

ENGINEERING MANUFACTURING TECHNICIAN - LEVEL 4

WHY YOU?

The broad purpose of the occupation is to provide specialist technical support for engineers, so that organisations can develop, produce or test new/existing products, processes, or procedures to meet a customer specification in terms of quality, cost and delivery, as efficiently and effectively as possible. Engineering Manufacturing Technicians gather information and data from a range of sources and analyse the information/data. They will make decisions, solve problems and produce and/or update technical documentation, reports or specifications covering areas such as quality, reliability, production schedules/targets, costing or other technical documentation that informs others, either internally or externally what needs to be done such as how a product must be designed, manufactured, tested, modified, maintained, stored, transported, commissioned or decommissioned.

DURATION: Up to 4 years

Year 1 - full time at Training 2000

OR x6 four week blocks

Foundation Gateway Assessment

Year 2 - 1 day per week

Year 3-4 - assessment in your workplace

TRAINING LOCATION: Blackburn

ENTRY REQUIREMENTS: A minimum of four GCSEs at grade 5 (B) or above including English, Maths, Science and Technology is desirable. Other equivalent qualifications are acceptable.

JOB ROLES INCLUDE: Manufacturing engineer quality, Manufacturing production engineer, Manufacturing procurement engineer, Quality engineer, Costing engineer, Test and commissioning engineer, Installation engineer, Process engineer, Production support engineer

OUR OFFER INCLUDES:

- Training 2000 registration and pass
- Structured delivery programme
- Assessor visits and reviews in your workplace
- Synoptic / end point assessment
- Accredited Health and Safety training
- Awareness training in drugs, financial and driver safety

Successful completion of this Apprenticeship provides you with professional status (EngTech) which will be



understood and sought after by your peers, employers, suppliers, customers and your wider professional network.

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COURSE DETAILS

CORE KNOWLEDGE REQUIREMENTS:

- Problem solving tools/techniques. Such as practical problem solving (PPS), root cause analysis (RCA) and process failure mode effects analysis (PFMEA).
- Effective communication techniques including listening, questioning and support of others.
- Use, benefits and applications of lean methods and tools used in manufacturing and engineering (such as Kaizen, Six Sigma and 8 wastes).
- How Industry 4.0 will impact organisations, including the integration of automation, digital systems and manufacturing engineering systems.
- Quality management systems used such as ISO9001, AS9100, ISO 14001 and TS16949, its purpose and internal governance arrangements to ensure compliance.
- Different manufacturing methods used, their applications, such as machining, joining, forming, assembling, shaping, processing, printing, moulding, extruding and casting)
- Principles of quality control and quality assurance in a manufacturing and engineering environment.
- Team integration techniques, including conflict resolution and managing difficult conversations (team working)
- Core engineering principles such as mathematics, science, mechanical and electrical/electronic applications relevant to manufacturing and engineering activity undertaken
- Importance for individuals to use and follow the organisations approved Standard Operating Procedures (SOP's) and documentation recording systems and the potential implications on safety, quality and delivery if they are not adhered to.
- Statutory and organisation health and safety policies, procedures and regulations that must be adhered to in a manufacturing and engineering environment including the risk assessment process, procedures and documentation used within the work area.
- Project management techniques, such as Strengths, Weaknesses, Opportunities, Threats (SWOT), stakeholder matrices, risk mapping, radar chart and summary risk profiles.
- How human factors (organisational, environment and job factors) can influence and impact individual characteristics, performance and behaviours in the workplace.
- Engineering and manufacturing related documentation used such as job cards /

- build records, 2D & 3D drawing/models, Bill of Materials (BOM), Cost Analysis Reports, Compliance Report, Standard Operating Instructions (SOI's), Standard Process Instructions (POI's), Engineering Query Notifications (EQN's) and Drawing Query Notifications (DQN's).
- Prioritisation of workload/time management techniques to ensure that personal and team objectives are achieved effectively.
- Engineering and manufacturing data collection systems used, their format and content.
- How organisations manage and monitor internal and or supplier performance to ensure that cost, quality, delivery and sustainability objectives are being delivered.
- Use and applications of common metallic and non – metallic materials used in manufacturing and engineering.
- Different production methods used and their applications such as single, batch, flow and mass.
- Different methods, tools and frequency used to check quality in manufacturing and engineering including measurements such as (dimensions, weight, signal, temperature, time,) and testing (such as non-destructive and destructive).
- Departmental process used to create, record and review financial data and information.
- The different applications and limitations of computer based software system/packages used such as Computer Aided Design (CAD), Data Analytics and Databases
- The impact of sustainability and environmental efficiency and how such matters influence manufacturing decisions.

CORE SKILLS REQUIREMENTS:

- Read and extract relevant engineering and manufacturing related data and information (such as workplans/project plans ,schedules, drawings, specifications, production data, quality reports, costing data, statistical information) drawing accurate conclusions and making informed decisions.
- Use project management tools, such as Strengths, Weaknesses, Opportunities, Threats (SWOT), stakeholder matrices, risk mapping, radar chart and summary risk profiles
- Use problem solving tools such as Root Cause Analysis (RCA) Process Failure Modes Effects Analysis (PFMEA), Fishbone, Practical Problem Solving (PPS) and Advanced Product Quality Planning (APQP).
- Analyse and interpret data and information in order to generate manufacturing engineering

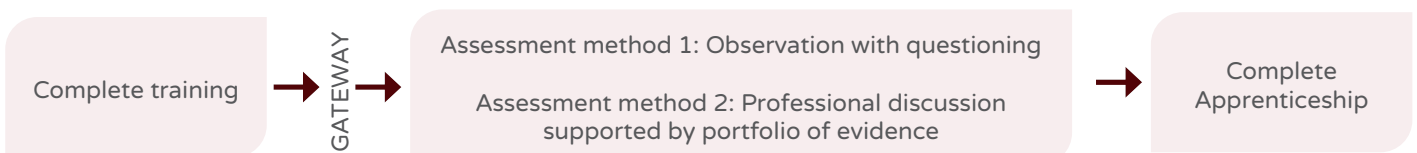
documentation such as Parts Per Million (PPM) quality adherence, cost analysis and test data.

- Communicate using the appropriate method for the audience such as, formal and informal presentations, written reports, verbal, electronic, social media and incorporating relevant and appropriate data and/or metrics.
- Use the approved process and quality compliance procedure to create or amend engineering and/or manufacturing documentation.
- Use lean tools and techniques, such as Six Sigma, 8 Wastes, Workplace organisation such as 5S's (sort, set in order, shine, standardise and sustain), Kaizen and Poka-Yoke (Error proofing),
- Apply documentation control processes and procedures such as format, location, access, authorisation.
- Use financial planning, recording and review processes and documentation such as departmental budgets, estimating, cost control, cost forecasting, and investment appraisal
- Use computer based software system/packages such as Computer Aided Design (CAD), Data Analytics and Databases.

CORE BEHAVIOUR REQUIREMENTS:

- Champions the importance of adherence to the organisation's Environmental, Health and Safety management systems:- actively displays and promotes a safety first culture within the organisation.
- Operates in a systematic, proactive and transparent way.
- Actively promotes the case for the adoption of emerging and advanced engineering and manufacturing technologies to optimise performance.
- Takes full responsibility for own professional development, seeking opportunities to enhance knowledge, skills and experience. Keeping abreast of developments in engineering processes manufacturing and emerging technologies.
- Complies with statutory and organisational health & safety regulations and policies at all times. Accepts responsibility for their workload with a responsible approach to risk. Demonstrates a high level of motivation and resilience when facing challenge.
- Creates and maintains positive, professional, trusting and ethical working relationships with their team and the wider range of internal, external and connected stakeholders.
- Acts professionally with a positive and respectful attitude.

END POINT ASSESSMENT



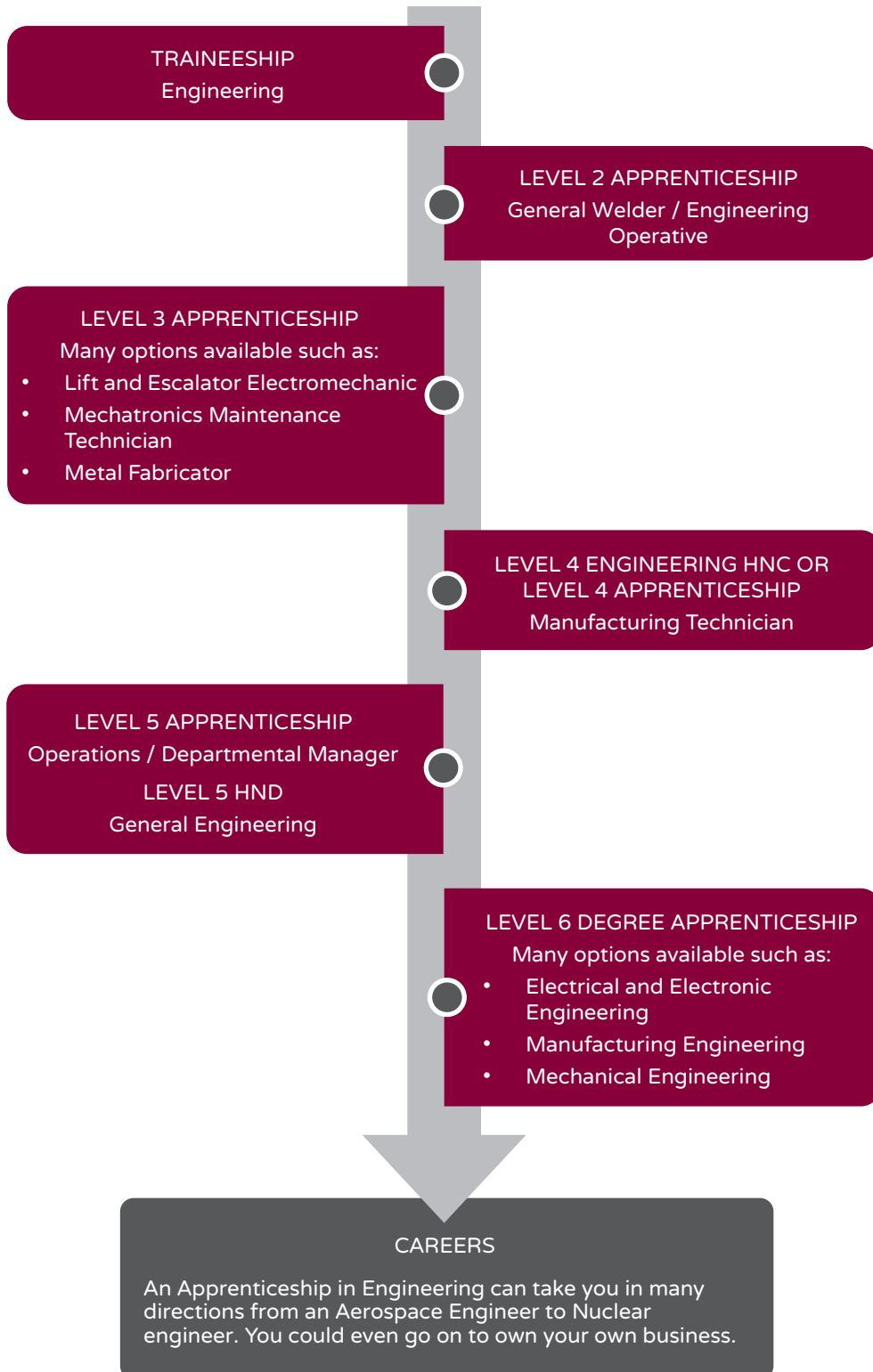
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YOUR APPRENTICESHIP CAREER PATH

Below is an example career path showing how you can progress up to a Level 6 qualification. At the end of every qualification you have the option to leave your education and progress with your career - you don't need to study up to level 6.



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