

BELLINGHAM TECHNICAL COLLEGE

DIESEL EQUIPMENT TECHNOLOGY

COURSE NUMBER: DET-202

COURSE TITLE: ENGINES

CREDITS: 13cr

COURSE DESCRIPTION: This course will address the basic operation of diesel engines and their systems, with the emphasis on preventive maintenance and logical troubleshooting.

OUTCOME: Systematically summarize various engine systems and logically troubleshoot problems within those systems.

OUTLINE:

1. General Engine Designs and Classifications
2. Diesel Engineering Fundamentals
3. Cooling Systems
4. Lubrication Systems
5. Engine and Components
6. Types of Fuel Systems
7. Electronic Governors
8. Engine Troubleshooting

STUDENT PERFORMANCE OBJECTIVES:

Given, reference materials, tools of the trade and following industry approved safety procedures the student will:

1. identify operating fundamentals, horsepower, torque, mechanical efficiency, work, power, and energy
2. identify major system components with 90% accuracy
3. troubleshoot systems to 1.5 industry flat rate times
4. read and evaluate schematics with 90% accuracy
5. identify different types of engines and their troubleshooting procedures with 90% accuracy

METHOD OF INSTRUCTION:

1. demonstration
2. discussion
3. interactive software
4. lecture
5. field trips
6. audio/visual

Provide opportunity for disadvantaged or disabled students by providing alternate modes of learning.

STUDENT ASSIGNMENTS/REQUIREMENTS:

1. 90% class attendance required
2. **completion** of assigned job sheets required
3. **completion** of self evaluation forms required at the end of each quarter
4. **completion** of Caterpillar Basics Library Engines and Failure Analysis modules required
5. A **complete** and **current** resume will be **required** at the end of each and every quarter before grades will be assigned

EVALUATION AND GRADING:

- 100% completion of assigned job sheets required. No grade will be assigned if the job sheets are not completed.
 - Individual tests account for 10% of the final grade
 - Group/Team tests account for 35% of final grade
 - Attendance accounts for 20% of the final grade
 - Participation accounts for 25% of the final grade
1. Afternoon co-op **MAY** be available with instructor approval. Hours for financial aid will be compiled at the end of each month or quarter.
 2. Grade reduction for attendance below 90% **will** be assessed at instructor discretion.
 3. Letter grades:
0 - 61 = F 62 - 65 = D- 66 - 68 = D 69 - 71 = D+ 72 - 75 = C- 76 - 78 = C
79 - 81 = C+ 82 - 85 = B- 86 - 88 = B 89 - 91 = B+ 92 - 95 = A- 96 - 100 = A

REQUIRED STUDENT SUPPLIES AND MATERIALS:

REQUIRED TEXT: MAVCC Diesel Engines Second Edition

MAVCC

ADDITIONAL INSTRUCTIONAL RESOURCES:

1. "**VICKERS** INTRODUCTION TO HYDRAULICS" 8 videos
2. "**VICKERS** TECHNICAL REBUILD" 10 videos
3. "HYDRAULICS HEADACHES" **JOHN DEERE**
4. "THE HOW AND WHY OF HYDRAULICS COMPONENTS" slide set
5. CONCRETE CONSTRUCTION trade magazine
6. CRANE WORKS trade magazine
7. CONSTRUCTION EQUIPMENT trade magazine
8. NATIONAL FISHERMAN trade magazine
9. HYDRAULICS AND PNEUMATICS trade magazine
10. DIESEL TECHNOLOGY **Goodheart Willcox**
11. Cummins Virtual Library **Cummins Engine Co.**