical and Electromechanical Assistive Technology Equipment		70	119
Instrumentation and Control Mandatory Pathway – both units must be selected.				
Y/600/5637	Carrying Out Fault Diagnosis on Instrumentation and Control Equipment and Circuits	3	50	60
L/600/5621	Maintaining Instrumentation and Control Equipment and Circuits	3	70	119
Instrumentation and Control Optional Pathway – plus 2 units must be selected from the following.				
T/600/5628	Carrying Out Preventative Planned Maintenance on Instrumentation and Control Equipment	3	38	74
M/600/5644	Repairing/Overhauling Instrumentation and Control Equipment	3	47	91
J/600/5651	Testing and Calibrating Instrumentation and	3	50	60

	Control Equipment and Circuits			
F/600/6068	Assisting in the Installation of Instrumentation and Control Equipment	3	48	161

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.