



Course Outline

2026-2027 Catalog

AUT 7 - Automotive Electrical Systems Lab

Catalog Description

Transfer Status: CSU

Prerequisite: AUT 3 (or concurrent enrollment)

Unit(s): 2.00

Lab: 102.00 Contact hours/0.00 Out of class hours/102.00 Total hours/2.00 Unit(s)

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Course Description: In this course students will develop and demonstrate the hands-on skills needed to repair automotive electrical/electronic systems. Topics include verification, diagnosis and repair of vehicle charging and starting systems, lighting systems, and supplemental restraint systems.

Objectives

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

1. Diagnose and repair, to industry standards, vehicle systems related to batteries.
2. Diagnose and repair vehicle multiplex communication networks.
3. Diagnose and repair vehicle lighting and signaling systems.
4. Diagnose and repair vehicle charging systems.
5. Diagnose and repair vehicle starting systems.
6. Diagnose and repair passive restraint and supplemental restraint systems.

Course Content

Topic Titles / Suggested Time Topic	
	<u>Lab</u>
<u>Topics</u>	<u>Lab Hrs</u>
Testing and service of conventional, maintenance free, hybrid, and recombination automotive batteries.	14.50
Diagnosis of starter motor condition through use of industry recognized methods and tools.	14.50
Performing charging system output, voltage drop and regulator tests.	14.50
Diagnosis and repair of lighting circuit malfunctions.	14.50
Diagnosis of Controller Area Network (CAN) bus system.	14.50
Identification of the causes of malfunctioning accessory systems related to horn, wipers and door windows.	14.50
Replacing an air bag and clock spring according to service information standards.	15.00
Total Hours: 102.00	

Methods of Instruction

- A. Special Studies/Problems
- B. Collaborative Group Work
- C. Discussion
- D. Instructor Demonstrations
- E. Laboratory Experiments
- F. Problem-Solving Sessions

Methods of Evaluation

- A. Demonstration
- B. Class participation
- C. Lab Projects
- D. Final Examination
- E. Performance Examinations
- F. Practical Evaluations

Examples of Assignments

Reading Assignments

1. Read safety precautions for air bag removal then demonstrate the procedure to remove an air bag.
2. Read lab assigned instructions on safe battery handling. Be prepared to replace an automobile battery in class.

Writing Assignments

1. Measure voltage drops in a charging or starting system. Complete a written report on the findings and any recommendations.
2. Conclude an air bag system diagnosis. Communicate the findings for customer review on a repair order.

Recommended Materials of Instruction

Duffy, J. & McNally, C. (2024). Auto Electricity & Electronics. *Goodheart Willcox, 8th*. 979-8888172087.

Minimum Qualifications

Automotive Technology

Created/Revised by: Kielb, Craig

Date: 12/01/2025