Course Outline

2026-2027 Catalog

AUT 6 - Automotive Electrical Systems Lecture

Catalog Description

Transfer Status: CSU

Prerequisite: AUT 3 (or concurrent enrollment)

Unit(s): 2.00

Lecture: 34.00 Contact hours/68.00 Out of class hours/102.00 Total hours/2.00 Unit(s)

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Course Description: This course introduces the theory, operation, and repair in the areas of electrical/electronic systems. Battery function and diagnosis are covered. Topics also include vehicle lighting systems, starting and charging systems, and supplemental restraint systems of a modern vehicle.

Objectives

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

1. Describe the theory and operation of the systems and components related to batteries.
2. Describe the theory and operation of car starting systems.
3. Describe the purpose of car charging systems.
4. Describe the theory and operation of the systems, sub systems, and components in the areas of automotive lighting systems.
5. Differentiate multiplex classes and Controller Area Network (CAN) communication systems.
6. Explain the purpose and function of supplemental restraint system.

Course Content

Topic Titles / Suggested Time Topic

Lecture

Topics	Lec Hrs
Starting systems	5.00
Charging systems	5.00
Electrical lighting systems	5.00
Types of batteries	5.00
Vehicle communication networks and multiplex systems principles	5.00
Electrical accessories, audio, power windows and navigation systems	4.50
Passive seat belts systems and Supplemental restraint systems theory and operation	4.50
Total Hours:	**34.00**

Methods of Instruction

A. Homework: Students are required to complete two hours of outside-of-class homework for each hour of lecture
B. Instructor Demonstrations
C. Lecture
D. Multimedia Presentations
E. Problem-Solving Sessions
F. Reading Assignments

Methods of Evaluation

A. Exams/Tests
B. Quizzes
C. Homework
D. Class participation
E. Final Examination
F. Class Discussion

Examples of Assignments

Reading Assignments

1. Read the chapter on charging systems in your text and be prepared to discuss testing procedures in class.
2. Read the chapter on supplemental restraint systems and be prepared to discuss safety precautions in class.

Writing Assignments

1. In no less than two hundred words, answer the following quick question: list and describe the four main elements of the conventional lead acid battery cell construction.
2. In no less than two hundred words, answer the following quick question: list and describe the design and operation of three airbag system sensors. This can include impact, occupancy, and any sensor that provides input to the Airbag Controller.

Out-of-Class Assignments

1. Complete the homework on charging systems and pass the associated quiz with a score of 70% or better.
2. Complete the homework on starting systems and pass the associated quiz with a score of 70% or better.

Recommended Materials of Instruction

Duffy, J. & McNally, C. (2024). Auto Electricity & Electronics. *Goodheart Willcox, 8th.* 9798888172087.

Minimum Qualifications

Automotive Technology

Created/Revised by: Kielb, Craig
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