



Part of the
Enginuity Group

Qualification Manual

EAL Level 1 Suite of Engineering & Manufacture Qualifications

Qualification Numbers:

EAL Level 1 Award in Engineering & Manufacture - 600/6002/5

EAL Level 1 Certificate in Engineering & Manufacture – 600/5973/4

EAL Level 1 Diploma in Engineering & Manufacture - 600/6145/5

Issue 1

www.eal.org.uk

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1.0 About EAL

For over fifty years, EAL has been the specialist awarding organisation for engineering, manufacturing, building services and related sectors. Developed to the highest technical standards, our qualifications reflect ever-changing industry and regulatory needs. We support the providers of our qualifications with an unparalleled level of service to ensure that learners are well prepared to take the next step in their journeys, whether study, an apprenticeship or work.

Through industry partnerships with EAL centres and training providers, decades of experience supporting our core sectors, and our role as part of the Enginuity Group, we have built unrivalled knowledge and understanding of employer skills needs. As a result, EAL's skills solutions, including apprenticeship End-Point Assessment, External Quality Assurance and qualifications are respected and chosen by employers to deliver real lifelong career benefits for all our learners. That is why in the last ten years, 1.2 million people across the UK have taken EAL qualifications.

1.1 Equal Opportunities and Diversity

EAL expects its centres to enable learners to have equal access to training and assessment for qualifications in line with equalities legislation. Further details can be located in the EAL Equal Opportunities and Diversity Policy:

<http://www.eal.org.uk/centre-support/centre-support/policies-and-important-documents>

1.2 Customer Experience and Feedback

Customer Experience is a fundamental part of EAL's commitment to you. EAL aims to ensure that all customers receive a high-quality efficient service. We are always interested in feedback and if you have any comments or feedback on our qualifications, products or services, please contact the Customer Experience team:

EAL Customer Experience

Tel: +44 (0)1923 652 400

Email: Customer.Experience@eal.org.uk

2.0 Introduction to the Qualifications

What are these qualifications?

These qualifications focus on practical skills and knowledge. This ensures that when the learner completes their qualification they will have gained practical experience and some expectation of some of the situations that they could face in a job role within the engineering sector. These qualifications have been designed to give a 'hands on' practical approach to basic engineering training and as such to support improved retention and attainment at Level 1. They cover the foundation level knowledge and understanding of a range of engineering competencies and employability skills such as preparing for interview and managing own learning and has been developed in consultation with colleges, training associations and industry to ensure that it meets the needs of the engineering sector. The Award, Certificate or Diploma do not require occupational evidence.

Who are these qualifications for?

- Learners who may have a limited prior knowledge and understanding of the engineering sector but have the ability to achieve a foundation level engineering qualification.
- Learners who wish to enter Further Education.
- Those who wish to progress to become an engineer.
- Learners who are thinking about engineering as a career but who would like some experience of the job role first.
- Those who are new to the industry or looking for a career change or wish to learn new skills.
- Learners who are on a school/college link programme (14 to 16 year-olds).

What do these qualifications cover?

The content and structure of these qualifications have been developed to provide a broad-based introduction to the practices and processes of engineering and technology and employability skills. They will develop the personal skills and attributes that a learner needs in their ability to work, learn and achieve their full potential at level one and provide progression to higher levels. The qualifications' Units are listed in Section 3 of this manual.

2.1 Qualification Support Materials

The following assessment support materials are available:

Assessment routes:

These contain the details of the nationally recognised assessment routes (units). The documents allow both the learner and assessor to record the learners progress through the qualification selected. The assessment routes contain the performance to be assessed, the knowledge to be assessed and the evidence required from the learner to demonstrate their competence.

2.2 Achievement of The Qualifications

These qualifications are gained when all the necessary units have been achieved. The centre will then be able to apply for the learner's Award, Certificate or Diploma. The learner will also receive a Certificate of Unit Credit, listing all the units they have achieved.

However if they don't manage to complete the full qualification learners can still claim a Certificate of Unit Credit for the units achieved. Therefore, they still have proof of their ability and could complete the qualification at a later date.

Units can also be taken individually (stand alone). The qualification manual must be used in conjunction with the delivery and assessment of any individual units to ensure that assessment requirements and methodologies are consistently applied. The overall grading of this qualification is Pass/Fail.

3.0 Qualification Structure

3.1 Rule of Combination

EAL Level 1 Award in Engineering and Manufacture

This qualification will be obtained by the learner once they have successfully completed the ONE mandatory unit and a minimum of FOUR credits from the optional units listed below.

The qualification has 9 credits, 80 Guided Learning Hours (GLH) and 90 hours Total Qualification Time (TQT).

EAL Level 1 Certificate in Engineering and Manufacture

This qualification will be obtained by the learner once they have successfully completed the ONE mandatory unit and a minimum of NINE credits from the optional units listed below.

The qualification has 14 credits, 120 Guided Learning Hours (GLH) and 140 hours Total Qualification Time (TQT).

EAL Level 1 Diploma in Engineering and Manufacture

This qualification will be obtained by the learner once they have successfully completed the ONE mandatory unit and a minimum of THIRTY-FOUR credits from the optional units listed below.

The qualification has 39 credits, 320 Guided Learning Hours (GLH) and 390 hours Total Qualification Time (TQT).

Mandatory Unit: This unit must be completed.

EAL Code	Unit Title	Level	Credit	GLH	Ofqual Code
QETF/001	Introduction to Working in Engineering	1	5	40	J/602/0151

Optional Units:

Award - A minimum of **4 credits** from the optional units must be achieved.

Certificate - A minimum of **9 credits** from the optional units must be achieved.

Diploma - A minimum of **34 credits** from the optional units must be achieved.

EAL Code	Unit Title	Level	Credit	GLH	Ofqual Code
QPF1G1/01	Preparing for an Interview	1	1	10	K/503/2833
QMSAG1/01	Managing study and approaches to learning	1	3	30	M/602/0967
QETF/002	Introduction to Machining Engineering Materials	1	5	40	T/602/0159

Optional Units: Continued.

EAL Code	Unit Title	Level	Credit	GLH	Ofqual Code
QETF/003	Introduction to Cutting, Forming and Assembling Engineering Materials	1	5	40	F/602/0164
QETF/004	Introduction to Joining Engineering Materials	1	5	40	T/602/0274
QETF/005	Introduction to Electronics	1	5	40	R/602/0279
QETF/006	Introduction to Electrical Installation	1	5	40	D/602/0284
QETF/007	Introduction to Mechanical and Electrical Maintenance	1	5	40	A/602/0289
QETF/008	Introduction to Computer Maintenance	1	5	40	L/602/0295
QETF/009	Introduction to Motor Cycle Maintenance	1	5	40	L/602/0328
QETF/010	Introduction to Motor Vehicle Maintenance	1	5	40	J/602/0330
QETF/011	Introduction to Cycle Maintenance	1	5	40	K/602/0336
QETF/012	Introduction to Automated Technologies	1	5	40	T/602/0341
QETF/013	Introduction to Basic Maths and Science used in Engineering	1	5	40	Y/602/0347
QETF/014	Introduction to Working with Customers	1	5	40	D/602/0351
QETF/015	Introduction to Computer Aided Drawing (CAD)	1	5	40	R/602/0363
QETF/016	Introduction to Computer Aided Machining (CAM)	1	5	40	D/602/0365
QETF/017	Introduction to Engineering project planning	1	5	40	R/602/0380
QETF/018	Introduction to Cutting, Forming and Assembly of Pipework Materials	1	5	40	Y/602/0381
QETF/019	Introduction to Cutting, Jointing and Finishing Wood	1	5	40	D/602/0382

4.0 Centre and Qualification Approval

Centres wishing to deliver the qualification will need to comply with the Qualification Manual and EAL's Centre recognition criteria. Centres must also put in place the appropriate physical and human resources and administration systems to effectively run the qualification.

For existing EAL Centres to put the qualification on your Centre remit:

To add the qualification to your Centre qualification remit, create and complete a qualification approval application form in Smarter Touch and submit to EAL.

For non EAL Centres to gain Centre approval to run the qualification:

Please contact the EAL Customer Experience Team who will be delighted to hear from you:

EAL Customer Experience
Tel: +44 (0)1923 652 400
Email: Customer.Experience@eal.org.uk

EAL provides a wide range of other qualifications some of which can be used as a progression route from this qualification, details on these can be obtained from the EAL website or alternatively, contact:

EAL Customer Experience
Tel: +44 (0)1923 652 400
Email: Customer.Experience@eal.org.uk

5.0 Profiles and Requirements

5.1 Staff Responsible for Registering and Certification of Learners

Centres are required to appoint a suitable member of staff who can take responsibility for registering learners onto qualifications, submitting entries for assessments to EAL, and taking receipt of external assessment procedures (if appropriate). They may also be responsible for applying to EAL for learner certificates. The role may be undertaken by the same person who undertakes quality assurance.

5.2 Learners

There are no formal entry requirements for these qualifications. Learners must have been initially assessed to ensure they have both the potential to achieve the assessment criteria set out in the qualification units.

Age Restrictions

Learners must be at least 14 years old.

5.3 Teaching Staff

Teaching staff must have knowledge and understanding of:

- The qualification structure and content.
- The learning outcomes and assessment criteria they are delivering.

It is a recommendation that teaching staff will:

- Have 2 years' experience in teaching/training.
or
- Be working towards an appropriate teaching/training qualification.
or
- Hold an appropriate teaching/training qualification (e.g., Cert Ed or Learning and Development trainer units).

5.4 Assessors

The Centre **MUST** provide EAL with the names of any teachers, trainers or other individuals who will undertake internal assessment, so that these can be approved prior to them carrying out an assessment role.

Internal assessors must:

- Have knowledge and understanding of the assessment criteria they are assessing.
- Have knowledge and understanding of the qualification structure, content and assessment components.
- Understand the assessment process.

It is a recommendation that assessor's will:

- Have 2 years' experience in assessment (e.g. within an N/SVQ or teaching/training environment).
or
- Be working towards an appropriate assessment qualification, such as the 'Level 3 Award in Assessing Vocationally Related Achievement'
or
- Hold an appropriate assessment qualification (as above).

Assessor continuing professional development

It is the responsibility of each assessor to identify and make use of opportunities for Continuing Professional Development (CPD), such as industry conferences, access to trade journals, and Professional Body/Trade Association events, at least on an annual basis to enhance and upgrade their professional development and technical knowledge.

It is imperative that records are kept of all such CPD opportunities/occasions and that they provide evidence of cascading such technical knowledge and industry intelligence to all relevant colleagues.

5.5 Quality Assurance Staff

This relates to staff undertaking internal verification/moderation of assessment. The Centre MUST provide EAL with the names of any teachers, trainers or other individuals who will undertake internal quality assurance, so that these can be approved prior to them carrying out this role.

The main focus of internal quality assurance for these qualifications are:

- The quality assurance of assessment procedures, including standardisation of assessment practice across different assessors within the Centre.
- Internal standardisation of marking and moderation of learner marks awarded.

Internal quality assurance staff must:

- Be familiar with the occupation(s) covered by the qualification.
- Have knowledge and understanding of the qualification structure and content.
- Understand the assessment process and the role of quality assurance.

It is a recommendation that the quality assurance staff will:

- Have experience in quality management/internal verification
or
- Hold an appropriate qualification, such as the 'Level 4 Award in the Internal Quality Assurance of Assessment Processes and Practice, or the 'Level 4 Certificate in Leading the Internal Quality Assurance of Assessment Processes and Practice'

Continuing professional development of internal quality assurance staff

It is the responsibility of each internal quality assurance staff member to identify and make use of opportunities for CPD, such as industry conferences, access to trade journals, and SSC and Professional Body/Trade Association events, at least on an annual basis to enhance and upgrade their professional development and technical knowledge. It is imperative that records are kept of all such CPD opportunities/occasions and that they provide evidence of cascading such technical knowledge and industry intelligence to all relevant colleagues.

6.0 Assessment

6.1 Introduction

These qualifications are assessed by the internal (centre marked) assessments. The learner must pass all the internal assessments of their chosen units to achieve the qualification. EAL will externally quality assure the assessments. The EAL Centre Operations Manual must be followed in their delivery.

6.2 Internal (Centre Marked) Assessment

Internal assessment includes practical and/or theory assessments, which have been designed to assess the knowledge, understanding and skills of learners for individual units. The internal assessment for each unit is set by EAL and marked by members of the delivery team at the Centre. All assessment decisions are then subject to internal standardisation and external quality assurance.

Internal assessments involve collecting and evaluating evidence that demonstrates achievement of the learning outcomes in each unit. The internal assessments are accompanied by marking criteria, checklists and other materials to ensure that the delivery team is consistent in their approach to internal assessments across learners. The internal assessments and the accompanying marking/assessment criteria can be found in the individual units within the Delivery and Learner Assessment Packs.

Centres are responsible for ensuring that internal assessment is suitably controlled to ensure that assessment decisions are valid and reliable, and that work submitted for assessment by learners is prepared and produced by them independently, without assistance from others, and free of plagiarism.

Where the assessment takes the form of written/short answer or multiple-choice question papers, these should be treated as controlled assessments therefore imposing the necessary restrictions on the learner, as necessary. Guidance sheets have also been created to hand out to the learners.

All learning outcomes of the qualification must be assessed. In order to help meet this requirement it is advised that learners should produce a logbook/portfolio where they can file and make reference to evidence that shows their achievements against the learning outcomes. Centres should also maintain an assessment and feedback record for each learner, which details the evidence evaluated against the learning outcome and the feedback given to the learner. These records must be available to the External Quality Assurer.

Further guidance on assessment is provided within each unit Delivery Pack.the standard required. Please consult the EAL External Quality Assurer if in any doubt.

Re-taking Internal Assessments

Learners who fail to achieve a pass in the internally marked controlled assessments will be permitted to re-take after feedback and appropriate tuition has taken place.

Standardisation of internal assessments

Members of the internal quality assurance team at the Centre have an important role to play in ensuring that internal assessment is standardised. In particular, they should work with tutor/assessors to ensure that the correct procedures are being followed at all times, and to

ensure that assessment decisions taken by different assessors are consistent, fair and reliable. Key activities will include:

Meeting with tutor/assessors (individually and collectively) throughout the course to discuss quality assurance and standardisation issues and provide support and guidance where needed.

Observing tutor/assessors and giving them feedback to help improve their assessment technique.

Sampling learner evidence across different learner cohorts to ensure that appropriate standards have been met.

Arranging cross-marking of learner work to compare results and agree benchmarks.

7.0 Quality Control of Assessments

There are two major points where EAL interacts with the Centre in relation to the external quality control of assessment for a qualification and these are:

- **Approval** - when a centre takes on new qualifications, the awarding organisation, normally through an External Quality Assurer (EQA) ensures that the centre is suitably equipped and prepared to deliver the new qualification.
- **Monitoring** - throughout the on-going delivery of the qualification the awarding organisation, through EQA monitoring and other mechanisms must maintain and the quality and consistency of assessment of the qualification.

7.1 Approval

In granting approval, the awarding organisation, normally through its External Quality Assurer (EQA) must ensure that the prospective centre:

- meets any procedural requirements specified by the Awarding Organisation.
- has sufficient and appropriate physical and staff resources.
- meets relevant health and safety and/or equality and access requirements.
- has a robust plan for the delivery, assessment and QA for the qualifications.

EAL will visit the centre to view the evidence provided. The Centre must have a clear rationale for the method(s) deployed.

7.2 Monitoring

The Awarding organisation, through EQA monitoring and other mechanisms must ensure:

- that a strategy is developed and deployed for the on-going awarding organisation monitoring of the centre. This strategy must be based on an active risk assessment of the centre. In particular the strategy must identify the learner, assessor and IQA sampling strategy to be deployed and the rationale behind this.
- that the centre's internal quality assurance processes are effective in learner assessments.
- that sanctions are applied to a centre where necessary and that corrective actions are taken.
- by the centre and monitored by the awarding organisation/EQA.
- that reviews of awarding organisation's external auditing arrangements are undertaken.

Appendix 1 Unit Overview/Summary

Unit Title: Introduction to working in engineering
Unit Code: QETF/001
Level: 1
GLH: 40
Overview: This unit is intended to ensure the learner has the opportunity to develop the knowledge essential to ensure they can work safely and effectively in an engineering environment. This unit involves the use of tools, equipment or machinery and as such must be delivered in a secure and safe environment; learners must be supervised at all times by competent and qualified staff to ensure their safety. All tools, equipment or machinery must be maintained and presented in a safe and fit state for use. The higher risk activities within this unit require safeguarding at all times.
Summary of learning outcomes The learner will: <ol style="list-style-type: none">1. Work safely in an engineering environment.2. Understand how to communicate effectively in engineering.3. Use engineering hand tools safely.4. Select engineering materials and components.5. Use problem solving methods.

Unit Title: Preparing for an interview
Unit Code: QPFIG1/01
Level: 1
GLH: 10
Overview: This unit is intended to ensure the learner knows what information is required to prepare for an interview, develop the skills to prepare questions for an interview and to plan travel to arrive on time.
Summary of learning outcomes The learner will: <ol style="list-style-type: none">1. Know information required to prepare for an interview.2. Be able to prepare for interview questions.3. Be able to plan travel for an interview.

Unit Title: Managing study and approaches to learning
Unit Code: QMSAG1/01
Level: 1
GLH: 30
Overview: This unit is intended to ensure the learner is provided with the basic knowledge and understanding of the study skills required to gain their qualification. The learner will find out about the demands of their course of study, how to organise study time effectively, how to set realistic targets for study, how to take responsibility for their own learning and how to build a portfolio of evidence.
Summary of learning outcomes The learner will: <ol style="list-style-type: none">1. Understand the demands of a course of study.2. Understand how to organise study time effectively.3. Understand how to prioritise and set realistic targets for study.4. Be able to find and use information relevant to the course of study.5. Understand how to listen in and contribute actively to a learning environment.6. Keep information in a usable format.

Unit Title: Machining engineering materials
Unit Code: QETF/002
Level: 1
GLH: 40
<p>Overview: This unit is intended to give learners a broad introduction to the different methods used to machine materials in engineering. The content of the unit includes drilling, turning milling and grinding. The knowledge requirement is intended to introduce a variety of methods to the learners and the practical activities allow the learner to focus on centre lathe turning.</p> <p>This unit involves the use of tools, equipment or machinery and as such must be delivered in a secure and safe environment; learners must be supervised at all times by competent and qualified staff to ensure their safety. All tools, equipment or machinery must be maintained and presented in a safe and fit state for use.</p> <p>The higher risk activities within this unit require safeguarding at all times.</p>
<p>Summary of learning outcomes</p> <p>The learner will:</p> <ol style="list-style-type: none"> 1. Identify different machining methods. 2. Prepare for machining activities. 3. Carry out machining activities. 4. Identify that machining activities are carried out correctly.

Unit Title: Cutting, forming and assembling engineering materials
Unit Code: QETF/003
Level: 1
GLH: 40
<p>Overview: This unit is intended to give learners a broad introduction to the different methods used to cut, form and assemble sheet metal components. The content of the unit includes the use of guillotines, bending equipment and mechanical fastening. The knowledge requirement is intended to introduce a variety of methods to the learners and the practical activities allow the learner to focus on the methods/processes that may have local significance.</p> <p>This unit involves the use of tools, equipment or machinery and as such must be delivered in a secure and safe environment; learners must be supervised at all times by competent and qualified staff to ensure their safety. All tools, equipment or machinery must be maintained and presented in a safe and fit state for use.</p> <p>The higher risk activities within this unit require safeguarding at all times.</p>
<p>Summary of learning outcomes</p> <p>The learner will:</p> <ol style="list-style-type: none"> 1. Demonstrate different cutting, forming and assembling processes. 2. Prepare for cutting, forming and assembling activities. 3. Carry out cutting, forming and assembling activities. 4. Check cutting, forming and assembling activities are carried out correctly.

Unit Title: Joining engineering materials
Unit Code: QETF/004
Level: 1
GLH: 40
<p>Overview: This unit is intended to give learners a broad introduction to the different methods used to join materials in engineering. The content of the unit includes welding, brazing/soldering and the use of adhesives. The knowledge requirement is intended to introduce a variety of methods to the learners and the practical activities allow the learner to focus on the methods/processes that may have local significance.</p>

This unit involves the use of tools, equipment or machinery and as such must be delivered in a secure and safe environment; learners must be supervised at all times by competent and qualified staff to ensure their safety. All tools, equipment or machinery must be maintained and presented in a safe and fit state for use.

The higher risk activities within this unit require safeguarding at all times.

Summary of learning outcomes

The learner will:

1. Demonstrate different joining processes.
2. Prepare for joining activities.
3. Carry out Joining activities.
4. Check joining activities are carried out correctly.

Unit Title: Electronics

Unit Code: QETF/005

Level: 1

GLH: 40

Overview: This unit is intended to give learners a broad introduction to the different methods used to construct and test electronic circuits.

This unit involves the use of tools, equipment or machinery and as such must be delivered in a secure and safe environment; learners must be supervised at all times by competent and qualified staff to ensure their safety. All tools, equipment or machinery must be maintained and presented in a safe and fit state for use.

The higher risk activities within this unit require safeguarding at all times.

Summary of learning outcomes

The learner will:

1. Outline the Use of electronic components.
2. State the basic principles for assembling electronic circuits.
3. Define the basic principles for testing electronic circuits.
4. Define the basic principles of fault finding.

Unit Title: Electrical installations

Unit Code: QETF/006

Level: 1

GLH: 40

Overview: This unit is intended to give learners a broad introduction to the practical skills and basic knowledge required in the electrotechnical industry.

This unit involves the use of tools, equipment or machinery and as such must be delivered in a secure and safe environment; learners must be supervised at all times by competent and qualified staff to ensure their safety. All tools, equipment or machinery must be maintained and presented in a safe and fit state for use.

The higher risk activities within this unit require safeguarding at all times.

Summary of learning outcomes

The learner will:

1. Fix and terminate components to pre-determined positions.
2. Connect additional switches in parallel.
3. Connect additional components in parallel.
4. Connect additional components in series.

Unit Title: Mechanical and electrical maintenance
Unit Code: QETF/007
Level: 1
GLH: 40
<p>Overview: This unit is intended to give learners a broad introduction to the requirements of basic mechanical and electrical maintenance. The knowledge is intended to introduce the learner to the theory of a variety of mechanical and electrical maintenance that are practised in the practical activities.</p> <p>This unit involves the use of tools, equipment or machinery and as such must be delivered in a secure and safe environment; learners must be supervised at all times by competent and qualified staff to ensure their safety. All tools, equipment or machinery must be maintained and presented in a safe and fit state for use.</p> <p>The higher risk activities within this unit require safeguarding at all times.</p>
<p>Summary of learning outcomes</p> <p>The learner will:</p> <ol style="list-style-type: none"> 1. Demonstrate maintenance techniques. 2. Define the function of bearings and seals. 3. Define electric motor construction. 4. Identify, dismantle and check a simple electric motor.

Unit Title: Computer maintenance
Unit Code: QETF/008
Level: 1
GLH: 40
<p>Overview: This unit enables learners to acquire the basic knowledge to connect computer components, upgrade a computer and install basic programs to operate a computer.</p> <p>This unit involves the use of tools, equipment or machinery and as such must be delivered in a secure and safe environment; learners must be supervised at all times by competent and qualified staff to ensure their safety. All tools, equipment or machinery must be maintained and presented in a safe and fit state for use.</p> <p>The higher risk activities within this unit require safeguarding at all times.</p>
<p>Summary of learning outcomes</p> <p>The learner will:</p> <ol style="list-style-type: none"> 1. Define working safely with computers. 2. Identify the necessary input and output devices to build a PC. 3. Demonstrate how to upgrade and test the hardware components of a computer system. 4. Demonstrate how to upgrade and test the operating system and install device drivers.

Unit Title: Motorcycle maintenance
Unit Code: QETF/009
Level: 1
GLH: 40
<p>Overview: This unit is intended to give the learner a broad introduction to the different types of motorcycle commonly found in use today and to provide the learner with the knowledge to satisfactorily carry out basic, routine maintenance and service operations as required by the motorcycle service industry and the average customer/rider.</p> <p>This unit involves the use of tools, equipment or machinery and as such must be delivered in a secure and safe environment; learners must be supervised at all times by competent and qualified staff to ensure their safety. All tools, equipment or machinery must be maintained and presented in a safe and fit state for use.</p>

The higher risk activities within this unit require safeguarding at all times.

Summary of learning outcomes

The learner will:

1. Identify different motorcycle types.
2. Perform service activities on brakes and tyres.
3. Check and adjust fluid levels.
4. Check lighting systems are working correctly.

Unit Title: Motor vehicle maintenance

Unit Code: QETF/010

Level: 1

GLH: 40

Overview: This unit is intended to give the learner a broad introduction to the different types of motor vehicle commonly found in use today and to provide the learner with the knowledge to satisfactorily carry out basic routine maintenance and service operations as required.

This unit involves the use of tools, equipment or machinery and as such must be delivered in a secure and safe environment; learners must be supervised at all times by competent and qualified staff to ensure their safety. All tools, equipment or machinery must be maintained and presented in a safe and fit state for use.

The higher risk activities within this unit require safeguarding at all times.

Summary of learning outcomes

The learner will:

1. Identify different Motor Vehicle Types.
2. Perform Service Activities on Brakes and Tyres.
3. Check and Adjust Lubricant Levels.
4. Check Lighting Systems are Working Correctly.

Unit Title: Cycle maintenance

Unit Code: QETF/011

Level: 1

GLH: 40

Overview: This unit is intended to give the learner a broad introduction to the different types of cycles commonly found in use today and to provide the learner with the knowledge to satisfactorily carry out basic routine maintenance and service operations as required.

This unit involves the use of tools, equipment or machinery and as such must be delivered in a secure and safe environment; learners must be supervised at all times by competent and qualified staff to ensure their safety. All tools, equipment or machinery must be maintained and presented in a safe and fit state for use.

The higher risk activities within this unit require safeguarding at all times.

Summary of learning outcomes

The learner will:

1. Identify different types of cycles.
2. Indicate regulations applicable to the use of cycles on public highways.
3. Carry out basic cycle maintenance.
4. Indicate that basic cycle maintenance is carried out correctly.

Unit Title: Automated technologies
Unit Code: QETF/012
Level: 1
GLH: 40
<p>Overview: This unit is intended to give learners a broad introduction to the basic fundamentals of automation technology - pneumatics. The knowledge is intended to introduce a variety of elements of pneumatic control and the practical activities allow the learner to focus on individual elements and their functionality in modern day automation technology.</p> <p>This unit involves the use of tools, equipment or machinery and as such must be delivered in a secure and safe environment; learners must be supervised at all times by competent and qualified staff to ensure their safety. All tools, equipment or machinery must be maintained and presented in a safe and fit state for use.</p> <p>The higher risk activities within this unit require safeguarding at all times.</p>
<p>Summary of learning outcomes</p> <p>The learner will:</p> <ol style="list-style-type: none"> 1. Demonstrate functionality of pneumatic components. 2. Prepare for pneumatic activities. 3. Carry out pneumatic activities. 4. Check Pneumatic Activities are carried out correctly.

Unit Title: Basic mathematics and science used in engineering
Unit Code: QETF/013
Level: 1
GLH: 40
<p>Overview: This unit is intended to enable the learner to understand how mathematics and science are used in solving engineering problems. The mathematics and science within the learning outcomes of this unit are intended to be relevant to the content of the optional units and should be taught alongside wherever possible.</p> <p>This unit involves the use of tools, equipment or machinery and as such must be delivered in a secure and safe environment; learners must be supervised at all times by competent and qualified staff to ensure their safety. All tools, equipment or machinery must be maintained and presented in a safe and fit state for use.</p> <p>The higher risk activities within this unit require safeguarding at all times.</p>
<p>Summary of learning outcomes</p> <p>The learner will:</p> <ol style="list-style-type: none"> 1. Demonstrate how mathematics is applied in solving engineering problems. 2. Demonstrate how science is applied in solving engineering problems.

Unit Title: Working with customers
Unit Code: QETF/014
Level: 1
GLH: 40
<p>Overview: This unit is intended to give learners a broad introduction to how to effectively work with both internal and external customers. The knowledge is intended to introduce the learners to the basic behaviour and accepted practices when dealing with customers. This unit is intended to support other optional units where the subject nature of the optional units may involve dealing with customers in the workplace.</p> <p>This unit involves the use of tools, equipment or machinery and as such must be delivered in a secure and safe environment; learners must be supervised at all times by competent and qualified staff to ensure their safety. All tools, equipment or machinery must be maintained and presented in a safe and fit state for use.</p> <p>The higher risk activities within this unit require safeguarding at all times.</p>

Summary of learning outcomes

The learner will:

1. State the importance of making a good impression.
2. State how to provide and maintain a good service.
3. Deal with customers problems.

Unit Title: Computer aided drawing (CAD)**Unit Code:** QETF/015**Level:** 1**GLH:** 40

Overview: This unit is intended to give Learners a broad introduction to Computer aided drawing (CAD) and its applications in engineering. The content of the unit includes looking at the applications of CAD, drawing with CAD and managing a CAD system effectively. This unit links directly into units QETF/016 and QETF/017 and all three units can be completed together if desired.

This unit involves the use of tools, equipment or machinery and as such must be delivered in a secure and safe environment; learners must be supervised at all times by competent and qualified staff to ensure their safety. All tools, equipment or machinery must be maintained and presented in a safe and fit state for use.

The higher risk activities within this unit require safeguarding at all times.

Summary of learning outcomes

The learner will:

1. Demonstrate the use of CAD.
2. Produce a simple CAD drawing in 2D and 3D.
3. Demonstrate how to save and store CAD data files correctly.
4. Demonstrate how to output CAD data to peripheral devices.

Unit Title: Computer aided machining (CAM)**Unit Code:** QETF/016**Level:** 1**GLH:** 40

Overview: This unit is intended to give learners a broad introduction to computer aided machining (CAM) and its applications in engineering. The content of the unit includes looking at the applications of CAM, creating simple codes and machining with a CAM system.

This unit links directly into units QETF/015 and QETF/017 and all three units can be completed together if desired.

This unit involves the use of tools, equipment or machinery and as such must be delivered in a secure and safe environment; learners must be supervised at all times by competent and qualified staff to ensure their safety. All tools, equipment or machinery must be maintained and presented in a safe and fit state for use.

The higher risk activities within this unit require safeguarding at all times.

Summary of learning outcomes

The learner will:

1. Demonstrate applications of CAM.
2. Demonstrate simple general and machining codes.
3. Create and modify a simple CAM programme.
4. Demonstrate how to machine components using CAM.

Unit Title: Engineering project planning
Unit Code: QETF/017
Level: 1
GLH: 40
<p>Overview: This unit is intended to introduce learners to industrial/engineering project planning. Learners are required to plan and project a flat packed toy that can be computer numerical controlled (CNC) machined from a piece of material ranging in size from A4 to A3.</p> <p>This unit links directly into units QETF/015 and QETF/016 and all three units can be completed together if desired.</p> <p>This unit involves the use of tools, equipment or machinery and as such must be delivered in a secure and safe environment; learners must be supervised at all times by competent and qualified staff to ensure their safety. All tools, equipment or machinery must be maintained and presented in a safe and fit state for use.</p> <p>The higher risk activities within this unit require safeguarding at all times.</p>
<p>Summary of learning outcomes</p> <p>The learner will:</p> <ol style="list-style-type: none"> 1. Plan a Project Brief. 2. Obtain information to solve a problem. 3. Produce a plan and project specification. 4. Identify a solution to the problem.

Unit Title: Cutting, forming and assembling pipework materials
Unit Code: QETF/018
Level: 1
GLH: 40
<p>Overview: This unit enables the learner to demonstrate and identify the different methods used to cut, bend and assemble a wide variation of plumbing components. The content of the unit includes the use of cutting equipment, bending equipment and mechanical fastening. The knowledge requirement is intended to outline a variety of methods available to the learner and the practical activities allow the learner to demonstrate the methods/processes that are used within the industry.</p> <p>This unit involves the use of tools, equipment or machinery and as such must be delivered in a secure and safe environment; learners must be supervised at all times by competent and qualified staff to ensure their safety. All tools, equipment or machinery must be maintained and presented in a safe and fit state for use.</p> <p>The higher risk activities within this unit require safeguarding at all times.</p>
<p>Summary of learning outcomes</p> <p>The learner will:</p> <ol style="list-style-type: none"> 1. Demonstrate different cutting, bending and jointing techniques used within the industry. 2. Demonstrate how to prepare materials for cutting, bending and jointing. 3. Define cutting, bending and jointing processes. 4. Define the checks that indicate the cutting, bending and jointing processes are carried out correctly.

Unit Title: Cutting, jointing and finishing wood

Unit Code: QETF/019

Level: 1

GLH: 40

Overview: This unit is intended to give learners a broad introduction to the different methods used to cut, form and assemble wood. The knowledge requirement is intended to introduce a variety of methods to the learners and the practical activities allow the learner to focus on the methods/processes that may have local significance.

This unit involves the use of tools, equipment or machinery and as such must be delivered in a secure and safe environment; learners must be supervised at all times by competent and qualified staff to ensure their safety. All tools, equipment or machinery must be maintained and presented in a safe and fit state for use.

The higher risk activities within this unit require safeguarding at all times.

Summary of learning outcomes

The learner will:

1. Investigate Different Types of Wood.
2. Identify and Use Hand Tools.
3. Carry out Jointing and Assembling of Wood Activities.
4. Carry out Wood Finishing Techniques.

Appendix 2: Learner Registration and Certification

Learners must be registered with EAL on a code which relates to the qualification -this must be completed prior to assessment. Both learner registration and certification can be completed online at the EAL Website www.eal.org.uk. For paper-based registration and certification use the appropriate forms. These are located on the EAL Website, for guidance on registration and Certification please refer to the Registration and Certification User Guide.

To register the learner on the chosen qualification code:

Title:	Code:
EAL Level 1 Award in Engineering & Manufacture	600/6002/5
EAL Level 1 Certificate in Engineering & Manufacture	600/5973/4
EAL Level 1 Diploma in Engineering & Manufacture	600/6145/5