

Apprenticeship Standard for: Aerospace Manufacturing Fitter

The following standard reflects employers' requirements for the skills, knowledge and behaviours expected from someone to be competent in the job role.

Designation of Occupation

- Aircraft Manufacture Mechanical
- Aircraft Power Plant Assembly

Duration of Apprenticeship

Minimum of 36 months, average of 42 months - Minimum timescales may reduce if an apprentice is part qualified on entry.

Role Profile

Aerospace manufacturing fitters are predominantly involved in highly skilled, complex and specialist detailed work, assembling aircraft systems according to specific work instructions, using relevant hand and machine tools, jigs and measuring equipment. They must comply with statutory regulations and organisational safety requirements. They must be able to use and interpret engineering data and documentation such as engineering drawings and computer generated printouts. They will be expected to work both individually and as part of a manufacturing team. They will be expected to test and adjust the systems they have installed ensuring individual components and assemblies meet the required specification. The requirements are designed to offer stretch and progression. They will be able to work with minimum supervision, taking responsibility for the quality and accuracy of the work they undertake. They will be proactive in finding solutions to problems and identifying areas for improving the business.

Core Role Requirements (Knowledge & Skills)

- use of mathematical techniques, algebraic expressions, formulae and calculation to understand the theory of flight, aerodynamics and aviation manufacturing processes
- understand the structure, properties and characteristics of materials used in the construction of aero components, sub-assemblies and whole structures
- understand the fundamentals of electrical, electronic and fluid power theory
- reading and interpreting engineering data: reading and interpreting engineering drawings, specifications and computer generated information
- business improvement techniques : designing manufacturing processes to be more efficient and cost effective
- assembly and disassembly of aero components, sub-assemblies and whole systems (new and Service) as required
- measuring and marking out of materials to carry out precision machining and hand fitting processes
- precision drilling and finishing of holes in aircraft assemblies
- complying with statutory, quality, organisational and health and safety regulations while carrying out manufacturing techniques
- safe selection and use of hand and mechanical tools and jigs while carrying out manufacturing procedures
- use of measuring and or test equipment both mechanical and electronic on aircraft assemblies and systems
- application of assembly techniques (mechanical fasteners, welding and bonding techniques)
- sealing and jointing techniques : use of seals, gaskets, and jointing materials
- assembly of pipe work systems for engines and aircraft assemblies
- employer tailored skills as required

Note: In order to articulate the specific level of skills, knowledge and behaviours required to be achieved and assessed to demonstrate full occupational competence in the foundation and development phase of the Apprenticeship. The employers on the trailblazer group have developed a more detailed **Employer Occupational Brief (EOB)**. The brief will inform the awarding organisations of the required elements of both knowledge and vocational skills within this Apprenticeship Standard. It will also provide a clear basis for the development of the assessment of this Apprenticeship and will enable the sector to maintain world class levels of quality and ensure that the credibility and consistency of Apprenticeship outcome is maintained.

Entry

Individual employers will set the selection criteria for their Apprenticeships. In order to optimise success candidates will typically have 4 GCSE's at Grade C or equivalent, including Mathematics, English and a Science. Employers who recruit candidates without English or Maths at Grade C or above must ensure that the candidate achieves this standard prior to the completion of the Apprenticeship.

Expected Employee Behaviours

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:

- **strong work ethic:** motivated; proactive; committed
- **dependability and responsibility:** punctual; reliable;
- **positive attitude:** constructive thinking; optimism; motivated to succeed
- **team player:** able to work and interact effectively within a team and committed to equality & diversity
- **effective communication:** spoken; listening; body language; presentation; written
- **adaptability:** able to adjust to change
- **honesty and integrity:** truthful; sincere and ethical
- **self-motivation:** self-starter; able to make independent decisions and lead their own professional development
- **personal commitment:** prepared to make a personal commitment to the industry

Learning & Training

The learning and training to ensure the apprenticeship standard is met will be in two phases:

The Foundation phase (A sustained period of off-the-job training at level 2 covering three key aspects of training, basic engineering skills, relevant underpinning knowledge and behavioural development.) The basic engineering skills include core or 'mandatory' requirements, together with a range of tailored engineering skills units required to meet the specific needs of individual employers. Academic study will underpin skills development and will form the preparation for achievement of the main academic component. During this time apprentices will develop the appropriate behaviours to support their learning. This phase will culminate in a Gateway Review to ensure a strong foundation of basic skills has been developed.

The development phase (Further Vocational and Academic Learning) will build on the basic skills and knowledge from the Foundation phase and focus on developing further skills capability

End point assessment and sign off

There will be an assessment at the end of the development phase where the apprentice will need to demonstrate full competence against the knowledge, skills and behaviours in this standard. On completion of the employer 'sign off' apprentices will be certified by a recognised industry endorsed third party.

Recognition

The apprenticeship is designed to be recognised by the Institution of Engineering & Technology (IET), The Royal Aeronautical Society and the Institution of Mechanical Engineers at 'Engineering Technician' Level.

Level and Review – This Apprenticeship standard is at level 3 (equivalent to A levels) and will be reviewed in March 2017 to ensure it remains relevant and continues to meet employers' requirements.

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