

Common Course Outline
DEMT 214
Major Diesel Engine Overhaul, Testing & Tune-up
5 Semester Hours

The Community College of Baltimore County

Description

DEMT 214 -- 5 Credits – Major Diesel Engine Overhaul, Testing & Tune-up

covers the diagnosis and testing procedures for the major engine overhaul of various diesel engines. Topics include parts estimate, removing, disassembly, failure analysis, rebuilding, dynamometer break-in installation, and final touch-up painting of the overhauled engine.

5 credits: 3 lecture hours per week; 6 laboratory hours per week

Prerequisite: DEMT 213

Overall Course Objectives

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

1. comply with personal and environmental safety practices associated with diesel engine systems including personal protective equipment and the handling, storage, and disposal of fuels, chemicals, and materials in accordance with federal, state, and local regulations;
2. diagnose no cranking, cranks but fails to start, hard starting, and starts but does not continue to run problems and determine needed action;
3. disassemble, clean, and inspect engine block for cracks/damage; measure mating surfaces for warpage; check condition of passages, core/expansion and gallery plugs; inspect threaded holes, studs, dowel pins, and bolts for serviceability and determine needed action;
4. clean, inspect, and measure cylinder walls or liners for wear and damage and determine needed action;
5. inspect, measure, and replace/reinstall overhead camshaft;
6. inspect, measure, and replace/reinstall in-block camshaft;
7. measure and adjust camshaft endplay and backlash;
8. inspect, install and time gear train; measure gear backlash and determine needed action;
9. determine piston-to-cylinder wall clearance; check ring-to-groove clearance and end gap, and install rings on pistons;
10. check condition of piston cooling jets (nozzles) and determine needed action;
11. inspect oil pressure regulator valve(s), by-pass and pressure relief valve(s), oil thermostat, and filters and determine needed action;
12. inspect turbocharger lubrication system and determine needed action; and
13. test coolant temperature and check operation of temperature sensor, gauge, and/or sending unit and determine needed action.

Major Topics

- I. Engine block diagnosis and repair
- II. Lubrication systems diagnosis and repair
- III. Cooling system diagnosis and repair
- IV. Cylinder head diagnosis and repair
- V. Engine drivability diagnosis and repair

Course Requirements

Grading/exams: Grading procedures will be determined by the individual faculty member and will be provided on the first day of class.

The following will be required for this course:

1. Written paper or suitable practical project
2. Midterm exam
3. Comprehensive final (including a practical exam).

If a written paper is assigned, the following will apply:

- a. Topic of the paper will be selected by the student and should relate to the subject material of the course.
- b. The paper should be six (6) to eight (8) pages in length, typewritten, and double-spaced. It should include in addition to the six (6) to eight (8) pages of text, an author and title page and bibliography utilizing a minimum of three reference resources excluding classroom materials.
- c. All papers are due when 80% of the class sessions are completed.

In addition, students can expect additional grades from the following areas:

4. Quizzes
5. Lab Projects
6. Homework Assignments.

Other Course Information

This course is a Diesel and Equipment Maintenance Technology core course.

Individual faculty members may include additional course objectives, major topics, and other course requirements to the minimum expectations stated in the Common Course Outline.

(8) Date Revised: 10/17/06