

Course Outline
AUTO 141
Servicing Automotive Engines – Related Systems
5 Credit Hours
3 Lecture Hours
6 Lab Hours

The Community College of Baltimore County

Description

Servicing Automotive Engines – Related Systems

Introduces various automotive engines, components, operations, and service procedures; includes servicing, removing, and replacing engine systems such as cooling, lubrication, fuel, ignition, and emission control.

\$20.00 fee required.

Overall Course Objectives

Upon completion of this course the student will be able to:

1. Locate and interpret vehicle and major component identification numbers (VIN, vehicle certification labels, and calibration decals).
2. Perform engine vacuum tests and determine needed repairs.
3. Perform cylinder compression tests and determine needed repairs.
4. Perform cylinder leakage tests and determine needed repairs.
5. Remove cylinder head(s); inspect cylinder head(s) for cracks; check gasket surface areas for warpage and leakage; and check passage condition.
6. Install cylinder heads and gaskets, tighten according to manufacturer specifications, and procedures.
7. Inspect pushrods, rocker arms, rocker arm pivots and shafts for wear, bending, cracks, looseness, and blocked oil passages (orifices) to determine repair or replacement.
8. Inspect camshaft for run out, measure journals and lobes for wear.
9. Inspect, measure, service, or replace pistons.
10. Perform oil pressure tests and determine needed repairs.
11. Perform cooling system tests (pressure, combustion leakage, and temperature) and determine needed repairs.
12. Inspect, replace, and adjust drive belts and pulleys.
13. All other NATAF Tasks from the master course list.

Major Topics

Theory and operation of the internal combustion engine
Valve train operation

Reciprocating assembly operation
Cooling system operation
Lubrication system operation

AUTO 141 relates theory to basic engine testing. To complete the course successfully, the student must be able to interpret test results and apply them to determine engine condition.

Course Requirements

One Term Paper

1. Topic of the paper will be selected by the student and should relate to the subject material of the course.
2. The paper should be 6 to 8 pages in length, typewritten, and double-spaced. It should include in addition to the 6 to 8 pages of text, an author and title page and bibliography utilizing a minimum of three reference resources excluding classroom materials.
3. All papers are due when 80% of the class sessions are completed. Papers submitted late will be deducted one letter grade.

Grading/Exams:

Grading procedures will be determined by the individual faculty member and will be provided on the first day of class. A student can expect a minimum of eight grades from the following categories:

1. Quizzes
2. Lab projects
3. Written paper
4. Homework assignments
5. Midterm exam
6. Class participation
7. Comprehensive final (required)

Other Course Information

This course is an Automotive Technology core course.