Bradford College
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Diagnosis and Rectification of Faults in Electric and Hybrid Vehicles

Subject Area	Automotive & Motor Vehicle
Course Type	Adult
Study Level	Level 4
Delivery Mode	Part-time
Duration	3 Days
Start Date	September 2025 (+ more)
Course Code	PA000403

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Course Summary

The global sales of hybrid and electric vehicles are growing rapidly, with projections predicting they will make up 58% of new car sales by 2040. As a result, there is an increasing demand for mechanics with specialized skills to service and repair these advanced vehicles.

This City and Guilds Level 4 Award provides in-depth training for professionals seeking to specialize in the diagnosis and rectification of faults in electric and hybrid vehicles (EVs and HVs). The course is designed to equip learners with the advanced skills and knowledge necessary to maintain, troubleshoot, and repair the complex systems in electric and hybrid vehicles, including high-voltage electrical circuits, powertrains, and battery technologies.

What You Will Learn

By the end of the course, learners will be able to:

- Understand Electric and Hybrid Vehicle Systems – Gain an understanding of the components, systems, and technologies used in electric and hybrid vehicles, including electric motors, batteries, inverters, charging systems, and regenerative braking systems.
- Safety Procedures and Legislation – Learn the critical safety standards and protocols when working with high-voltage systems in EVs and HVs, including personal protective equipment (PPE), isolation procedures, and legal requirements.
- Diagnose Faults in EV and HV Systems – Develop diagnostic skills to identify faults within electrical, mechanical, and software components, with the ability to use specialized diagnostic tools and equipment.
- Fault Rectification Techniques – Master techniques for repairing or replacing faulty components, including working with battery packs, power electronics, and motor drives.
- System Integration and Testing – Understand how the various systems in EVs and HVs integrate, and learn the processes for testing and validating repairs to ensure safety and functionality.
- Keeping up-to-date with Emerging Technologies – Stay informed about the latest advancements in EV and HV technologies, including wireless charging, autonomous driving integration, and next-generation battery technologies.

Modules

1. Introduction to Electric and Hybrid Vehicle Technologies
2. Safety and Legislation for High-Voltage Systems
3. Diagnostics and Fault Finding in EV and HV Systems
4. Component Testing and Fault Rectification
5. Battery Technologies and Repair Methods
6. Repairing and Replacing Electric Motors and Power Electronics
7. Use of Advanced Diagnostic Tools and Equipment
8. Practical Case Studies and Scenarios

Entry Requirements

Learners must hold a Level 3 qualification in high voltage Electric Vehicles.

Work Experience

This qualification allows learners to develop and practice the skills required for employment and/or career progression in the repair and diagnosis of high voltage system

faults in electric vehicles.

Progression

This qualification will allow you to progress on to employment and/or career progression in the EV sector.