DMT 1130

Division: Career and Technical Education
Department: Transportation Technology
Course: DMT 1130
Title: Basic Diesel Engine Overhaul and Lab
Catalog Description:

This course will instruct heavy duty mechanics technology students on the basic operation, parts, and overhaul procedures of diesel engines. The course provides theory and lab experiences on diesel engines. Students will receive detailed instruction on engine lubrication, air, cooling, and exhaust systems.

General Education Requirements: N/A
Semesters Offered: TBA
Credit/Time Requirement: Credit: 4; Lecture: 2; Lab: 5
Clock/Hour Requirements: 113
Offered for Non-Credit: Yes
Prerequisites: DMT 1110

Corequisites: N/A

Justification:

Students must complete this foundation course to function effectively in the heavy duty mechanics technology field. Employers require this training before technicians would even be considered for employment. This curriculum was developed using the nationally recognized Automotive Service Excellence (ASE) task lists, manufacturer training materials, and advisory committee input.

Student Learning Outcomes:

Upon successful completion, students should be able to:

- identify basic engine parts
- discuss the operation of internal combustion engines
- distinguish between diesel and gas engine
- explain operation of a four-stroke engine and a two-stroke engine
- explain engine performance factors
- understand engine rebuilding requirements
- understand engine components and know how to troubleshoot, test, and repair each of them.

Content:

Course objectives will be accomplished by providing students with learning experiences in the following subject areas:

- cylinder block, lines, crankshafts, main bearings, vibration dampeners, and flywheel
- pistons, rings, and connecting rod assemblies
- combustion chambers, cylinder heads, and assemblies
- cooling systems, lubricating systems, lubricants, air intake, and exhaust systems
- theory and lab finals.

General Education Outcomes:

2) Write clearly, informatively, and persuasively.

Students will complete written service reports on each laboratory project. These reports must be written in a clear, concise, and effective manner as this is the means by which customers make repair decisions. These reports are reviewed and returned to students with suggestion for improvement.

Applied Education Outcomes:

1) Students will acquire entry-level skills specific to and appropriate for employment in their chosen field of study.

Students will complete the class task list. Students will keep a file that contains service reports and book work. All work will be graded by instructor as to merit.

2) Students will become aware of industry specific certification and develop skills sufficient to acquire the same.

The instructor will post certification he/she possesses and explain same to students. (Note most certifications are not available to students without four years of experience.)

3) Students will demonstrate safe practices and awareness of potential hazards in their field of expertise.

Students will work in the diesel lab under the supervision of the instructors.

4) Students will demonstrate interpersonal skills specific to the skills and environment inherent in their field.

Students will work in a team environment on lab and customer projects.

Key Performance Indicators:

Student Learning Outcomes will be assessed by two or more of the following Key Performance Indicators:

- written assignments
- lab exercises
- quizzes and tests

- performance in subsequent courses.

Representative Text and/or Supplies:

- Bennett, Sean, *Medium/Heavy Duty Truck Engines, Fuel and Computerized Management Systems*, current edition, Thomson/Delmar Learning.

Optimum Class Size: 10
Maximum Class Size: 20

Signatures:

I hereby submit this course syllabus:

Robert Boyer, BS, Instructor

I hereby find this course consistent with the goals and resources of the Transportation Technology Department:

Brent Reese, BS, Associate Professor, Chair

I hereby find this course consistent with the goals and resources of the Career and Technical Education Division:

Michael P. Medley, MBA, Assistant Professor, Dean

I have discussed the need for library resources related to this class with the person submitting the syllabus:

Lynn Anderson, MLIS, Technical Services Librarian (Main Campus)

Michelle Olsen, MLS, Campus Librarian (Richfield Campus)