

## **Engineering Technician (Machining) Apprenticeship Level 3**

Study Mode: Full Time Programme Component | Course Level: 3

### **Is this course right for me?**

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.

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 behaviours 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.

Engineered and manufactured products and systems that Engineering Technicians work on could involve mechanical, electrical, electronic, electromechanical and fluid power components/systems.

### **Entry Requirements**

Minimum of five GCSEs at Grade A-C (4-9), including maths at minimum Grade B (5) and English at Grade C (4).

### **What will I learn?**

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

## What skills will I gain?

### Core Knowledge & Skills

Engineering Technicians are able to demonstrate:

#### Knowledge

- Understanding the importance of complying with statutory, quality, organisational and health and safety regulations.
- Understanding of general engineering/manufacturing mathematical and scientific principles, methods, techniques, graphical expressions, symbols formulae and calculations used by engineering technicians.
- Understanding the structure, properties and characteristics of common materials used in the sector.
- Understanding the typical problems that may arise within their normal work activities/environment.
- Understanding approved diagnostic methods and techniques used to help solve engineering/manufacturing problems.
- Understanding the importance of only using current approved processes, procedures, documentation and the potential implications for the organisation if this is not adhered to.
- Understanding and interpreting relevant engineering/manufacturing data and documentation in order to complete their job role.
- Understanding the different roles and functions in the organisation and how they interact.
- Understanding why it is important for an organisation to continually review their processes and procedures.

#### Skills

- Obtaining, checking and using the appropriate documentation (such as job instructions, drawings, quality control documentation)
- Working safely at all times, complying with health, safety and environmental legislation, regulations and organisational requirements.
- Planning and where applicable obtaining all the resources required to undertake the work activity
- Undertaking the work activity using the correct processes, procedures and equipment.
- Carrying out the required checks (such as quality, compliance or testing) using the correct procedures, processes and/or equipment.
- Dealing promptly and effectively with engineering/manufacturing problems within the limits of their responsibility using approved diagnostic methods and techniques and report those which cannot be resolved to the appropriate personnel.
- Completing any required documentation using the defined recording systems at the

appropriate stages of the work activity.

- Restoring the work area on completion of the activity and where applicable return any resources and consumables to the appropriate location.

## Behaviours

The required behaviours are:

1. Personal responsibility, resilience and ethics. Comply with health and safety guidance and procedures, be disciplined and have a responsible approach to risk, work diligently at all times, accept responsibility for managing time and workload and stay motivated and committed when facing challenges. Comply with any organisational policies/codes of conduct in relation to ethical compliance.
2. Work effectively in teams. Integrate with the team, support other people, consider implications of their actions on other people and the business.
3. Effective communication and interpersonal skills. open and honest communicator, communicating clearly using appropriate methods, listening to others and have a positive and respectful attitude.
4. Focus on quality and problem solving. Follow instructions and guidance, demonstrates attention to detail, follow a logical approach to problem solving and seek opportunities to improve quality, speed and efficiency.
5. Continuous personal development. Reflect on skills, knowledge and behaviours and seeks opportunities to develop, adapt to different situations, environments or technologies and have a positive attitude to feedback and advice.

## How will I be assessed?

Throughout the programme the apprentice will receive expert training from highly qualified staff A qualified assessor will provide an induction and regular workplace assessments

## What can I do next?

Apprentices can progress to the Engineering Level 4 HNC

## Delivery

**Location:** Work-based & College

**Start Date:** 02/09/2024

**Day:**

**Time:**

**Course Fee:**

**Course Code:** X0017

**Study Mode:** Full Time Programme Component



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