



Course Outline

2026-2027 Catalog

AUT 74 - Diesel Industry Technologies Lab

Catalog Description

Transfer Status: CSU

Unit(s): 3.00

Lab: 153.00 Contact hours/0.00 Out of class hours/153.00 Total hours/3.00 Unit(s)

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Course Description: In this course, students will develop and demonstrate safe work habits along with the hands-on skills needed to diagnose and repair refrigeration units, mobile hydraulic components, heavy duty powertrain units, pneumatic systems, and truck wheel alignments. Emphasis will be placed on the ability to accurately perform heavy-duty maintenance and safety inspections in a timely manner.

Objectives

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

1. Troubleshoot and perform repairs on heavy-duty mechanical, electrical, pneumatic, hydraulic and electronic systems.
2. Use computers and scan tools to research information and diagnose heavy equipment.
3. Perform heavy-duty preventative maintenance such as safety inspections, engine tune-ups, front-end alignments, and air brake adjustments.
4. Safely operate common heavy-duty shop machinery and equipment.
5. Correctly use precision tools such as torque wrenches, micrometers, dial indicators, tap and dies, and bore gauges, and other industry specific specialty tools.
6. Analyze unique shop situations and make informed professional decisions.

Course Content

Topic Titles / Suggested Time Topic	
	<u>Lab</u>
<u>Topics</u>	<u>Lab Hrs</u>
Diesel truck industry, safety procedures and environmental regulations	6.00
Tools, tool usage and safety; Fasteners and identification of fasteners	9.00
Heavy-duty starting and charging	12.00
Diesel engine construction and operation	9.00
Medium and heavy duty vehicle alignment angles and alignment	15.00
Diesel refrigeration systems construction and operation	15.00
Conventional and air brake system theory, operation and repair	36.00
Diesel transmission and axle theory, operation and repair	6.00
Mobile hydraulics theory, operation and repair	30.00
Fleet truck and tractor maintenance and safety inspection (CHP)	15.00
Total Hours: 153.00	

Methods of Instruction

- A. Class Activities
- B. Demonstrations
- C. Laboratory Experiments
- D. Multimedia Presentations
- E. Reading Assignments

Methods of Evaluation

- A. Exams/Tests
- B. Demonstration
- C. Class participation
- D. Lab Projects
- E. Final Examination
- F. 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. Be prepared to discuss the procedure in class.

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 correction; what you did to fix it. Be sure to follow BAR legal requirements.
2. Complete the hydraulics section in your lecture key-notes workbook. Using your notes, submit a narrative of at least 100 words online. Be prepared to discuss with your instructor.

Recommended Materials of Instruction

Wright, G. (2021). Fundamentals of Medium-Heavy Duty Diesel Engines. *Jones & Bartlett, 2nd*. 9781284150919.

Wright, G. & Duffy, O. (2020). Fundamentals of Medium/Heavy Duty Commercial Vehicle Systems. *Jones & Bartlett, 2nd*. 9781284150933.

Minimum Qualifications

Diesel Mechanics

Created/Revised by: Kielb, Craig

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