

Course Syllabus

A8 Engine Performance

A Secondary-Level Course for Students Interested in Careers

Related to Automotive Brakes

This course links occupational and academic pedagogy and is built on Integrated Curriculum

Standards. These standards incorporate state and national academic, occupational, and employability standards.

XII. Outline of Course Content

1) Spark Ignition Engine Basics

- a) Basic Engine Operation
 - i) Chemical bonding and reactions
 - ii) Mathematical formulas
 - iii) Thermodynamics
 - iv) Gas laws
 - v) Basic Physics and Mechanics
- b) Fuel Delivery System
 - i) Components and Operation
 - ii) Fuel Flow
 - iii) Safety
 - iv) General housekeeping

2) General Engine Diagnosis

- a) Engine Diagnosis
 - i) Inspection
 - ii) Diagnosis
- b) Engine Related Service
 - i) Inspection

3) Emission Systems

- a) Emission Components
 - i) Engine Performance
 - b) Diagnosis and Repair
 - i) Inspection
 - ii) Diagnosis

4) Electronic Engine Controls

- a) Microprocessor components and functions
 - i) Voltage signals
 - ii) Data communication and measurement tools
- b) Microprocessor Input Sensors
 - i) Solid-state devices
 - ii) Digital circuits
 - iii) Schematics, charts, and graphs
- iv) Inspection
- v) Diagnosis
- c) Microprocessor Output Sensors
 - i) Solid-state devices
 - ii) Digital circuits
- d) OBD II Diagnosis and Repair
 - i) Problem Solving/Decision Making
 - ii) Scientific Method
 - iii) Reference materials
 - iv) Inspection
 - v) Blueprints and diagrams

5) Ignition Systems

- a) Electronic Ignition Systems
- b) Ignition System Diagnosis and Repair
- 6) Working with Others/Mentor Unit
 - a) Self-Management in the Workplace
 - i) Teamwork
 - ii) Communication
 - iii) Self-Expression
 - iv) Knowledge of self-concept
 - v) Career decision-making skills
 - vi) Career planning
 - b) Workforce entry
 - i) Work Journal
 - ii) Upgrading Skills
 - iii) Task Lists
 - iv) Documentation