



Course Outline

2026-2027 Catalog

AUT 73 - Diesel Industry Technologies Lecture

Catalog Description

Transfer Status: CSU

Prerequisite: AUT 3 (or concurrent enrollment)

Corequisite: AUT 74

Unit(s): 3.00

Lecture: 51.00 Contact hours/102.00 Out of class hours/153.00 Total hours/3.00 Unit(s)

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Course Description: This course develops the skills needed to safely diagnose, repair and maintain the systems and sub-systems specific to over-the-road diesel powered vehicles. Topics will include: Diagnosing problems in mechanical, electrical, pneumatic, and electronic systems with industry standard test equipment; Troubleshooting the sophisticated electronic controls that govern engine performance and horsepower as well as transmission and braking systems; Troubleshooting steering, hydraulic, pneumatic systems, brakes, axles, differentials, electric motors, and compressors. Students will learn industry standardized safety inspection procedures.

Objectives

Upon successful completion of this course, the student should be able to:

1. Troubleshoot and perform repairs on mechanical, electrical, pneumatic, hydraulic and electronic systems.
2. Use computers to diagnose equipment and research information.
3. Perform preventative maintenance such as safety inspection, engine tune-ups, front-end alignments, and brake adjustments.
4. Operate shop machinery and equipment including hoists, hydraulic jacks, steam cleaners, floor jacks, disassembly stands, grinders, drill presses, hydraulic presses, and bead blasters.
5. Select and use precision tools such as torque wrenches, micrometers, dial indicators, tap and dies, and bore gauges.
6. Analyze unique situations and make informed professional decisions.

Course Content

Topic Titles / Suggested Time Topic	
<u>Lecture</u>	
<u>Topics</u>	<u>Lec Hrs</u>
Diesel truck industry, safety procedures and environmental regulations	3.00
Tools, tool usage and safety; Fasteners and identification of fasteners	3.00
Fleet vehicle safety inspection procedures	3.00
Diesel engine construction and operation	5.00
Medium and heavy-duty vehicle alignment angles and alignment	5.00
Diesel refrigeration systems construction and operation	5.00
Conventional and air brake system theory, operation and repair	12.00
Diesel transmission and axle theory, operation and repair	5.00
Mobile hydraulics theory, operation and repair	10.00
Total Hours:	51.00

Methods of Instruction

- A. Class Activities
- B. Demonstrations
- C. Homework: Students are required to complete two hours of outside-of-class homework for each hour of lecture
- D. Multimedia Presentations
- E. Reading Assignments
- F. CA and AS in Diesel Technology

Methods of Evaluation

- A. Exams/Tests
- B. Demonstration
- C. Homework
- D. Final Examination
- E. Performance Examinations

Examples of Assignments

Reading Assignments

1. Using the text book, read the chapter on adjusting the toe in/out of the front wheels. Be prepared to discuss the procedure in class.
2. Using electronic service publications, look up the specifications for brake shoe to drum clearance. Using the bench model, measure the clearance and determine if it is within specification.

Writing Assignments

1. Using the supplied Repair Order (R.O.), document the repairs you made to the vehicle's refrigeration unit. Be sure to include the customers concern, cause of the failure, and the corrections performed.
2. Students will be required to complete the written lecture and lab assignments found in both the "Key Notes" and "Lab" work books.

Out-of-Class Assignments

1. Complete the Mechanical Safety portion of the SP2 safety test with a score of 80% or better. Prior to working in the lab, you must complete the following areas: Introduction, Fires, Slips & Falls, Power Tools, Lifts, Operating Vehicles, Jump Starting, Chemicals & the Material Safety Data Sheet (MSDS).
2. Complete the assigned online modules found in Electude. Your instructor will confirm that you have completed the required modules.

Recommended Materials of Instruction

Wright, Gus. (2014). Fundamentals of Medium-Heavy Duty Diesel Engines. *CDX Automotive, 1st.*

Other Learning Materials

In class/lab work sheets. (See attachment)

Minimum Qualifications

Diesel Mechanics

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