

# MACHINIST - ADVANCED MANUFACTURING ENGINEERING Apprenticeship

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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.

### Key Information

Level	3
Duration	Typically 42-48 months
Entry requirements	- 16 years or over. - Please contact our Apprenticeship team for further entry requirements.
Delivery	A minimum of 30 hours of on the job training at work place, 2 days per week including a day to study theory at our Uxbridge campus
Key responsibilities	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.
Qualifications	- Level 2 Diploma in Advanced Manufacturing Engineering (Foundation Competence) - Level 2 Diploma in Machining (Foundation Knowledge)  After a further period of skills and technical knowledge development all apprentices will be required to achieve the following qualifications: - Level 3 Diploma in Advanced Manufacturing Engineering (Development Competence) - Machining - Level 3 Diploma in Machining (Development Knowledge)
Professional Recognition	Completion of the Apprenticeship is designed to be recognised by relevant Professional Engineering Institutions at the appropriate level of professional registration (EngTech).

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Government funding may be available. Eligibility and criteria apply

### Employers involved in creating this standard:

BAE Systems plc, Semta Limited, Airbus Group, The Institution of Engineering and Technology, Gama Aviation Ltd, Harrods Aviation Ltd, British Airways, Marshall Aerospace and Defence Group, UTC Aerospace Systems, Resource Group, MBDA (UK) Ltd, GTA England Ltd, Rolls-Royce plc, NFEC Ltd, GKN Aerospace, Royal Aeronautical Society, Royal Air Force Cosford, Royal Navy, Cooper & Turner, Nikken Kosakusho Europe Ltd, Edward Pryor & Son Ltd, Newburgh Precision, Institution of Mechanical Engineers, Siemens plc, Jaguar Land Rover, Toyota Motor Manufacturing (UK) Ltd, BMW, The Engineering Employer Federation, Leonardo Helicopters UK, Babcock International Group, Mersey Maritime Group

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## Modules and Content

### Specific Specialist Knowledge

understand mathematical techniques, formula and calculation involved in the machining processes such as speeds and feeds, calculating angles/tapers, material removal

understand the practical and theoretical uses of the machines used, and their applications.

understand the work-holding devices, cutting tools, and setting up procedures, in adequate depth to provide a sound basis for carrying out the activities, correcting faults and ensuring the work output is to the required specification

### Specific Specialist Skills

read and interpret relevant data and documentation used to produce machined components

determine the most efficient and effective approach to machine the component using a range of tools, machining process and Techniques

select and set up the correct tooling and work holding devices

set and adjust the machine operating parameters to produce the work pieces to the required specification. This will involve setting feeds and speeds for roughing and finishing operations

select and use a range of measuring and testing equipment to check components are to the required quality and accuracy

produce complex and specialist components as a one off test and trial work piece and/or producing components in small or large batches

contribute to the business by identifying possible opportunities for improving working practices, processes and/or procedures