

# Level 3 Engineering Maintenance Technician

## Apprenticeship overview

Engineering Maintenance Technicians maintain plant, equipment and systems to optimise operation. As an apprentice, you will conduct planned and preventative maintenance to prevent issues occurring and conduct reactive maintenance when problems occur. For example, responding to breakdowns.

This role can be found in many industries throughout the engineering sector such as energy, leisure entertainment, manufacturing, processing, and utilities companies.

As you progress through this apprenticeship programme, you will choose a pathway to specialise in. At PETA, we offer the Electrical Technician and Mechanical Technician pathways.



## Key programme facts

- **Qualification level:** Level 3
- **Total duration:** 46 Months
- **Practical period:** 42 Months
- **End point assessment:** 4 Months
- **Training Days:** 1 day per week
- **Awarding body:** EAL, Pearson and City & Guilds

## Entry requirements

- Maths & English GCSE at Grade 4 or an equivalent qualification
- An active interest in engineering maintenance

## Potential job roles

- Maintenance Technician
- Electrical Technician
- Mechanical Technician
- Maintenance Support Engineer

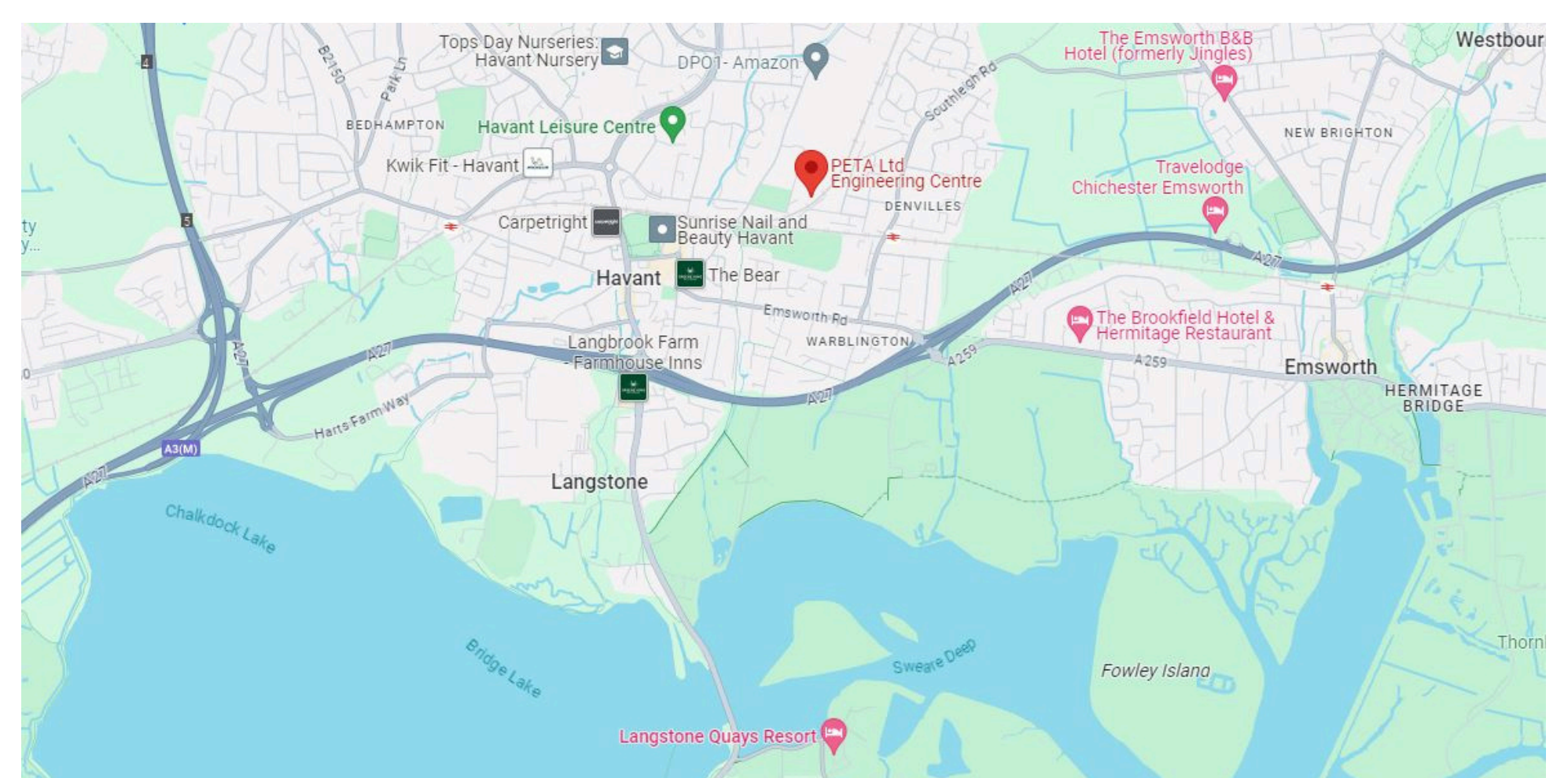
## Qualifications to achieve

- Level 3 Engineering Maintenance Technician
- Level 3 BTEC Diploma in Advanced Manufacturing Engineering
- Level 3 Diploma in Engineering Maintenance

## Training location

### Transport links

- Warblington train station (15-minute walk)
- Havant train station (10-minute walk)
- Havant bus station (15-minute walk)
- Free onsite parking



**PETA Engineering Training Centre**

5 Kenwood Business Park, New Lane, Havant, PO9 2NT



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## How you will learn

As an Engineering Maintenance Technician Apprentice, you will attend PETA's training centre one day per week.

While at our training centre, you will cover a range of different units that will help to develop your knowledge of engineering theory and give you the chance to gain practical hands-on experience in our workshop.

The units you will cover will include engineering maintenance procedures, CAD, fault finding and diagnosis and communications.

Throughout your apprenticeship, you will be supported by a learning and development coach who will visit you every 6-8 weeks in your workplace. They will work closely with you and your employer to set learning objectives, undertake practical observations, and provide you feedback on your apprenticeship progress.

Alongside the training delivered by PETA, your employer will be providing you with a rigorous training schedule to support you in the workplace.



## How you will be assessed

Throughout your apprenticeship, you will be working towards your end point assessment (EPA). Your end point assessment will be conducted by an external examining body and will be made up of three key elements. For the Engineering Maintenance Technician these are:

Workplace observation  
including verbal  
questioning (Duration  
4 hours)

Online multiple choice  
knowledge test

Professional interview  
underpinned by  
portfolio of evidence

These three key elements have been designed to enable you to demonstrate the key knowledge, skills and behaviours you have developed during your training. The possible outcomes of your EPA are Pass, Merit and Distinction.

## Progression routes

Upon completion of this apprenticeship you may be offered the chance for promotion within your current organisation. You could also progress via the apprenticeship route by completing:

- Level 4 Lead Engineering Maintenance Technician Apprenticeship



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Apprenticeships are all about developing new Knowledge, Skills and Behaviours (KSB). These KSBs form the foundation of the core competencies and attributes you need in order to be successful as an Engineering Maintenance Technician

These KSBs are the basis for your end point assessment.

## Core knowledge

K1: Sectors in which engineering maintenance takes place. Impact of sector on maintenance activities.

K2: Maintenance disciplines and functional areas and how they work together.

K3: Individual maintenance technician's roles and responsibilities. Escalation procedures.

K4: Business operation considerations: quality, cost, delivery, and ethical practices.

K5: Planning, prioritisation, organisation, and time management techniques.

K6: Equipment life cycle considerations.

K7: Maintenance strategies: planned preventative maintenance (PPM), condition-based maintenance (CBM), scheduled maintenance, total productive maintenance (TPM), breakdown and run to failure maintenance.

K8: Health and safety regulations – key features and impact on role: ATEX - safety requirements for workplaces and equipment used in explosive atmospheres, Control of Asbestos Regulations, Control of Major Accident Hazards (COMAH) Regulations, Control of Substances Hazardous to Health (COSHH) Regulations, Dangerous Substances and Explosive Atmospheres Regulations (DSEAR), Display Screen Equipment Regulations (DSE), Health and Safety at Work Act (HASAWA), Lifting Operations and Lifting Equipment Regulations (LOLER), Management of Health and Safety at Work, Manual Handling Operations Regulations, Personal Protective Equipment (PPE) at Work Regulations, Provision and Use of Work Equipment Regulations (PUWER), The Reporting of Injuries, Diseases and Dangerous Occurrences Regulations (RIDDOR), Working at Height Regulations, Working in Confined Spaces Regulations, Workplace (health, safety, and welfare) Regulations.

K9: Work environment hazards and risks. Risk assessments.

K10: Safe systems of work.

K11: Personal protective equipment (PPE): selection, use, and care.

K12: Asset security requirements.

K13: Environmental regulations and standards – impact on role: Environmental Management Systems standard, Environmental Protection Act, and Hazardous Waste Regulations.

K14: The UK's net zero commitment.

Principles of sustainability.

K15: Recycling and waste management requirements.

K16: Emergency incident and response procedures.

K17: Algebraic methods. Trigonometric methods and standard formulae to determine areas and volumes. Statistical methods to display data (mean, mode, median).

Elementary calculus techniques: coefficient, gradient of a curve, rate of change.

K18: Properties of engineering materials and impact on use.

K19: Sources of engineering information.

K20: Engineering standards - British (BSI) and International (ISO).

K21: Engineering representations, sketches, drawings, and graphical information conventions.

K22: Quality management systems.

K23: Standard operating procedures (SOPs): what they are and why they are important.

K24: Foreign material exclusion requirements.

K25: Documentation requirements: documentation control, auditable records.

K26: Continuous improvement (CI) systems and techniques.

K27: Team working principles.

K28: Principles of equity, diversity, and inclusion in the workplace.

K29: Verbal communication methods and techniques. Engineering maintenance terminology.

K30: Written communication techniques.

K31: Digital and information technology to support engineering maintenance. General data protection regulation (GDPR). Cyber security.

K32: Industry 4.0 - the integration of physical systems with internet connectivity and cloud computing: technologies, systems, and benefits.

## Core skills

S1: Review and use information. For example, work instructions, drawings, design specifications, and plant configurations.

S3: Identify and organise resources to complete tasks. For example, consumables.

S4: Respond and adapt to work demands. For example, adapt working methods to reflect changes in working environment, re-prioritise workloads to react to breakdowns and fault scenarios.

S5: Identify equipment to work on. Check plant configuration is as defined.

S6: Prepare the work area for maintenance tasks.

S7: Identify environmental and health and safety hazards and risks and apply control measures.

S8: Apply health, safety, and environmental procedures in compliance with regulations, standards, and guidance. For example, signage and barriers, working at height, confined spaces, and COSHH.

S9: Follow security procedures. For example, site access, document classification, and securing assets.

S10: Follow emergency incident and response procedures.

S11: Apply sustainability principles. For example, minimising waste.

S12: Segregate items for reuse, recycling, and waste.

S13: Use mathematical principles and formulae to support engineering maintenance.

S14: Apply engineering maintenance standards and procedures.

S15: Apply foreign material exclusion procedures.

S16: Follow maintenance tools and equipment control procedures. For example, handling and storage.

S17: Reinstate the work area.

S18: Apply team working principles.

S19: Communicate with others to give and receive information. For example, colleagues, customers, and stakeholders.

S20: Escalate issues outside limits of responsibility.

S21: Record information.

S22: Produce or update documents. For example, handover notes and reports.



# Level 3 Engineering Maintenance Technician

S23: Identify and highlight issues (red pen) with technical drawings.

S24: Use digital and information technology. For example, databases, data sharing platforms, email, management information systems, and word processing. Follow cyber security and GDPR requirements.

S25: Apply continuous improvement techniques to identify improvement suggestions.

S26: Carry out and record planned and unplanned learning and development activities.

## Core Behaviours

B1: Prioritise safe working practices. For example, risk aware, minimise risks, and proactively work towards preventing accidents.

B2: Consider sustainability when using resources and carrying out tasks.

B3: Take ownership for the delivery and quality of own work. For example, self-motivated, disciplined in the approach to work tasks, and work carried out in line with standards.

B4: Team-focus to meet work goals and support inclusivity. For example, support others, show respect to others, and create and maintain productive working relationships.

B5: Committed to continued professional development to maintain and enhance competence.

## Electrical Specific

S27: Confirm safe electrical isolation lockout tagout method has been applied and test for dead.

S28: Select, check, and use electrical maintenance tools, measurement, and test equipment.

S29: Use electrical diagnostic equipment and apply fault finding and rectification techniques.

S30: Apply problem solving and critical reasoning techniques.

S31: Inspect and test electrical aspects of plant. For example, visual checks, insulation and continuity checks, thermographic surveys, and voltage levels.

S32: Remove and replace electrical parts.

S33: Prepare and terminate electrical cables.

S34: Set up, align and adjust electrical aspects of plant.

S35: Clean parts. For example, removal of dust and debris.

S36: Conduct and confirm electrical and connected services deisolation.

S37: Conduct functional testing.

K33: Electricity at Work regulations. IET wiring regulations.

K34: Electrical isolation and deisolation requirements: lockout tagout and testing for dead.

K35: Principles of single phase and three-phase equipment, plant, and systems, the operation of motors and generators, and the use of monitoring and protection equipment.

K36: Electrical engineering principles: circuit terminology, Ohm's Law, transformer theory, and power calculations.

K37: Functions and applications of electrical circuits.

K38: Types of diagrams used to represent circuits; symbols and abbreviations used to represent components in electrical schematics.

K39: Different types of cables; their specifications and application.

K40: Cable termination methods.

K41: Electrical plant, equipment, and systems maintenance requirements: removing and replacing parts, inspecting, testing, setting up, adjusting, cleaning, and functional testing.

K42: Electrical maintenance tools, measurement, and test equipment application, operation, care and calibration requirements.

K43: Common electrical plant, equipment, and systems failure modes.

K44: Electrical fault-finding and rectification techniques; diagnostic equipment.

K45: Problem solving and critical reasoning techniques.

## Mechanical Specific

S52: Check and confirm safe isolation of connected services.

S53: Select, check, and use mechanical maintenance tools and equipment.

S54: Use mechanical diagnostic equipment and apply fault finding and rectification techniques.

S55: Apply problem solving and critical reasoning techniques.

S56: Check condition and operation of mechanical aspects of plant and equipment.

S57: Remove and replace mechanical parts.

S58: Examine mechanical parts for defects. For example, pump seals.

S59: Set up, align, and adjust mechanical aspects of plant.

S60: Clean parts. For example, removal of dust and debris.

S61: Lubricate mechanical assemblies.

S62: Confirm electrical and connected services deisolation.

S63: Conduct functional testing.

S64: Apply bench fitting techniques.

K61: Electricity at Work regulations.

K62: Pneumatic and hydraulic system principles: Air compressors, hydraulic pumps, filters, regulators, lubricators.

K63: Mechanical principles, terminology, and calculations: stress, strains, bending moment, heat transfer, fluid dynamics.

K64: Function and application of mechanical elements of plant and equipment.

K65: Different types of mechanical fasteners and their uses.

K66: Types of diagrams used to represent mechanical installations and assemblies; symbols and abbreviations used to represent parts in diagrams.

K67: Isolation and deisolation of connected services: considerations and requirements.

K68: Mechanical maintenance requirements and techniques: removing and replacing parts, inspecting, testing, setting up, adjusting, cleaning, and lubricating.

K69: Mechanical maintenance tools and equipment application, operation, care, and calibration requirements.

K70: Common maintenance problems relating to mechanical aspects of plant and equipment.

K71: Mechanical maintenance fault-finding and rectification techniques; diagnostic equipment.

K72: Problem solving and critical reasoning techniques.

K73: Bench fitting techniques: cutting threads, mechanical fitting, and joining.