AUTO 141
Automotive Engine Repair
5 Credits: 2 Lecture, 9 Lab hours

Community College of Baltimore County
Common Course Outline

Description

AUTO 141 – Automotive Engine Repair: is a course in which students are introduced to various automotive engines, components, operations, and service procedures. Topics include servicing, removing, and replacing engine systems such as cooling, lubrication, fuel, ignition, and emission control.

Pre-requisites: AUTO 100 or written permission from the program coordinator
Co-requisites: ACLT 053 or (ESOL 052 and ESOL 054) and MATH 082

Overall Course Objectives

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

1. locate and interpret vehicle and major component identification numbers including vehicle identification number (VIN), vehicle certification labels, and calibration decals;
2. perform engine vacuum tests to determine needed repairs;
3. perform cylinder compression tests to determine needed repairs;
4. perform cylinder leakage tests to 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 and 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 to determine repair or replacement;
8. inspect camshaft for run out and measure journals and lobes for wear;
9. inspect, measure, service, or replace pistons;
10. perform oil pressure tests to determine needed repairs;
11. perform cooling system tests such as pressure, combustion leakage, and temperature and determine needed repairs;
12. inspect, replace, and adjust drive belts and pulleys; and
13. 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. Valve train operation
III. Reciprocating assembly operation
IV. Cooling system operation
V. Lubrication system operation

Course Requirements

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.

Date Revised: 12/5/2023