DMT 2311

Division: Career and Technical Education
Department: Transportation Technology
Course: DMT 2311
Title: Hydraulics and Pneumatics
Catalog Description:

This course covers theory, formulas, design, maintenance, and repair of hydraulic and pneumatic operated systems, including rams, pistons, apply devices, motors, etc.

General Education Requirements: N/A
Semesters Offered: TBA
Credit/Time Requirement: Credit: 2; Lecture: 2; Lab: 0
Clock/Hour Requirements: 30
Offered for Non-Credit: Yes
Prerequisites: N/A

Corequisites: DMT 2315

Justification:

This course is required for NATEF certification. It is approved by the program advisory committee.

Student Learning Outcomes:

Upon successful completion of this course, students will be able to safely perform the tasks listed in the current edition of NATEF certification for diesel.

Content:

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

- calculating forces
- accumulators

- pumps
- hydraulic motors
- relief valves
- actuators
- internal gears
- hydraulic hoses
- couplers and fittings
- Ansi symbols
- testing of motors and pumps

General Education Outcomes:

1) Read effectively, constructively, and critically.

2) Write clearly, informatively, and persuasively.

3) Speak effectively in a variety of contexts.

4) Retrieve, evaluate, interpret, and deliver information through a variety of traditional and electronic media.

5) Apply a cultural and historical awareness to a variety of phenomena.

6) Apply computational skills to a variety of contexts.

7) Apply scientific reasoning to a variety of contexts.

8) Apply ethical reasoning to a variety of contexts.

9) Respond with informed sensitivity to an artistic work or experience.

10) Apply personal-fitness and wellness-management principles to lifestyle choices.

Applied Education Outcomes:

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

Students will utilize electronic and written reference manuals and computer diagnostics to identify, troubleshoot, and repair hydraulic and pneumatic systems. Students will participate in all diagnostic procedures.

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

The tests and homework for this class are designed to simulate and prepare the students to complete the ASE certification tests.

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

Students will study, test on, and practice a safe work environment in the lab area.

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

Key Performance Indicators:

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

- assignments
- test
- shop cleanup
- student feedback
- student passing ASE tests
- student transferring to other post-secondary institutions
- student performance in subsequent courses.

Representative Text and/or Supplies:

- Norman, Scharff, Corinchock, *Heavy Duty Truck Systems*, current edition, Delmar Publishers..

Optimum Class Size: 20
Maximum Class Size: 30

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)