PERTECNCA'S

ENGINE DIAGNOSTICS TRAINING BROCHURE

- Practical training
- Post training assistance

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ENGINE DIAGNOSTICS TRAINING

The Engine Diagnostics Training Program is designed to equip participants with the skills and knowledge required to accurately diagnose and troubleshoot engine issues in various vehicles and machinery. This course is ideal for automotive technicians, mechanics, and anyone interested in mastering the art of engine diagnostics. Participants will learn how to use diagnostic tools, interpret data, and identify problems with engine components and systems.

What you'll learn?

- Fundamentals of engine operation and diagnostic procedures.
- Use of diagnostic tools and equipment.
- Techniques for reading and interpreting diagnostic codes.
- Identifying and troubleshooting common engine problems.
- Analyzing engine performance data.
- Advanced diagnostic techniques for modern engines.
- Safety protocols during engine diagnostics.
- Best practices for documenting and reporting diagnostic findings.

Course summary:

This comprehensive training program focuses on the principles and practices of engine diagnostics. Through a blend of theoretical knowledge and practical training, participants will gain expertise in diagnosing a wide range of engine issues. The course covers both traditional and modern engine systems, providing the skills necessary to work with contemporary vehicles and machinery.

Key Takeaways:

- Proficiency in using diagnostic tools and interpreting results.
- Ability to troubleshoot and resolve common engine issues.
- Understanding of advanced diagnostic techniques for modern engines.
- Hands-on experience with real-world engine diagnostics.
- Preparedness for roles as engine diagnostic technicians or automotive mechanics.

Course syllabus:

Module 1: Introduction to Engine Diagnostics

- Overview of engine types: gasoline, diesel, hybrid, and electric.
- Basic principles of engine operation and their diagnostic implications.
- Introduction to diagnostic procedures and tools.
- Safety considerations during engine diagnostics.

Module 2: Diagnostic Tools and Equipment

- Types of diagnostic tools: OBD scanners, multimeters, and oscilloscopes.
- How to use diagnostic tools for engine analysis.
- Calibration and maintenance of diagnostic equipment.
- Practical session: using diagnostic tools on various engine types.

Module 3: Understanding Diagnostic Codes

- Explanation of OBD (On-Board Diagnostics) codes and their meanings.
- Techniques for reading and interpreting fault codes.
- Common diagnostic codes and their associated problems.
- Case studies on diagnostic code interpretation in real-world scenarios.

Module 4: Troubleshooting Common Engine Problems

- Identifying symptoms of engine problems: misfires, rough idling, and power loss.
- Techniques for diagnosing issues with fuel, ignition, and exhaust systems.
- Practical session: troubleshooting engine issues in different vehicles.
- Project: diagnosing and resolving a series of engine problems.

Module 5: Engine Performance Data Analysis

- Techniques for analyzing data from engine sensors and systems.
- Understanding the role of fuel trims, oxygen sensors, and MAF sensors in diagnostics.
- Practical session: interpreting performance data and identifying potential issues.
- Project: performance analysis of an engine under various operating conditions.

Module 6: Advanced Diagnostic Techniques

- Diagnostic challenges in modern engines: hybrid, turbocharged, and direct injection systems.
- Use of oscilloscopes and advanced diagnostic tools for in-depth analysis.
- Techniques for diagnosing complex issues in modern vehicles.
- Practical session: advanced diagnostics on modern engine systems.

Module 7: Safety Standards and Compliance

- Industry safety standards for engine diagnostics.
- Safe handling of diagnostic tools and equipment.
- Emergency procedures during diagnostic operations.
- Compliance with environmental and safety regulations in diagnostics.

Module 8: Practical Fieldwork and Real-World Projects

- Hands-on project: performing diagnostics on a range of vehicles and machinery.
- Fieldwork: participation in diagnostic projects in automotive repair shops.
- Real-world scenarios: handling diagnostic challenges in live environments.
- Collaboration with industry professionals on field diagnostics projects.

Module 9: Documentation and Reporting

- Best practices for documenting diagnostic procedures and findings.
- Techniques for writing clear and concise diagnostic reports.
- Practical session: creating and reviewing diagnostic reports.
- Case studies on effective communication of diagnostic results to clients and team members.

Module 10: Evaluation and Certification

- Comprehensive assessment of theoretical knowledge and practical skills.
- Written exams covering engine diagnostics principles and procedures.
- Practical exams on real-world diagnostic tasks.
- Certification upon successful completion of the course.
- Opportunities for advanced training and specialization.

Practical training:

- Diagnostic Tool Operation: Hands-on training with diagnostic scanners and multimeters.
- Code Interpretation: Practical sessions on reading and interpreting engine fault codes.
- Troubleshooting Engine Issues: Real-world exercises in identifying and resolving engine problems.
- Engine Performance Analysis: Techniques for analyzing data from engine sensors and systems.
- Advanced Diagnostics: Practical application of advanced diagnostic techniques for modern engines.
- Safety Practices: Implementation of safety protocols during diagnostics.
- Documentation: Best practices for recording and reporting diagnostic findings.
- Field Projects: Participation in diagnostic projects in automotive workshops.

Career scope:

Upon completing the Engine diagnostics training course, graduates can explore career opportunities in various sectors, including:

- Automotive Diagnostic Technician
- Engine Mechanic
- Vehicle Maintenance Specialist
- Heavy Machinery Mechanic
- Fleet Maintenance Technician
- Automotive Service Advisor
- Engine Rebuilding Technician
- Performance Tuning Specialist
- Automotive Repair Shop Manager
- Field Service Technician