

## Leisure and Entertainment Engineering Technician Apprenticeship Standard

### Occupational Profile

The Leisure and Entertainment Sector is an exciting place to be a maintenance engineering technician offering many opportunities not found in other sectors.

The sector is diverse comprising multi-million pound international groups, large UK sites and smaller attractions. Attractions and rides range from hydraulic powered roller coasters, to small merry-go-rounds.

Rides and attractions are increasingly complex pieces of equipment incorporating engineering, virtual and augmented reality, pyrotechnics, aqua and sound. Technicians perform a vital role in maintaining the functionality and safety of these rides and attractions as well as making a major contribution to customer experience.

Leisure and Entertainment Maintenance Engineering Technicians:

- Maximise the benefits of the technology and equipment they work with.
- Deliver engineering activities including; routine maintenance; fault finding and diagnostic; testing and commissioning
- Ensure that maintenance activities contribute to optimising the customer experience and their safety
- Ensure all maintenance activities are conducted safely and comply with the legislation in this potential high-risk sector
- Are responsible for the quality of their own work, ensuring work is completed safely, to the required quality standards and time and budgets constraints.
- Mostly conduct their activities in an outdoor setting (in wind and rain and sun), sometimes at height, often under the scrutiny of customers
- Work autonomously and as part of a teams (e.g. site-based maintenance teams, external equipment installation teams, external non-destructive testing teams)

The role of a Leisure and Entertainment Engineering Technician is comparable to other highly skilled engineering occupations. It covers the breadth of both mechanical and electrical/electronic engineering roles with additional specialisms including pyrotechnics, aqua, sound, and virtual and augmented reality technology.

Their knowledge, skills and behaviours are transferable to other roles across the wider engineering sector.

Companies in the sector employ Mechanical, Electrical and/or Multi-Skilled Maintenance Engineers according to their range of rides and attractions including the following jobs:

♦Engineering Technician♦Maintenance Engineering Technician♦ Electrical Engineering Technician♦ Mechanical Engineering Technician♦ Multi-skilled Engineering Technician♦ Ride Technician♦

**Knowledge:** Leisure and Entertainment Engineering Technicians have a comprehensive understanding of:

1. The Entertainment and Leisure Industry and their role within it
2. Health, Safety and Risk Assessment in the Entertainment and Leisure Sector including Internal Organisation or Standardisation (ISO) 17842 - Safety of amusement rides and amusement devices part 2 operation and use and part 3 requirements for inspection during design, manufacture, operation and use; working at heights and manual handling
3. Analytical and scientific methods for Engineers
4. Instrumentation and Control Principles and Applications
5. Mathematics for Engineering Technicians
6. Principles of attraction/ride maintenance strategy and daily, weekly, monthly, annual preventative maintenance
7. Principles of inspection and fault finding on rides and attractions, including specialist technologies where appropriate
8. Mechanical, Electrical, Electronic and Digital Principles, Processes and Applications
9. Quality Management/Assurance Principles and Safety Management Systems
10. Applications for Pneumatics and Hydraulics
11. Ride and Attraction maintenance processes, principles and applications, including specialist technologies where appropriate
12. Condition Monitoring and Fault Diagnosis
13. Key principles of lean manufacturing business improvement techniques such as 5S (organise work area), PDCA (Plan, Do, Check, Act) and TPM (Total Productive Maintenance)
14. The cultural diversity of customers and the principles of communication and customer service
15. Principles of First Aid and supporting the evacuation of customers

**Skills:** Leisure and Entertainment Engineering Technicians can:

1. Comply with statutory regulations and organisational safety requirements in the Entertainment and Leisure Sector
2. Use and interpret engineering data sources such as manufacturers ride and attraction manuals and documentation such as manuals, drawings, blue prints and specifications
3. Create and maintain clear and concise attraction documentation to support all key processes such as maintenance logs and use of computerised management systems
4. Deliver key performance indicators such as ride and attraction availability using lean manufacturing techniques such as 5S, PDCA and TPM to improve efficiency and effectiveness (and customer experience)
5. Use resources, techniques and obtained facts to undertake complex fault diagnosis/testing, trouble shooting, removing, cleaning/lubrication, inspection, repair and replacement of attraction equipment, taking account of environmental conditions.
6. Apply mathematical techniques to solve attraction/ride engineering problems such as electrical loading and analysis of ride cycle times
7. Plan and prepare for daily, weekly, monthly, annually, maintenance of rides and attractions through a structured and logical process to ensure their safe and efficient operation

8. Support installation, testing and commissioning of attraction/ride equipment
9. Produce replacement components using manual and machine equipment such as queue lines and gating systems
10. Research and source parts for repairs and maintenance. Ensures inventory of parts are on hand for proper and timely maintenance of ride operations
11. Use-maintenance tools such as amp meters, voltmeters, compound gauges and pressure gauges
12. Minimise attraction/ride machinery and equipment downtime by carrying out preventative maintenance (including at heights)
13. Complete confirmation testing and smooth handover of attraction/ride equipment
14. Follow rules, procedures and principles to ensure work completed is fit for purpose with an attention to detail/error checks throughout
15. Communicate clearly, using appropriate verbal and non-verbal communication skills, delivered in a warm, professional, accurate and timely manner which instills confidence in colleagues and in customers

**Behaviours:** Leisure and Entertainment Engineering Technicians demonstrate:

1. Safety mindset	Disciplined and responsible approach to manage, mitigate and avoid risk to themselves, colleagues or the public and strict compliance.
2. Risk awareness	High concentration, the desire to reduce risks.
3. Strong work ethic	Integrity, aims for excellence, time management, acts as an ambassador for their employer and for their occupation.
4. Problem solving	Takes responsibility until a solution is reached, challenges others, works to solve the root cause of problems.
5. Responsibility and resilience	Accepts and seeks responsibility, motivated to succeed and complete work.
6. Team player	Builds and maintains good relationships with others – works well with people from different disciplines to accomplish an activity safely and on time.
7. Customer focused	Culturally aware and able to communicate in warm and professional manner with ride/attraction customers and colleagues
8. Adaptability	Responsive to change, flexibility to changing environment and demands

**Duration of the Apprenticeship.** Typically, 30-36 months.

**Level.** 3

**Entry Requirements.** Individual employers will set the selection criteria for their apprenticeships, typically 5 GCSEs at Grade C or equivalent including English and maths.

**Qualifications.** Apprentices without English or maths at level 2 must achieve this level prior to completing the end-point assessment for this apprenticeship.

**Professional Recognition.** Successful apprentices can apply for Professional registration as an Engineering Technician (EngTech).

**Review.** After 3 years.