

## Engineering Technician (CNC and Manual Machining) Advanced Apprenticeship Standard



<b>Sector</b>	Advanced Manufacturing (England) EAL
<b>Level</b>	3
<b>Guided Learning Hours (Off the Job)</b>	750 hours = Development Knowledge
<b>Total Course length</b>	42 Months = Then 6 months for end point assessment
<b>Minimum age of learner</b>	16 years
<b>Cost / Funding</b>	£26,000 ( £0 age 18 under / 5% £1300 age19+)

Potential Job Roles: Machinist – Advanced Manufacturing Engineering

Core Occupational Profile; Engineering Technicians in the Advanced Manufacturing and Engineering Sector are predominantly involved in highly skilled, complex work and must, as a minimum be able to:

- Apply safe systems of working
- Make a technical contribution to either the design, development, quality assurance, manufacture, installation, commissioning, decommissioning, operation or maintenance of products, equipment, systems, processes or services
- Apply proven techniques and procedures to solve engineering/manufacturing problems
- Demonstrate effective interpersonal skills in communicating both technical and non-technical information
- Have a commitment to continued professional development

Engineering Technicians take responsibility for the quality and accuracy of the work they undertake within the limits of their personal authority. They also need to be able to demonstrate a core set of behavior's in order to be competent in their job role, complement wider business strategy and development. This will enable them to support their long term career development.

### Role Profile:

Machinists in the Advanced Manufacturing Engineering sector are predominantly involved in highly skilled, complex and precision work, machining components from specialist materials using conventional and/or CNC machine tools such as centre lathes, vertical and horizontal milling machines, horizontal and cylindrical grinding machines, electro discharge machines, single and multi- axis CNC machine tools centres. They will be expected to be able set up, operate and adjust/edit equipment settings as applicable to the machine tool being used. When using CNC equipment they will be expected to be able to produce, prove and/or edit programmes. During and on completion of the machining operations they will be expected to measure and check the components being produced and make adjustments to the equipment/programme to ensure components meet the required specification.

<b>Mandatory requirements</b>	<b>Functional Skills</b>	<b>Level</b>
	Math's	2
	English	2
<b>Qualification and Skills</b>	GCSE 5 and above in Math's, Science & English	
<b>Knowledge, Skills and Behavior (KSB)</b>	Machinist Advanced Manufacturing Engineering (Standard)	
<b>Employer Rights and Responsibilities</b>	EAL level 2 Award in employer rights and responsibilities for new entrant into the science, engineering and manufacturing sector (QCF)	
<b>Personal Learning and Thinking Skills</b>	Creative thinking Reflective Learning Self-management	Independent enquiry Team Working Effective participation

<b>Level 2 Knowledge</b>		<b>Classroom Based</b>	<b>Months 1 to 18</b>
<b>LEVEL</b>	<b>UNIT No</b>	<b>UNIT TITLE</b>	
2	AME2-001A	Working in an Engineering Environment	
2	AME2-002	Engineering Techniques - AME	
2	AME2-003	Engineering Mathematics and Science Principles	
2	AME2-004	Fitting and Assembly Techniques – AME	
2	AME2-005	Business Improvement Techniques	
2	AME2-006	Principles of Turning and Milling	
2	AME2-013	Computer Aided Drawing – CAD	
<b>Level 2 NVQ</b>		<b>Portfolio Evidence</b>	<b>Months 1 to 18</b>
<b>LEVEL</b>	<b>UNIT No</b>	<b>UNIT TITLE</b>	
2 mandatory unit	AUEC2-001	Complying with Statutory Regulations and Organisational Safety Requirements	
2 mandatory unit	AUEC2-002	Working Efficiently and Effectively in an Engineering Environment	
2 mandatory unit	AUEC2-003	Using and Communicating Technical Information	
2 mandatory unit	AUEC2-004	Conducting Business Improvement Activities	
2 mandatory unit	AUEC2-005	Producing Components Using Hand Fitting Techniques	
2 mandatory unit	AUEC2-006	Maintaining Mechanical Devices and Equipment	
2	AUEC2-012	Producing Mechanical Assemblies	
2	AUEC2-013	Preparing and Using Lathes for Turning Operations	
2	AUEC2-014	Preparing and Using Milling Machines	
2	AUEC2-021	Preparing and improving CNC machine tool programme	
2	AUEC2-030	Producing CAD Models (Drawings) Using a CAD System	
2	AUEC2-034	Preparing and using CNC turning machines	
2	AUEC2-035	Preparing and using CNC milling machines	
<b>Level 3 Knowledge</b>		<b>Class Room Based</b>	<b>Months 18 to 42</b>
3	AME3-001A	Engineering and Environmental Health and Safety	
3	AME3-002	Communications for Machinists/Engineers	
3	AME3-003	Properties and Applications of Engineering Materials	
3	AME3-004	Engineering Mathematics	
3	AME3-005	Computer Aided Design (CAD) Techniques	
3	AME3-013	Computer Numerical Control (CNC) Programming/Machining	
3	AME3-015	Engineering Inspection and Quality Control	
3	AME3-016	Engineering Organisational Efficiency and Improvement	
<b>Level 3 NVQ</b>		<b>Portfolio Evidence</b>	<b>Months 18 to 42</b>
<b>LEVEL</b>	<b>UNIT No</b>	<b>UNIT TITLE</b>	
3	AUEC3-001	Complying with Statutory Regulations and Organisational Safety Requirements	
3	AUEC3-002	Using and Interpreting Engineering Data and Documentation	
3	AUEC3-003	Working Efficiently and Effectively in Advanced Manufacturing and Engineering	
<b>The remaining 3 units to be agreed with tutor and completed bespoke to company requirements Months 42 to 48 End point Assessment</b>			

## Knowledge, Skills and Behavior (KSB)

<b>Qualification Progression</b>	Advanced level 4 HNC apprenticeship.
<b>Job role progression opportunities:</b>	Apprentices will start off by carrying out semi-skilled job roles within manufacturing and engineering industry. It is likely that a period of consolidation will be required in these roles before progression can take place. Most will aspire to a combination of internal promotion within their companies to team leader or supervisor level, while at the same time this affords the opportunity to undertake Further Education qualifications or an Advanced Apprenticeship to upgrade their competence and knowledge to fully skilled status.