

Common Course Outline

DEMT 103

Drive Train System Repair

5 Semester Hours

The Community College of Baltimore County

Description

DEMT 103 -- 5 Credits –Drive Train System Repair

covers the theory of power transmission from the engine to rear wheels including the clutch, transmission, drive line, differential, and rear axle. Students learn to disassemble, inspect, adjust, and reassemble the single and double countershaft transmission and differential. Students also diagnose, identify components, and service cab air conditioning units.

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

Prerequisite: RDNG 052, ENGL 051, MATH 082

Overall Course Objectives

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

1. comply with personal and environmental safety practices associated with drive train systems;
2. diagnose clutch noise, binding, slippage, pulsation, vibration, grabbing, dragging, and chatter problems and determine needed action;
3. inspect flywheel housing(s) to transmission housing/engine mating surface(s) and measure flywheel housing face and bore runout and determine needed action;
4. diagnose transmission noise, shifting, lockup, jumping-out-of-gear, overheating, and vibration problems and determine needed action;
5. diagnose transmission component failure cause, both before and during disassembly procedures and determine needed action;
6. inspect, adjust, and replace transmission shift lever, cover, rails, forks, levers, bushings, sleeves, detents, interlocks, springs, and lock bolts/safety wires;
7. inspect transmission lubrication system pumps, troughs, collectors, and slingers and service or replace as needed;
8. inspect mechanical and electronic speedometer components and determine needed action;
9. inspect and adjust power take-off (P.T.O.) assemblies, controls, and shafts and perform needed action;
10. use appropriate diagnostic tools and procedures to diagnose automated mechanical transmission problems; check and record diagnostic codes, clear codes, and interpret digital multimeter (DMM) readings and determine needed repairs;
11. diagnose driveshaft and universal joint noise and vibration problems and determine needed action;

12. check and repair fluid leaks, inspect and replace drive axle housing cover plates, gaskets, sealants, vents, magnetic plugs, and seals;
13. inspect, adjust, repair or replace air operated power divider (inter-axle differential) lockout assembly, including diaphragms, seals, springs, yokes, pins, lines, hoses, fittings, and controls; and
14. diagnose drive axle for wheel bearing noise and damage and perform needed action.

Major Topics

- I. Clutch diagnosis and repair
- II. Transmission diagnosis and repair
- III. Driveshaft and universal joint diagnosis and repair
- IV. Drive axle 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