



## DMT 1220

**Division:** Career and Technical Education

**Department:** Automotive Technology

**Course:** DMT 1220

**Title:** Mechanical - Electronic Controls

**Catalog Description:**

This course provides theory and lab experience for advanced diesel technology students in diesel fuel systems. Instruction covers tune up procedures, electronic fuel control, and governor systems for Detroit Diesel, Cummins, and Caterpillar engines. This course emphasizes testing, adjusting, maintenance procedures, emission controls, and safety.

**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:** No

**Prerequisites:** None

**Corequisites:** DMT 1210

**Justification:**

This is the second of three courses designed to teach students fuel injection systems and their controls. The information contained in this course enables students to repair, service, and troubleshoot fuel injection systems. Students will troubleshoot and test injection systems to meet government regulations. 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:

- perform tune up, set governor, and use diagnostic codes on Detroit electronic engines
- perform tune up, set governor, and use diagnostic codes on Caterpillar electronic engines
- perform tune up, set governor, and use diagnostic codes on Cummins electronic engines.

**Content:**

Course objectives will be accomplished by providing students with experience in the following areas:

- mechanical and electrical Detroit diesel fuel system
- Caterpillar mechanical fuel systems
- in-line pumps (A and B models)
- Cummins fuel systems
- Cummins electronic fuel controls
- electronic engine control systems.

### **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.

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 electronic fuel 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 reports and repair orders to verify skills acquired.

### **Representative Text and/or Supplies:**

- Thiessen, Dales, *Diesel Fundamentals*, current edition, Prentice Hall.

**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)