



Advanced Manufacturing (Development Knowledge)

Level 3 Diploma in Machining

Qualification Specification

Overview

This qualification has been developed to provide learners with an advanced knowledge and understanding of the practices and processes of a range of machining techniques. It covers knowledge, understanding and skills that are relevant to a wide variety of careers and study routes and take a hands-on approach to machining training.

Typical Job

Machinist within the Advanced Manufacturing and Engineering sector

| | |
|------------------------|-----------------|
| Qualification code: | 603/1033/9 |
| Level: | 3 |
| Credit value: | Min 78 - Max 79 |
| Guided learning hours: | 585 GL |
| Minimum learning age: | 16 |



Purpose of qualification

What is this qualification?

The EAL Level 3 Diploma in Machining is a Vocational Related Qualification (VRQ). It will give learners knowledge and understanding of a range of machining techniques. The qualifications cover the advanced knowledge, understanding and skills that are required by someone working in the machining sector. It takes a hands-on approach to foundation machining training by providing learners with:

- Knowledge and understanding of a range of machining techniques
- Information that will help them make more informed decisions about their career options
- Personal skills to help them work effectively and achieve their potential.

This is a graded qualification; learners can achieve a Pass, Merit or Distinction.

What does this qualification cover?

This qualification has four mandatory units, which provides learners with knowledge of the engineering environment, techniques and principles within the machining sector, and fourteen optional units, from which a learners will select a minimum of four units within their choice of units equating to a minimum of 8 units in total.

This qualification is a level 3 Diploma and has a minimum Credit Value (CV) of 78 and a Maximum of 79 which equates to Total Qualification Time (TQT) 790.

Who is this qualification for?

This qualification is predominantly for learners completing the development phase of the level 3 Machinist - Advanced Manufacturing Engineering apprenticeship standard or in full time education who are interested in machining and would like to gain an advanced level of knowledge and understanding about the machining sector. The qualification may also be suitable for learners who are interested in machining techniques and/or are considering a career change. The qualification has been specifically designed to offer progression into a higher level of study or an Apprenticeship.

It is suitable for learners aged:

- 16-18
- 19+

Who supports the qualification?

This qualification is:

- Regulated by ofqual at Level 3
- Endorsed by employers as facilitating completion of the foundation knowledge appropriate for the machining - Advanced manufacturing Engineering sector.

What could this qualification lead to?

Typical job roles include:

Machinist within the Advanced Manufacturing and Engineering sector: including Advanced Manufacturing Techniques (CNC), Precision Grinding, Gear Cutting, Specialist Machining, Engineering inspection and quality control, Engineering design process

This qualification relates to:

- EAL Level 2 NVQ Diploma in Performing Engineering Operations
- EAL Level 2 Certificates and Diplomas in Engineering Technologies
- EAL Level 2 Diploma in Advanced Manufacturing & engineering (foundation competence)
- EAL L2 Diploma in Machining (Foundation Knowledge)
- Further EAL level 3 engineering and manufacturing competence qualifications

Entry requirements

Learners must be at least 16 years old. There are no formal entry requirements for this qualification. However, learners must have the potential to achieve all aspects of the qualification. In particular, learners should be able to demonstrate that they have the minimum levels of literacy and numeracy required to comply with the health and safety aspects of the scheme, the completion of the learning outcomes, and the assessments.

How is the qualification achieved?

This qualification will be achieved when the learner has successfully completed:

- Four core mandatory unit, comprising an on-screen multiple-choice examination and Centre marked practical/knowledge assessments.
- Four of the optional units, comprising an on-screen multiple-choice examination and Centre marked practical/theory assessments.

What will be assessed?

This qualification is made up of units to which appropriate assessment methods have been applied. The units contain the learning outcomes and the assessment criteria that the learner is to be assessed against.

All learning outcomes within the qualification will be assessed. In order to meet this requirement, it is advised that centres should maintain an assessment and feedback record for each learner. This will detail the evidence evaluated against the learning outcome and the feedback given to the learner. All learner evidence must be available to the EAL External Verifier.

Grading Criteria

Learners must achieve a Pass in ALL components for the qualification to be awarded. If learners are unsuccessful in one or more of the assessment components then the overall result for the qualification will be 'referred' and a certificate will not be awarded.

Providing learners are successful in ALL assessment components, the final grade for the qualification will be determined from the grades achieved by learners in the external examination within the mandatory units and the centre marked assessments within the optional units.

Please refer to the Grading Criteria within the Delivery Packs and Learner Packs on how to grade individual units.

How will it be assessed?

Assessment methods within this qualification include an on-screen multiple choice examination for one of the mandatory units and Internal centre marked practical and knowledge assessments for the remaining three mandatory units, and also includes an on-screen multiple choice examination for one of the optional units, and knowledge assessments for all other optional units. Assessment methods have been designed to assess the knowledge, understanding and skills of learners for all units.

The on-screen multiple choice examinations are set by EAL and marked by EAL. The internal assessment is set by EAL and marked by members of the delivery team at the Centre.

Where the assessment takes the form of written/short answer or multiple choice question papers, these must be treated as controlled assessments.

All assessment decisions are then subject to internal and external quality assurance.

Structure

This qualification will be obtained by the learner once they have successfully completed the all **four mandatory units**, and **four units** from the listed **optional** units.

This qualification has a minimum credit value of 78 -79 credits, 585 guided learning hours and 780 Total Qualification Time.

Mandatory Units: All four mandatory units must be completed

| EAL Code | Assessment Route Title | Credit | GL(hrs) | Ofqual Code |
|----------|--|--------|---------|-------------|
| AME3/001 | Engineering & Environmental Health and Safety | 9 | 75 | T/615/4847 |
| AME3/002 | Engineering Communications | 10 | 75 | A/615/4848 |
| AME3/003 | Properties and Applications of Engineering Materials | 10 | 60 | F/615/4849 |
| AME3/004 | Engineering Mathematics | 10 | 75 | T/615/4850 |

Optional Units: A minimum of four optional units must be completed from the following:

| EAL Code | Assessment Route Title | Credit | GL(hrs) | Ofqual Code |
|----------|--|--------|---------|-------------|
| AME3/005 | Computer Aided Design Techniques | 10 | 75 | A/615/4851 |
| AME3/006 | Advanced Manufacturing Techniques Computer Numerical Control - CNC | 10 | 75 | F/615/4852 |
| AME3/007 | Precision Grinding | 10 | 75 | J/615/4853 |
| AME3/008 | Gear Cutting | 10 | 75 | L/615/4854 |
| AME3/009 | Advanced Milling | 10 | 75 | R/615/4855 |
| AME3/010 | Advanced Turning | 10 | 75 | D/615/4857 |
| AME3/011 | Specialist Machining | 10 | 75 | K/615/4859 |
| AME3/012 | Advanced Manufacturing Techniques | 10 | 75 | D/615/4860 |
| AME3/013 | Computer Numerical Control (CNC) Programming/Machining | 10 | 75 | A/615/4865 |
| AME3/014 | Further Engineering Mathematics | 10 | 75 | F/615/4866 |
| AME3/015 | Engineering inspection and quality control | 10 | 75 | J/615/4867 |
| AME3/016 | Engineering organisational efficiency and improvement | 9 | 75 | L/615/4868 |
| AME3/017 | Mechanical engineering principles | 10 | 75 | R/615/4869 |
| AME3/018 | Engineering design process | 10 | 75 | R/615/4872 |

