

AUT 111 : COMPUTERIZED ENGINE CONTROLS

Transcript title

Computerized Engine Controls

Credits

5

Grade mode

Standard letter grades

Contact hours total

110

Lecture hours

20

Lab hours

90

Prerequisites

AUT 205.

Description

Studies advanced electrical systems found on late-model vehicles. Provides solid understanding of computerized automotive engine control systems and how they operate and the ability to diagnose, troubleshoot and repair computerized engine control systems.

Learning outcomes

1. Perform a thorough pre-diagnostic engine inspection.
2. Analyze vehicle performance with the On Board Diagnostic Systems.
3. Measure parameters of all input and output devices used within a computerized engine control system.
4. Analyze, diagnose, and repair computer-controlled engine systems using frequency, pulse width, voltage, resistance, current, and duty cycle to interpret engine control systems in relationship to time; engine speed; and air temperature, pressure, and volume.
5. Demonstrate safety standards in all work within and automotive shop environment and specifically with computer controls.

Content outline

1. A Review of Electricity and Electronics
2. Computers on Cars
3. Common Components For Computerized Control Systems
5. Common Operating Principles for Computerized ECS
6. Diagnostic Concepts and Diagnostic Equipment
7. Exhaust Gas Analysis
8. Understanding OBD-II
9. Multiplexing Concepts
10. Hybrid and Electric Vehicles
11. Modern Systems
12. Approach to Diagnostics
13. General Motors Electronic Engine Controls
14. Ford's Electronic Engine Controls
15. Chrysler Corporation Fuel Injection Systems

16. Bosch Engine Control Systems
17. Asian Computer Control Systems

Required materials

Requires textbook and special gear; see syllabus for details.