



## DMT 2420

**Division:** Career and Technical Education

**Department:** Automotive Technology

**Course:** DMT 2420

**Title:** Power Trains Theory and Lab

**Catalog Description:**

This course provides theory and lab experience for advanced students on maintenance and repair of heavy duty power train systems. Instruction covers clutches, single and multiple counter shaft transmission, computer controlled transmissions, drive line geometry, differentials, and Department of Transportation (DOT) safety requirements. This course emphasizes troubleshooting, highway safety, and preventive maintenance.

**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:**

This course instructs students on service, repair, and troubleshooting of basic gearing systems, such as manual transmissions, differentials, and final drives. 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 explain and perform competent troubleshooting and maintenance of:

- clutches
- single and multiple counter shaft transmission
- drive lines
- differentials
- maintenance performed in accordance with DOT safety regulations.

**Content:**

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

- clutches
- single and twin counter shaft transmissions
- transmission maintenance and failure analysis
- drive lines
- differentials and power dividers
- different maintenance and failure analysis
- preventive maintenance (PM) and highway safety practices.

### **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.

3) Speak effectively in a variety of contexts.

Students are required to give an oral description of service required for each laboratory project. These reports must be clear and concise so that customers can make appropriate repair decisions. Instructor will test students on content of project to measure understanding.

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

Students will utilize electronic and written reference manuals and computer diagnostics to identify, troubleshoot, and repair transmissions, and other diesel components.

6) Apply computational skills to a variety of contexts.

Students are required to perform mathematic computations with regard to electrical systems, gear ratios, force pressures, and a variety of other vehicle systems.

### **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:**

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

**Optimum Class Size:** 10

**Maximum Class Size:** 20

**Signatures:**

I hereby submit this course syllabus:

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Dale Jensen, ,

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

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Brent Reese, BS, Associate Professor, Chair

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

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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:

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

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Michelle Olsen, MLS, Campus Librarian (Richfield Campus)