Apprenticeship standard: Bus and Coach Engineering Technician

Overview of the role

A Bus and Coach Technician will predominantly inspect, diagnose, repair and test equipment and systems on buses and coaches from different manufacturers. At the point of recruitment a specific trade would be selected, i.e. mechanical, electrical coachbuilder or mechelec (a combination of mechanical and electrical). Engineering technicians work on all systems of the vehicles in respect of their specific trade. The work ranges from performing simple tasks, like replacing a part to solving complex faults often using diagnostic equipment. The tasks faced by a technician are constantly changing as vehicles become more complex with the introduction of new technologies and differing fuel types. The technicians of today have to demonstrate expertise in the technical side of their role as well as having strong problem solving skills. They must be able to work independently and also as part of a team. The growing complexity of the vehicles and the need to understand and comply with the rigorous Health and Safety and Legislative requirements, requires the Bus and Coach sector to attract and train high calibre individuals.

Duration of apprenticeship:

It is expected that it will take three to four years for the apprentice to attain the required level of competence in the workplace although it may be sooner if an individual already has significant training and practical experience.

Entry requirements:

Individual employers will set their own selection criteria for applicants. It is recommended that to optimise chances of selection, candidates demonstrate an interest in how the Bus and Coach Industry operates as well as an ability to work in an organised and methodical way to analyse and solve problems; be able to demonstrate mechanical skills; also demonstrate an ability to communicate both orally and in writing. Apprentices who are recruited without level 2 English and Maths will need to achieve this level prior to completion of their Apprenticeship.

A bus and coach engineering technician will demonstrate knowledge and understanding of the following:

- How to inspect, diagnose and record defects to the applicable standard
- Diagnostic principles based on logical, analytical interpretation leading to solving problems
- Emerging bus and coach technologies and the impact they will have on the knowledge and skills technicians will require in the future
- Current Health and Safety requirements and workshop practices
- How to carry out high quality road worthiness inspections specific to their trade
- How the business works from an operational perspective and where their role fits within the business and how they contribute to the success of the organisation
- Customer expectations delivering a safe, clean, reliable service
- The requirements of attending and assessing roadside incidents

Core skills:

- Carry out the foundation tasks common to all procedures involving basic mechanical and electrical and coachbuilder procedures including: the safe use of hand tools and workshop equipment; safe use of power tools and equipment; the use of mechanical and electronic measuring equipment; test equipment and gauges; basic workshop practices and procedures

relating to working on vehicles and components; assembly processes for mechanical units, electrical circuits and coachbuilding, including various fixing and joining methods.

- Inspect and prepare a vehicle to the required company and DVSA standards to successfully pass the elements of mandated, pre-arranged vehicle tests specific to their trade
- Contribute to the maintenance of a safe and efficient workshop and adhere to company and legislative processes
- Use current and emerging technology to access specific relevant information held within engineering manuals, drawings and electronic resources.
- Carry out planned preventative maintenance and repairs within chosen trade
- Remove repair/replace components in line with manufacturers and company procedures
- Investigate defects reported by drivers and identify the root cause and eliminate recurring defects, relevant to chosen trade
- Maintain records to company and Operators Licence obligations and regulations

A bus and coach engineering technician will select ONE from the following FOUR trade specific roles:

Mechanical	Electrical
• Understand the fundamentals of existing and emerging mechanical vehicle design and systems	• Understand the fundamentals of existing and emerging electrical design and systems
• Carry out routine mechanical servicing, planned preventative maintenance and "health checks	• Carry out routine electrical servicing and planned maintenance . Inspect, diagnose and repair electrical circuits and wiring
• Carry out routine servicing	• Interrogate wiring diagrams. Identify components, current flow and circuit protection
• Inspect, diagnose and repair braking systems	• Inspect, diagnose and repair electrical charging systems and electrical power storage devices and systems
• Inspect, diagnose and repair steering systems	• Inspect, diagnose and repair electrical charging systems, battery storage and electrical drive systems
• Inspect, diagnose and repair suspension systems	
• Inspect, diagnose and repair engine, fuel coolant and exhaust systems	• Inspect, diagnose and repair engine, transmission and other vehicle control management systems
• Inspect, diagnose and repair transmission and retarder systems	• Inspect, diagnose and repair on board auxiliary systems
• Use diagnostic equipment and software to diagnose and rectify located faults on mechanical components	• Inspect , diagnose and repair electronic, digital and programmable control systems
• Use accumulated knowledge and apply initiative to rectify intermittent faults	• Use diagnostic equipment and software to check Multiplex control systems and rectify component system faults

Coach Builder	Mechelec
• Understand the fundamentals of existing and emerging coach building design and systems	• Understand the fundamentals of existing and emerging mechanical and electrical design and systems
• Carry out routine safety inspections	• Carry out routine safety inspections
• Manufacture, repair and fit body parts, panels and body fixings access panels	• Carry out routine mechanical and electrical servicing, planned preventative maintenance and " health checks"
• Manufacture, repair and fit body structural components	• Inspect, diagnose and repair mechanical systems, engine, fuel, coolant and transmission systems
• Undertake repairs or complete fabrication processes using Gas, Mig or Tig welding	• Identify with accumulated knowledge and apply initiative to rectify intermittent faults
• Carry out Fibre Glass or GRP (Glass Reinforced Plastics) repairs to body components	• Inspect, diagnose and repair electrical systems, electrical circuits, electrical units and components
• Repair interior trim materials and components	• Inspect, diagnose and repair on board auxiliary systems, battery charging and electronic drive systems
• Remove and replace bonded and gasket glazing	• Use diagnostic equipment and software to locate, diagnose and rectify faults on mechanical and electrical components
• Work with and repair new and emerging materials	• Use diagnostic equipment to interrogate electronic control units and programmable control systems
• Use specialist body repair equipment, preparation and finishing processes, including painting	

Required behaviours to achieve the following in the workplace:

- Communicate effectively with colleagues, manufacturers and suppliers on a range of topics that will support the process of inspecting, diagnosing, repairing and testing of faults.
- Behave in accordance with the values of the employer; treat customers and stakeholders with courtesy and respond quickly to their requirements.
- Operate as an effective team member taking responsibility, accountability and ownership of own actions.
- Continually develop knowledge and skills and mentor less experienced colleagues.
- Have a strong work ethic and understand the need to be reliable, flexible, diligent and a good timekeeper

Progression, Qualification and Professional Body: This standard has been designed to meet the professional standards of the relevant professional bodies of the Engineering Council. On completion of the standard the Engineering Technician will be eligible to apply for registration as an Engineering Technician with a relevant professional body. On achievement of the standard, candidates will have the opportunity to progress to Master Technician, management or to develop in their current role.

Standard review: The apprenticeship should be reviewed after 3 years

This apprenticeship is set at level 3