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Apprentice Machinist Level 3 Manufacturing Engineering Apprentice

Job Description:

Definition:

Learning to manufacture or assemble from raw materials using such processes as welding; sawing; pressing; machining and painting.

This may include the setting up of machinery, basic programming and the assembly of a range of components into finished goods across a production line ensuring required standards of quality are met.

This may be part of an apprenticeship scheme which will lead to a qualification or company standard approval process.

Overall Purpose of the Role:

Learn to work to strict safety and quality requirements, help to achieve daily production requirements in terms of quality and quantity, optimizing efficiency and maintaining operational excellence.

Duration:

Typically 42 months – timescales may reduce if an apprentice has prior relevant qualifications/experience.

Key Responsibilities:

General and Task Management:

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, single and multi-axis CNC machine tool centres.

1. They must be able to use and interpret engineering data and documentation such as engineering drawings, technical data and computer-generated programmes.
2. Expected to be able to set up, operate and adjust/edit equipment settings as applicable to the machine tool being used.



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3. When using the CNC equipment be expected to be able to produce, prove and/or edit programmes.
4. During and on completion of the machining operations be expected to measure and check the components being produced and make adjustments to the equipment/programme to ensure components meet the required specification.
5. Able to work with minimum supervision, taking responsibility for the quality and accuracy of the work they undertake.
6. Be proactive in finding solutions to problems and identifying areas for improving the business.

Self-Management:

Modern manufacturing organisations require their apprentices to have a set of behaviours that will ensure success both in their role and in the overall company objectives. The required behaviours are:

1. Safety mind-set: manage self and support others to maintain and contribute to a safe working environment in line with local procedures and National and European requirements.
2. Strong work ethic: motivated, proactive, committed
3. Dependability and responsibility: punctual and reliable
4. Positive attitude: constructive thinking, motivated to succeed
5. Team player: able to work and interact effectively within a team and committed to equality and diversity
6. Effective communication: spoken, listening, body language, presentation, written
7. Adaptability: able to adjust to change
8. Honesty and integrity: truthful, sincere and ethical
9. Self-motivation: self-starter, able to make appropriate decisions and lead their own professional development
10. Personal commitment: prepared to make a personal commitment to the industry

Skills and Attributes:

1. Using mathematical techniques, algebraic expressions, formulae and calculation to understand the machining and manufacturing processes such as speeds and feeds, calculating angles/tapers, material removal
2. Understand the structure, properties and characteristics of common materials used in the manufacture of machined components
3. Understand the practical and theoretical uses of the machines used and their applications



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4. 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
5. Understand the typical problems that can occur during the machining process and how they can be resolved
6. Determine the most efficient and effective approach to machine the component using a range of tools, machining process and techniques
7. Comply with statutory, quality, organisational and health and safety regulations while carrying out manufacturing techniques
8. Read and interpret engineering data: read and interpret engineering drawings, specifications and computer-generated information in order to determine what has to be produced and to what specification
9. Obtain, check and use the appropriate documentation (such as job instructions, drawings, quality control documentation). Obtain, check and use the appropriate materials, tools, equipment and consumables required
10. Select and set up the correct tooling and work holding devices
11. 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
12. Selecting and using a range of measuring and testing equipment to check components are to the required quality and accuracy
13. Business improvement techniques: recommend and contribute to the design and implementation of new or revised manufacturing processes, procedures or ways of working in order to be more efficient and cost effective
14. Produce complex and specialist components as a one-off test and trial work piece and/or producing components in small or large batches
15. Employer tailored skills as required such as undertaking equipment/asset care and/or Preventative Planned Maintenance processes and procedures

Qualifications and Experience Levels:

Candidates will typically have 4 GCSEs at Grade C or equivalent, including Mathematics, English and a Science or need to achieve this level prior to completion of their apprenticeship.

After a period of foundation skills and technical knowledge development all apprentices will be required to achieve the following qualifications:

1. Level 2 Advanced Manufacturing Engineering (Foundation Competence)
2. Level 2 Advanced Manufacturing Engineering (Foundation Technical Knowledge)

After a further period of skills and technical knowledge development all apprentices will be required to achieve the following qualifications:



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1. Level 3 Advanced Manufacturing Engineering (Development Competence)
2. Level 3 Advanced Manufacturing Engineering (Development Technical Knowledge)

All of the qualification requirements in the foundation and development phases are mandatory outcomes for the completion and final certification of the Apprenticeship Standard. Each qualification has a core and options approach and employers will select the most applicable pathway and unit options to meet their business requirements.

There will be an assessment at the end of the development phase where the apprentice will need to demonstrate full competence against the qualification outcomes for knowledge, skills and behaviours set out in the Standard. On successful completion of the employer endorsement phase (sign off) apprentices will be put forward to be awarded their Apprenticeship completion certificate.

Completion of the Apprenticeship is designed to be recognised by relevant Professional Engineering Institutions at the appropriate level of professional registration (Eng Tech).