

Common Course Outline
AUTO 141
Servicing Automotive Engines – Related Systems
5 Credits
Community College of Baltimore County

Description

AUTO 141 – Servicing Automotive Engines and Related Systems introduces students to various automotive engines, components, operations, and service procedures; includes servicing, removing, and replacing engine systems such as cooling, lubrication, fuel, ignition, and emission control.

5 credits: 3 lecture hours; 14 laboratory hours

Prerequisite: AUTO 100 or written permission from program coordinator required

Corequisite: ACLT 052 or ACLT 053 or (ESOL 052 and ESOL 054) and MATH 081

Overall Course Objectives

Upon completion of this course students 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; and
13. perform all other up-to-date NATEF (National Automotive Technicians Education Foundation) tasks from the master course list.

Major Topics

- I. Theory and operation of the internal combustion engine
- II. Valve train operation
- III. Reciprocating assembly operation
- IV. Cooling system operation
- V. Lubrication system operation

Course Requirements

Grading/Exams:

Grading procedures will be determined by the individual faculty member but will include the following:

- A minimum of 4 quizzes
- A minimum of 8 lab projects
- A minimum of 1 written paper
- A minimum of 4 homework assignments
- One mid-term exam
- Class participation
- Comprehensive final skills assessment (required)

Written 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.

Written Assignments: Students are required to utilize appropriate academic resources.

Other Course Information

AUTO 141 approaches servicing automotive engines as a learning process that incorporates theory with laboratory experience. To complete the course successfully, practical ability as well as knowledge of theory must be demonstrated.

This is an Automotive Technology core course and is taught in an 8-week format.