



## DMT 1505

**Division:** Career and Technical Education

**Department:** Transportation Technology

**Course:** DMT 1505

**Title:** Diesel Brakes Lab

**Catalog Description:**

This course gives students the hands-on lab experience for DMT 1501. This course covers principles, repair, and adjustment of the diesel truck and trailer brake systems and includes hydraulic theory, air brake theory, diagnosis, and service of brake systems. Students study drums, disks, power units, and Anti Lock Braking System (ABS) brakes. **The lab DMT 1505 must be taken concurrently with the lecture DMT 1501.**

**General Education Requirements:** N/A

**Semesters Offered:** TBA

**Credit/Time Requirement:** Credit: 2; Lecture: 0; Lab: 6

**Clock/Hour Requirements:** 90

**Offered for Non-Credit:** Yes

**Prerequisites:** N/A

**Corequisites:** DMT 1501

**Justification:**

This course is required for Automotive Service Excellence (A.S.E.) certification. It is approved by the 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 *A.S.E. Certification for Diesel Training Programs*.

**Content:**

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

- safety
- history and evolution of diesel brake systems
- brake system fundamentals
- master cylinders and brake fluids
- hydraulic theory, lines, valves, and switches
- air brakes
- compressors and actuators
- power brake systems
- disc and drum brake systems
- parking brake systems
- antilock brake theory and systems
- relationship of related systems: tires, wheels, bearings, suspension, etc.

**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.

Students will develop an understanding of the history of diesel brake systems and its relationship to past, current, and future developments in the transportation field.

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 diagnose, repair, test, and study modern automotive braking systems similar to those found in the industry.

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

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.

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

- complete shop tasks as outlined in the current edition of *A.S.E. Certification for Diesel Training Programs*
- student feedback as per A.S.E. requirements
- students passing A.S.E. tests
- students 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:** 15

**Maximum Class Size:** 25

**Signatures:**

I hereby submit this course syllabus:

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Robert Boyer, BS, Instructor

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