

Apprenticeship Standard for: Aircraft Maintenance Certifying Engineer (Fixed and Rotary Wing)

The following Standard reflects employers' requirements for the skills, knowledge and behaviours required to be competent in the job role.

Role Profile

An Aircraft Maintenance Certifying Engineer works on maintaining and certifying aircraft of all types from small aeroplanes to airliners, jet fighters and helicopters, both civil and military. They should have a comprehensive knowledge of aircraft systems, carry out approved maintenance processes to maintain and certify the airworthiness of the aircraft. It involves highly skilled, complex and specialist work, maintaining aircraft systems according to approved data and work instructions, using relevant hand tools and equipment. They must comply with civil and or military regulatory and organisational requirements. They must be able to research data sources, ensuring that on completion of a task all aircraft documentation is accurately completed and certified. They must work both individually and as part of a larger team, including carrying out supervisory duties and oversight of work completed. They will demonstrate their ability to identify and resolve problems using the approved data, processes and understand the limits of their authority/approval. They will understand how and why Standard Operating Procedures are produced for maintaining aircraft and the importance of using them. An Aircraft Maintenance Licence will be required to carry out this role.

Role Requirements (Knowledge and Skills)

There are different civil and or military requirements which need a range of options depending upon the employer context.

Core

1. Use of mathematical techniques, algebraic expressions, formulae, calculation and physics to understand the theory of flight, aerodynamics and aviation maintenance processes
2. Understand the structure, properties and characteristics of materials used in the construction, maintenance and repair of aircraft components, whole structures and sub-assemblies
3. Understand the fundamentals of electrical, electronic, digital, analogue, aircraft systems and maintenance practices
4. Read, interpret, explain and suggest improvements to engineering data; drawings, specifications, maintenance manuals, computer generated information and aircraft documentation
5. Safe selection and use of hand and mechanical tools and equipment while carrying out maintenance of aircraft
6. Appropriate bonding and assembly techniques e.g. in composite assembly
7. Complying with and ensuring others comply with statutory military and/ or civil air legislation, quality and organisational requirements for aviation safety and occupational health and safety while carrying out aircraft maintenance techniques
8. Human Factors in aviation – developing an understanding of attitudes and behaviours to ensure aviation safety
9. Use, analyse and interpret the results obtained from test equipment, both mechanical and electronic while carrying out aircraft maintenance activities
10. Undertake and supervise aircraft functional checks and fault diagnosis e.g. electrical bonding and earthing; flight control rigging and adjustment
11. Correct selection, use and training of ground support equipment
12. Inspect, repair, remove and replace aircraft major assemblies, components, sub-assemblies and systems. To include the identification and installation of mechanical fasteners, measuring and marking out and the selection of the correct materials
13. Sealing and jointing techniques: use of seals, gaskets and jointing techniques
14. Precision drilling and finishing of holes in aircraft assemblies
15. Identification, control, repair and prevention of damage, fatigue and corrosion

Employer Selected Options (minimum of 3 options)

Several options are available through the Apprenticeship depending on the context of the employer's business, whether in civil or military aviation, rotary or fixed wing aircraft, line or base maintenance. All routes have core knowledge requirements but practical skills options are likely to differ but are of comparable weighting. Full details of the requirements including core and options, minimum requirements and rules of combination are contained in the **Employer Occupational Brief (EOB) within the Assessment Strategy.**

Employer Selected Options:

1. Maintenance and rectification of aircraft avionics systems
2. Maintenance and rectification of power-plant (piston & turbine engines), propellers & rotors
3. Helicopter systems maintenance and practices
4. Fixed wing systems maintenance and practices
5. Application of business improvement techniques (personal accountability requirements) for working in an airworthiness environment (Maintenance practices)
6. Assembly, repair and replacement of pipe work for aircraft and engine systems
7. Inspect, repair, remove and replace aircraft electrical system wiring and components
8. Select and use appropriate electrical and avionics test equipment

9. Supervision of aircraft flight-line handling operations and/or second line maintenance activities

Role Requirements: Employee Behaviours

Modern maintenance organisations require their employees 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. Strong work ethic: motivated, proactive, committed
2. Dependability and responsibility: punctual, reliable
3. Positive attitude: constructive thinking, motivated to succeed, committed to equality and diversity, environmental, social and economic sustainability, safety mind-set
4. Team player: able to work and interact effectively within a team
5. Effective communication: spoken, listening, body language, presentation, written
6. Adaptability: able to adjust to change
7. Honesty and integrity: truthful, sincere and ethical
8. Self-motivation: self-starter, able to make appropriate decisions and lead their own professional development
9. Personal commitment: prepared to make a personal commitment to the industry
10. **Leadership** To deliver reliable and dependable results in work outputs, quality, work ethics and self-development, as well as encouraging and supporting the development of others
11. **Accountability** To follow the specified company procedures and controls and be responsible for their monitoring review and development
12. **Reflective** To reflect on current and past performance and provide information and recommendations for improvements in planning, delivery of working practices as well as training and development

Entry Requirements

Individual employers will set the selection criteria for their Apprenticeship. In order to optimise success, candidates will typically possess four GCSEs B grade (or equivalent) or above on entry including English, Maths and a Science. Apprentices without Level 2 Maths and English must achieve this prior to taking the end – point assessment.

Duration of Apprenticeship

Typically 48 months, timescales may reduce if an apprentice has prior relevant qualifications/experience.

Qualifications and Development

After a period of foundation skills and technical knowledge development within a protected environment/or under close supervision in the workplace or area, all apprentices will be required to achieve the following qualification (working title - currently in development)

- Level 2 Aerospace and Aviation (Foundation Competence)

After a further period of skills and technical knowledge development all apprentices will be required to achieve the following qualifications/certification (working titles - currently in development)

- Level 4 Aerospace and Aviation (Development Competence)
plus
- Certification against the EASA part 66 modules – B Licence

All of the qualification/certification 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. Further detail can be found in the Employer Occupational Brief which is an annex to the Assessment Plan.

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 and Employer Occupational Brief. On successful completion of the employer endorsement phase (sign off) apprentices will be then be put forward to be awarded their Apprenticeship completion certificate.

Knowledge and vocational qualifications that meet national and/or regulatory requirements will be included on the Certificate.

Recognition

This apprenticeship will be recognised by relevant Professional Engineering Institutions at the appropriate level of professional registration (EngTech). The apprentice will also have made a successful application for an EASA Part 66 category B Licence

Level and Review

This Apprenticeship Standard is at Level 4 (equivalent to Higher National Diploma) and will be reviewed after three years to ensure it continues to meet employers' requirements and provides the basis for progression to higher qualifications and or job roles.

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