



DMT 1120

Division: Career and Technical Education

Department: Automotive Technology

Course: DMT 1120

Title: Electrical Systems and Lab

Catalog Description:

This course will instruct heavy duty technology students on basic electricity and provide theory and lab experiences on components and systems. Students will receive detailed instruction on alternators, starters, lights, wiring schematics, symbols, and circuits. Students are required to wire various circuits and use electrical test equipment to troubleshoot components and 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: 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. Electrical systems are ever increasing in complexity and sophistication today. 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:

- understand basic electricity, including the use of Ohm's Law
- service and repair batteries, starters, alternators, gauges, and circuits
- wire components into systems that operate properly
- service and repair horn, windshield wiper, and other auxiliary circuits
- use electronic devices to test electrical systems on equipment.

Content:

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

- electricity, what it is and how it works
- electrical circuits, testing, and batteries
- cranking systems
- charging systems
- lighting and accessory system
- electronic ignition 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 electrical system components.

6) Apply computational skills to a variety of contexts.

Students are required to perform mathematic computations with regard to electrical 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:

- John Deere Company, *Electronic and Electrical Systems*, current edition, John Deere.

Optimum Class Size: 10

Maximum Class Size:

DMT 1120

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)