

Course: Automotive Diagnostic - A Practical Approach

Contact Hours: 30

Pre-requisite: Basic Automotive Knowledge

Abstract

This 10 weeks, 30 contact hours course is designed to equip all automotive technicians and enthusiasts with the skills and knowledge to consistently be able to diagnose vehicle's electrical and/or driveability faults. Using basic and advanced automotive tools, techniques and software to understand how things work on a vehicle.

Target Audience

- Automotive technicians, mechanics
- DIYers that are looking to enhance their diagnostic skills
- Aspiring mechanics and automotive enthusiasts
- Service managers, dealership technicians and technical support staff in the automotive industry

COURSE OBJECTIVES

- Develop a solid foundation and understanding of automotive diagnostic procedures and process
- Learn how to use various diagnostic tools and equipment effectively
- Understand how to interpret diagnostic trouble codes and data to efficiently diagnose vehicle faults
- Gain insight to common issues within the modern vehicles (electrical, engine, transmission, communication network and emission systems)
- Apply diagnostics skills to identify and troubleshoot real world automotive faults

Course Content

1. Day 1: Introduction to Automotive Diagnostics

- a. The evolution of vehicle systems: Engine, transmission, electrical, Emissions, HD, Agricultural, Hybrid, PHEV
- b. Diagnostics roles within the automotive industry
- c. The importance of Safety within the industry

2. Day 2: Understanding what a diagnostic process is

- a. Basic electrical theory that is used in the automotive field
- b. Understanding and Applying Voltage Drop testing

3. Day 3: Diagnostic tools and equipment used within the automotive industry

- a. Modern diagnostic tools and equipment used within the automotive industry
- b. Types of scan tools and functions
- c. The importance of having the correct tools for the job
- d. Various diagnostics tool demonstration

4. Day 4: Interpreting diagnostic trouble codes

- a. Type of DTCs
- b. How to interpret what the scan tool is saying
- c. Applying a schematic process to locating the vehicle fault
- d. Using scan data and codes to trouble shoot

5. Day 5: Understanding the importance of service information

- a. Using service information and data to diagnose
- b. Understanding manufacturer flow chart
- c. Obtaining and using Technical Service Bulletin (TSB)
- d. Understanding what a wiring diagram is and how it is used to diagnose a vehicle

6. Day 6: Using scan data to trouble shoot vehicle

- a. Diagnose crank/No start
- b. Using faults within the system to diagnose a vehicle
- c. Understanding how to diagnose a No Start using FACTS

7. Day 7: Diagnosing from the driver's seat

- a. The importance of using Fuel Trims to diagnose a vehicle
- b. Discovering the root cause of driveability issues
- c. Understanding how the inputs affect the output on a vehicle

8. Day 8: Type of misfires

- a. Diagnostic procedures for engine related issues
- b. Understanding various types of misfires on Petrol, Diesel and Hybrid vehicles

9. Day 9: Understanding what the engineers and manufactures are thinking

- a. Understanding various strategies
- b. What is Controller Area Network Bus (CAN Bus)
- c. Finding and solving communication network faults

10. Day 10: Introduction to oscilloscope

- a. Oscilloscope place within the automotive industry
- b. Oscilloscope capabilities and features
- c. Oscilloscope accessories functions