Level 3 Diploma in

MANUFACTURING ENGINEERING

Advanced Manufacturing and Engineering - Fabricator (Development Competence)

Qualification Specification

Overview

This qualification has been developed to provide learners with the skills and knowledge they will need to carry out a range of activities associated with the job of a fabricator. It covers the relevant health and safety requirements to ensure that all aspects of a fabricator's occupational role can be carried out safely.

Typical job roles: fabricator, welder, brazer, sheetmetal worker, plateworker, pipeworker, CNC fabrication machine operator.

Qualification code:	603/2621/9
Level:	3
Total Qualification Time (TQT):	816 hours
Minimum learning age:	16

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Purpose of qualification

What is this qualification?

This qualification is a competency qualification which is included in an appropriate qualification framework and has been approved by the advanced manufacturing and engineering sector employer groups which is made up a range of employers, providers and professional institutions. The qualification focuses on the skills, knowledge and behaviours required to achieve the development phase requirements of the relevant apprenticeship standard. This arrangement ensures that when the learner completes the qualification they will have gained knowledge and practical experience of some of the situations that they could face within the occupational sector in which it is being delivered.
It covers specific skills knowledge and behaviours of a range of fabrication disciplines which have been developed in consultation with engineering industry specialists and training providers to ensure that it meets the needs of industry employers and learners.

What does this qualification cover?

The content and structure of this qualification has been developed to provide the specific level of skills, knowledge and behaviours required to be achieved and assessed to demonstrate full occupational competence in the development phase of the apprenticeship. The qualification units are listed in Section 3.

The qualification has a minimum TQT figure of 816 hours.

The Guided Learning values can include the following examples in line with regulatory requirements (this is not an exhaustive list and other examples could be used as outlined in regulatory guidance):

- supervised teaching and learning and supervised work-based learning
- all forms of assessment which takes place under immediate guidance or supervision of an appropriate individual (lecturer, supervisor, tutor, mentor, etc.), including where the assessment is competence based and may be turned into a learning opportunity
- supervised e-learning, oral and written questioning, workplace induction
- supervised work: student works under supervision of employer/direct supervisor
- final assessment: student is supervised by employer/direct supervisor during the assessment.

Who is this qualification for?

- learners who are working towards a relevant apprenticeship standard
- learners who are looking to advance to a higher level qualification/apprenticeship

Who supports the qualification?

This qualification is:

- accredited by Ofqual at Level 3
- supported by Semta
- supported by the advanced manufacturing and engineering sector

What could this qualification lead to?

Typical job roles in: fabrication engineering.

This qualification will also provide progression onto other suitable and appropriate Level 3 and Level 4 engineering qualifications

Entry requirements

Learners must be at least 16 years old. There are no formal entry requirements for this qualification; however centres should ensure that the learners have the potential to achieve this qualification. Learners must have the minimum levels of literacy and numeracy to complete the learning outcomes and the external assessment.

Centres should make learners with particular requirements aware of the content of the qualification and they should be given every opportunity to successfully complete the qualification. EAL will consider any reasonable suggestions for, and from, those with disabilities that would help them to achieve the learning outcomes without compromising the standards required.

When used as part of an apprenticeship standard, apprentices must have achieved the requirements of the foundation phase of the apprenticeship in line with the apprenticeship standard they are working towards.

How is the qualification achieved?

The qualification is achieved when all the necessary units have been completed. The centre will then be able to apply for the learner's certificate of achievement. The learners will also receive a certificate of unit credit, listing all the units they have achieved.

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What will be assessed?

This qualification is gained when all the performance, skills, knowledge and behaviours have been demonstrated across the assessment criteria for each unit selected.

The assessment criteria within the Units of Competence have been specifically developed to cover a wide range of activities relevant to the role carried out by a fabricator.

The evidence produced for the units will, therefore, depend on the skills and knowledge required by an employer and specified in the apprentices training plan.

Grading criteria

This qualification is not graded, learners can achieve a pass or be referred.

To achieve a pass, learners must be able to demonstrate their performance, skills, knowledge and behaviours across all their chosen mandatory and optional units.

How will it be assessed?

Performance evidence must be a product of the apprentices work, such as items that have been produced or worked on, plans, charts, reports, standard operating procedures, documents produced as part of a work activity, records or photographs of the completed activity together with evidence of the way the apprentice carried out the activities, such as witness testimonies, assessor observations or authenticated apprentice reports of the activity undertaken.

Knowledge and understanding are key components of competent performance, but it is unlikely that performance evidence alone will provide enough evidence in this area. Where the apprentices knowledge and understanding is not apparent from performance evidence, it must be assessed by other means and be supported by suitable evidence.

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Structure

The apprentice is required to complete the required number of mandatory units of competence, followed by a number of optional units of competence.

Mandatory units: *All* **three** *mandatory units must be completed for all pathways*

EAL Code	Unit Title	GL(hrs)	Ofqual Code
AUEC3-001	Complying with statutory regulations and organisational safety requirements	13	Y/615/3996
AUEC3-002	Using and interpreting engineering data and documentation	13	D/615/3997
AUEC3-003	Working efficiently and effectively in advanced manufacturing and engineering	42	K/615/3999

Optional units - one pathway must be completed from the following pathways:

Pathway 1: Sheetmetal worker

Must complete all of the following units:

EAL Code	Unit Title	GL(hrs)	Ofqual Code
AUEC3-280	Marking out components for metalwork	189	L/616/6924
AUEC3-281	Cutting sheetmetal to shape using hand and machine tools	329	Y/616/6926
AUEC3-282	Forming sheetmetal using hand and machine tools	379	D/616/6927

Plus two units from the following:

AUEC3-283	Producing sheetmetal assemblies	409	H/616/6928
AUEC3-284	Heat treating materials for fabrication activities	99	K/616/6929
AUEC3-285	Developing and marking out templates for metalwork	259	D/616/6930

Plus one unit from the following:

AUEC3-286	Joining fabricated components using mechanical fasteners	189	K/616/6932
AUEC3-287	Bonding engineering materials using adhesives	119	M/616/6933
AUEC3-288	Joining materials by resistance spot welding	49	T/616/6934
AUEC3-289	Producing fillet welded joints using a manual welding process	739	A/616/6935
AUEC3-305	Operating CNC fabrication equipment	379	D/616/6944

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Pathway 2: Plater/Fabricator

Must complete one of the following units:

EAL Code	Unit Title	GL(hrs)	Ofqual Code
AUEC3-280	Marking out components for metalwork	189	L/616/6924
AUEC3-285	Developing and marking out templates for metalwork	259	D/616/6930

Plus one unit from the following:

AUEC3-290	Cutting plate and sections using shearing machines	259	F/616/6936
AUEC3-291	Cutting and shaping materials using portable thermal cutting equipment	329	J/616/6937
AUEC3-292	Cutting materials using saws and abrasive discs	109	L/616/6938
AUEC3-305	Operating CNC fabrication equipment	379	D/616/6944

Plus two units from the following:

AUEC3-293	Bending and forming plate using press brakes or bending machines	329	R/616/6939
AUEC3-294	Forming platework using power rolling machines	329	J/616/6940
AUEC3-295	Producing and finishing holes using drilling machines	119	L/616/6941
AUEC3-296	Producing platework assemblies	329	R/616/6942

Plus two units from the following:

AUEC3-286	Joining fabricated components using mechanical fasteners	189	K/616/6932
AUEC3-289	Producing fillet welded joints using a manual welding process	739	A/616/6935
AUEC3-297	Slinging, lifting and moving materials and components	119	Y/616/6943

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Pathway 3: Fabricator joiner

Must complete one unit from the following:

EAL Code	Unit Title	GL(hrs)	Ofqual Code
AUEC2-022	Producing sheetmetal components and assemblies	140	A/507/6948
AUEC2-088	Producing platework components and assemblies	140	J/616/6906
AUEC2-020	Forming and assembling pipework systems	140	M/507/6946

Plus either one unit from the following:

AUEC3-306	Welding materials by the manual metal arc process	1729	H/616/6945
AUEC3-263	Welding materials by the semi automatic MIG/MAG and flux cored arc processes	1729	L/616/6907
AUEC3-264	Welding materials by the manual TIG and plasma arc welding process	1729	R/616/6908
AUEC3-265	Welding materials by the manual oxy/fuel gas welding process	1679	Y/616/6909
AUEC3-266	Welding pipe/tube using multiple manual arc welding processes	1779	L/616/6910
AUEC3-267	Welding plate using multiple manual arc welding processes	1779	R/616/6911

OR:

One unit from the following:

AUEC3-268	Preparing mechanised arc welding equipment for production	679	Y/616/6912
AUEC3-269	Preparing resistance spot, seam and projection welding machines for production	429	D/616/6913
AUEC3-270	Preparing laser welding machines for production	679	H/616/6914
AUEC3-271	Preparing electron beam welding machines for production	679	K/616/6915
AUEC3-272	Preparing friction welding machines for production	629	M/616/6916
AUEC3-273	Preparing brazing machines for production	429	T/616/6917

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Plus one unit from the following:

AUEC3-274	Welding materials with mechanised arc welding equipment	349	A/616/6918
AUEC3-275	Welding materials using resistance spot, seam and projection welding machines	329	F/616/6919
AUEC3-276	Welding materials using laser welding machine	349	T/616/6920
AUEC3-277	Welding materials using electron beam welding machines	349	A/616/6921
AUEC3-278	Welding materials using friction welding machines	329	F/616/6922
AUEC3-279	Joining materials using brazing machines	179	J/616/6923