



PERTECNCA'S

# CAR ELECTRICAL & ELECTRONICS SYSTEMS REPAIR TRAINING BROCHURE



Practical training



Post training assistance

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# **CAR ELECTRICAL & ELECTRONIC SYSTEM REPAIR TRAINING**

The Car Electrical & Electronics Systems Repair Training is designed for individuals seeking to develop a deep understanding of modern vehicle electrical systems. From basic wiring to complex electronics and onboard diagnostics, this course provides both theoretical knowledge and practical skills. Participants will learn how to diagnose and repair electrical faults, maintain vehicle electronics, and work with hybrid and electric vehicle systems. This training is suitable for aspiring automotive electricians, technicians, and those wanting to upgrade their skill set in automotive repair.

## **What you'll learn?**

- Understanding of automotive wiring diagrams and schematics.
- Diagnostic techniques for vehicle electrical systems.
- Repair and maintenance of batteries, alternators, and starters.
- Diagnosis and repair of ECU and sensor-based systems.
- Working with automotive lighting, infotainment, and HVAC systems.
- Handling electric and hybrid vehicle electrical systems.
- Using advanced diagnostic tools for fault detection.
- Safety protocols when working with high-voltage systems in modern cars.

## **Course summary:**

This course offers comprehensive training on electrical and electronics systems in vehicles. Participants will develop the technical skills required to troubleshoot, repair, and maintain the electrical components of cars, including wiring, batteries, sensors, and onboard computers. Additionally, the course covers hybrid and electric vehicles, making participants proficient in modern automotive technologies.

## **Key Takeaways:**

- Proficiency in diagnosing electrical issues using modern diagnostic tools.
- Hands-on experience with vehicle wiring, sensors, and ECU systems.
- Advanced knowledge of hybrid and electric vehicle systems.

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# Course syllabus:

## **Module 1: Introduction to Automotive Electrical Systems**

- Basics of vehicle wiring and circuits.
- Reading automotive wiring diagrams.
- Overview of vehicle electrical components.

## **Module 2: Batteries, Alternators, and Charging Systems**

- Battery maintenance and troubleshooting.
- Alternator testing and repairs.
- Charging system diagnostics.

## **Module 3: Starters and Ignition Systems**

- Starter motor repair and maintenance.
- Diagnosing ignition system issues.
- Keyless entry and remote ignition troubleshooting.

## **Module 4: Sensors, Actuators, and ECU Systems**

- Sensor testing and replacement.
- ECU fault diagnostics and repairs.
- Wiring harness repair techniques.

## **Module 5: Lighting and Infotainment Systems**

- Troubleshooting and repairing lighting systems.
- Working with infotainment and in-car electronics.
- Diagnosis of climate control and HVAC systems.

## **Module 6: Hybrid and Electric Vehicle Electrical Systems**

- Introduction to hybrid and electric vehicle technologies.
- High-voltage battery systems diagnostics.
- Electric motor repair and maintenance.

## **Module 7: Onboard Diagnostics (OBD) and Scan Tools**

- Using OBD scanners for fault detection.
- Advanced diagnostics with OEM diagnostic tools.
- Live data reading and interpretation.

## **Module 8: High-Voltage Safety and Electrical Testing**

- Safety protocols for high-voltage systems.
- Testing hybrid and electric vehicle systems.
- Personal protective equipment (PPE) for electric vehicle repairs.

## **Module 9: Advanced Troubleshooting Techniques**

- Electrical fault isolation techniques.
- Hands-on case studies and fault-finding.
- Repairing complex vehicle electrical failures.

## **Module 10: Industry Standards and Best Practices**

- Automotive electrical standards and regulations.
- Calibration and resetting vehicle systems.
- Best practices for long-term vehicle electrical maintenance.

## **Module 11: Evaluation & Certification**

- Comprehensive assessment of theoretical and practical knowledge.
- Written exams covering electric bike repair and maintenance.
- Practical exams involving diagnostic and repair tasks.
- Certification awarded upon successful course completion.
- Career guidance and industry opportunities.

## **Practical training:**

- Real-time diagnostics using automotive scanning tools.
- Hands-on practice with wiring harness repair and circuit tracing.
- Testing and troubleshooting alternators, batteries, and charging systems.
- Sensor, actuator, and ECU diagnostics and repairs.
- Fault-finding in lighting systems, infotainment, and climate control units.
- Advanced troubleshooting of hybrid and electric vehicle systems.
- Practical work on high-voltage systems and electric motors.
- Calibration and resetting of vehicle control modules.

## **Career scope:**

Upon completing the Car electrical & electronics systems repair training course, graduates can explore career opportunities in various sectors, including:

- Automotive Electrician in car service centers.
- Auto Electrician Technician for car dealerships.
- Specialist in hybrid and electric vehicle repair.
- Vehicle Electronics Diagnostic Specialist.
- Electrical Systems Expert for transportation companies.
- Self-employed automotive electrician.
- Technician for high-voltage system repair in electric cars.
- Vehicle ECU and onboard computer repair specialist.
- Workshop manager specializing in electrical repairs.
- Diagnostic tool operator in modern automotive repair shops.



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