

# **AUTO 161**

## **Automotive Propulsion Systems**

5 Credits: 3 Lecture, 6 Lab hours

Community College of Baltimore County  
Common Course Outline

### **Description**

**AUTO 161 – Automotive Propulsion Systems:** introduces diagnosis and repair of automotive electronic systems and components. Topics include diagnosis, inspection, disassembly, and repair of electronic components such as computerized engine control, electronic ignition, fuel injection, high-voltage systems, and other electronic accessories.

**Pre-requisites:** AUTO 151

### **Overall Course Objectives**

Upon completion of this course, students will be able to:

1. diagnose engine mechanical, electrical, electronic, fuel, and ignition problems with an oscilloscope and engine diagnostic equipment and determine needed action;
2. retrieve and record stored diagnostic trouble codes;
3. inspect, test, and replace computerized powertrain control system sensors, powertrain control module (PCM), actuators, and circuits;
4. diagnose no start, drivability, and emissions problems on vehicles;
5. inspect and test mechanical and electrical fuel pumps and pump control system and replace as needed, inspect and test fuel pressure regulation system and components of injection-type fuel systems and adjust or replace as needed, inspect and test fuel injectors and clean or replace;
6. understand high-voltage system operation;
7. understand high-voltage battery construction;
8. perform the operation, diagnosis and repair of advanced driver safety systems;
9. understand the introduction to automotive networking and communication systems; and
10. perform all required Automotive Service Excellence (ASE) Education Foundation tasks from the ASE master course list.

### **Major Topics**

- I. Theory and operation of the internal combustion engine
- II. Theory and operation of automotive computer systems
- III. Fuel systems controls and operation
- IV. Ignition systems controls and operation
- V. Exhaust systems controls and treatment

### **Course Requirements**

The Common Course Outline (CCO) determines the essential nature of each course.  
For more information, see your professor's syllabus.

Grading will be determined by the individual faculty member, but shall include the following, at minimum:

- three quizzes
- weekly lab projects
- research paper (6-8 pages typed) or obtain the ASE Professional Certification
- three homework assignments
- active engagement in class activities
- one midterm exam
- one comprehensive final exam with a written component and a hands-on individual assessment

Written assignments and research projects: Students are required to use appropriate academic resources in their research and cite sources according to the style selected by their professor.

### **Other Course Information**

This class combines lab with lecture and students apply knowledge learned in a hands-on environment.

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