



DMT 2310

Division: Career and Technical Education

Department: Automotive Technology

Course: DMT 2310

Title: Fluid Power Theory and Lab

Catalog Description:

This course provides instruction in theory and application of fluid power (hydraulics) as used in modern mobile equipment. Instruction includes practical theory and lab experience related to the operation and repair of hydraulic/pneumatic components and systems. This course emphasizes testing, troubleshooting, design and use of hydraulic schematics, and electric over hydraulic systems.

General Education Requirements: N/A

Semesters Offered: TBA

Credit/Time Requirement: Credit: 6; Lecture: 3; Lab: 9

Clock/Hour Requirements: 180

Offered for Non-Credit: No

Prerequisites: DMT 1110

Corequisites: None

Justification:

Students must complete this foundation course to function effectively in the heavy duty mechanics field. Employers require this type of training before technicians would even be considered for employment. Hydraulic systems are ever-increasing in complexity and sophistication. This curriculum was developed using the nationally recognized Automotive Service Excellence (ASE) task lists, manufacturer training materials, advisory committee input, Utah Valley State College syllabi, and Salt Lake Community College documentation.

Student Learning Outcomes:

Upon successful completion, students should be able to:

- safely operate hydraulic test equipment
- identify and replace hydraulic pumps, motors, and cylinders
- troubleshoot and repair hydraulic pumps, motors, and cylinders
- troubleshoot, adjust, and repair hydraulic and pneumatic valving
- conduct a flow meter test
- construct basic hydraulic circuits on test bench.

Content:

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Course objectives will be achieved by providing students with instructional and hands-on experiences in the following areas:

- shop and personal safety
- hydraulic hose identification
- hydraulic fittings
- hydraulic system basics
- hydraulic pumps
- cylinders and rams
- reservoir tanks and filters
- hydraulic and pneumatic valving
- hydraulic system design.

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.

6) Apply computational skills to a variety of contexts.

Students are required to perform mathematic computations with regard to force, pressures, flow rate, and a variety of other module specifications.

Key Performance Indicators:

In class:

- Student scores will be based on: written assignments (20%-30%), lab exercises (40%-50%), and quizzes and tests (20%-30%).

Following class:

- Upon completion of the course, competency will be demonstrated in subsequent courses and on customer projects. Students will also use on the job service reports and repair orders to verify skills acquired.

Representative Text and/or Supplies:

- Parker Hannifin Corp., *Fluid Power Basics*, current edition, Parker Hannifin Corp.

Optimum Class Size: 10

Maximum Class Size: 20

Signatures:

I hereby submit this course syllabus:

Dale Jensen, ,

I hereby find this course consistent with the goals and resources of the Automotive 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)