

Metrology Technician

This is a level 3 Apprenticeship

Occupational Profile:

Metrology is the science of measurement and includes all theoretical and practical aspects of measurement. Measurement underpins the UK economy and international trade. Each year in the UK over £600 billion worth of goods and utilities are sold based on the measurement of their quantity and quality. Metrology takes place across a wide range of industries as diverse as advanced manufacturing, aerospace, automotive, construction, energy, environment, pharma and healthcare and space and within all sizes of organisation. Important measurement activities can range from measuring galaxies to graphene, molecules, chemical pollutants, hip joints, aircraft, industrial emissions, etc.

This important work is carried out by skilled Metrology Technicians who understand core measurement principles and practices and whose role is to interpret and apply these whilst carrying out measurement activities in whichever industry they work. They are also able to identify measurement needs and plan and perform measurement tasks using tools, equipment, instrumentation and software programs. Metrology is vital to improve the quality and throughput of goods and utilities, which in turn is essential to increasing productivity and customer satisfaction.

Metrology Technicians must comply with statutory regulations and health and safety requirements. They will be able to carry out work with minimal supervision, take responsibility for the quality and accuracy of the work they undertake, and will have a high level of attention to detail. The successful apprentice will become a valuable measurement specialist, within their organisation, significantly contributing to the future of the Metrology industry and the UK economy.

Job Roles may include:

All Technicians associated with Measurement Research; Instrument & Equipment Use, Calibration, Test, Inspection & Type approval; Measurement Application in field, Laboratory or Manufacturing; and Quality and Process Support.

Knowledge – the understanding of:

1. The principles of metrology and their application within industry, law, business, science and society, including; measurement units, capability, traceability and uncertainty.
2. Safe working practices and legislation, regulation, industry and organisational policies, procedures and requirements relating to health and safety.
3. The commercial environment in which the organisation operates, the national and international regulations and standards, industry and organisational procedures and requirements relating to metrology codes of conduct and the importance of their application.
4. Quality requirements, assurance, verification, inspection, accreditation, audit systems and processes, why these are important and their role in Metrology.
5. The measuring environment, the potential sources of uncertainty, the impact on data collection, analysis, interpretation and results.
6. The appropriate mathematical techniques including; statistics, process control methodologies, measurement systems analysis, data analysis, trend analysis, algebraic expressions, formulae and calculations required to perform measurement tasks.

Skills – the ability to:

1. Identify measurement needs and make informed decisions about the measurement process and timescales required, including selection of; tools, equipment, instrumentation and software programs.
2. Access and interpret information and documentation to support the measurement process including; data, manuals, specifications, catalogues, calibration certificates and computer-generated information.

3. Prepare the work environment and perform tests and checks on measurement tools, equipment, instrumentation and software programs and determine suitability for use.
4. Take action when non-conforming tools, equipment, instrumentation, materials and software programs have been identified.
5. Plan and perform measurement tasks to ensure verifiable results, using measurement tools, equipment, instrumentation and software programs, following specified procedures and methodologies.
6. Retrieve, analyse, interpret, validate and record measurement results and data in line with specifications.
7. Contribute to the production of records, reports and other measurement documentation.
8. Communicate relevant and specific information through various channels to meet customer requirements.
9. Comply with statutory regulations, national and international standards, industry and organisational procedures and requirements relating to codes of conduct when carrying out measurement tasks.
10. Comply with relevant Health and Safety legislation, regulation, standards, industry and organisational policies and procedures and requirements relating to safe working practices.
11. Comply with policies and procedures relating to the preparation, storage, standards, control and handling of samples, tools, equipment, instrumentation and software programs.

Behaviours:

1. **Focus on quality and maintain concentration** with a high level of attention to detail and accuracy.
2. **Take an analytical approach** to solving problems through systematic monitoring and checking of information to meet industry standards.
3. **Be self-motivated and inquisitive**, being confident to speak up and challenge when appropriate.
4. **Be committed** to learning and continuous improvement.
5. **Work with and respect others** by working flexibly and collaboratively, maintaining effective professional relationships with clear organisational and personal benefits and showing commitment to equality and diversity.
6. **Act professionally, ethically and conscientiously** by adhering to relevant legislation, regulation, standards, organisational procedures and demonstrate accountability and reliability.
7. **Plan and manage time effectively** and prioritise workloads to meet deadlines and customer requirements.
8. **Be commercially aware** and recognise the relevance of efficiency and the need for change to processes and procedures to meet business and customer requirements.

Duration: Typically 36 months, depending on prior qualifications and relevant experience.

Entry Requirements: Individual employers will set the selection criteria for their apprentices. Most candidates will be expected to have achieved grade C or above at GCSE level in English and maths and a relevant science subject, or equivalent prior to the commencement of the apprenticeship. Other relevant or prior experience may also be considered as an alternative.

Qualifications: Apprentices without level 2 in English and maths will need to achieve this level prior to taking the end-point assessment.

Professional Registration: This standard meets the requirements of Registered Engineering Technician (EngTech) and Registered Science Technician (RSciTech). The apprentice will be eligible for registration of EngTech and/or RSciTech on completion of the Apprenticeship.

Review: The Apprenticeship Standard will be reviewed after three years.