

AUTO 100

Introduction to Automotive Technology

5 Credits: 3 Lecture, 4 Lab hours

Community College of Baltimore County
Common Course Outline

Description

AUTO 100 – Introduction to Automotive Technology: is a course in which students are introduced to automotive technology, service, and light repair. Topics covered include the utilization of online information systems, hazardous material handling, tools and equipment, vehicle safety, vehicle hoisting, multipoint vehicle inspection, and vehicle maintenance and light repair.

Pre-requisites: ESOL 052 and ESOL 100

Overall Course Objectives

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

1. summarize the required CCBC code of conduct and shop safety rules and the philosophy behind each rule and regulation;
2. identify all components of a safety data sheet and explain proper handling and disposal of various hazardous chemicals;
3. write repair orders and inspection forms which include labor time, parts cost, and parts markup;
4. locate general service information, service bulletins, and/or campaigns using an online information system;
5. interpret the meaning of diagnostic trouble codes using an online information system;
6. research proper repair procedures using an online information system and effectively apply the information in a shop environment;
7. identify hybrid system circuits;
8. employ proper procedures when working around hybrid circuits;
9. locate the high voltage disconnect for hybrid systems;
10. demonstrate lifting a vehicle on an industry-standard vehicle lift using proper lift points and applying necessary safety procedures;
11. distinguish various hand tools and describe their purpose;
12. identify various types of torque wrenches and demonstrate fastener torque procedures;
13. measure various automotive-related objects using precision measuring tools and record their findings;
14. translate vehicle emissions, powertrain, and other options related to the types of drivetrain;
15. evaluate and determine the appropriate operation and repair for systems such as windshield wipers, washer systems, the exterior lighting system, the horn, the parking brake system, and the clutch system;

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16. inspect and recommend the appropriate service and repair for components such as engine air filter, battery, driveline components, steering components, exhaust system, drive/serpentine belt(s), and fluid conditions;
17. perform a drain, fill, and purge of the cooling the system;
18. change the fluid in manual and automatic transmissions following proper procedures;
19. service differentials and transfer cases using proper procedures;
20. perform an oil and filter change following manufacturer's procedures;
21. identify various tire markings and explain their meanings;
22. measure tire tread depth;
23. assess tire condition and inflate tires using proper procedures;
24. rotate tires and torque lug nuts using the manufacturer's recommended torque and installation procedures;
25. identify disc and drum braking systems;
26. measure brake pad and/or brake shoe lining thickness using proper procedures;
27. inspect braking system for internal and external fluid leakage and recommend appropriate repairs;
28. understand basic high-voltage electric vehicle safety
29. identify steps for recovery and recycling of refrigerant
30. perform manufacturer recommended basic services; and
31. perform all required Automotive Service Excellence (ASE) Education Foundation tasks from the ASE master course list.

Major Topics

- I. Online automotive information systems
- II. Hazardous material handling
- III. Tools and equipment
 - a. Hand tool identification and usage
 - b. Using torque instruments
 - c. Testing using industry-standard battery charger/analyzer (GR8) or equivalent
- IV. Vehicle safety
- V. Vehicle lifting
- VI. Vehicle inspection
 - a. Tire inspection
 - b. Brake inspection
 - c. Safety inspection
- VII. Vehicle maintenance and light repair

Course Requirements

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

- three quizzes
- weekly lab projects
- three homework assignments
- active engagement in class activities
- one midterm exam
- completion of AC Refrigerant Recovery Certification

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- one comprehensive final exam with a written component and a hands-on individual assessment

Other Course Information

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

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