COURSE OUTLINE

AUTO 112 AUTOMOTIVE ELECTRICAL SYSTEMS

Prepared By: BRANDON BALDWIN
A. **TITLE**: AUTOMOTIVE ELECTRICAL SYSTEMS

B. **COURSE NUMBER**: AUTO 112

C. **CREDIT HOURS**: 3

D. **WRITING INTENSIVE COURSE**: NO

E. **COURSE LENGTH**: 15 WEEKS

F. **SEMESTER(S) OFFERED**: FALL

G. **HOURS OF LECTURE, LABORATORY, RECITATION, TUTORIAL, ACTIVITY**: 3 hours per week

H. **CATALOGUE DESCRIPTION**: This course is a study of fundamental electrical circuits and relative theory as applied to the automobile. Series, parallel, series-parallel circuits, magnetism, direct and alternating current fundamentals; batteries, charging systems, starters, lighting systems, and basic electronics are studied.

I. **PRE-REQUISITES/CO-COURSES**:
   a. Pre-requisite(s): NONE
   b. Co-requisite(s): AUTO 122

J. **GOALS (STUDENT LEARNING OUTCOMES)**:

<table>
<thead>
<tr>
<th>Course Objective</th>
<th>Institutional SLO</th>
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<tr>
<td>Construct series, parallel, and series-parallel circuits demonstrating fundamentals of automotive electricity.</td>
<td>2. Crit. Thinking</td>
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<td>3. Prof. Comp</td>
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<td>Calculate circuit elements of voltage, resistance, and current using Ohm’s Law</td>
<td>2. Crit. Thinking</td>
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<td>3. Prof. Comp</td>
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<tr>
<td>Write and recite battery, starting, and charging systems theory of operation</td>
<td>2. Crit. Thinking</td>
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<td>3. Prof. Comp</td>
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<td>Evaluate wiring diagrams to produce a simplified version to show understanding of the above.</td>
<td>2. Crit. Thinking</td>
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<td>3. Prof. Comp</td>
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L. **REFERENCES**: Manufacturer Service Manuals, Alldata

M. **EQUIPMENT**: Classroom with Technology

N. **GRADING METHOD**: A-F

O. **MEASUREMENT CRITERIA/METHODS**: exams, quizzes, homework

P. **DETAILED TOPICAL OUTLINE**:
   1. Introduction
      a. Tools
      b. Safety
   2. Basics of Circuit Construction
      a. Basics of Electricity
b. Electrical Terms  
c. Conductors and Insulators  
d. Circuit Protection  

3. Meter Usage  
a. Picking the Correct Meter  
b. Use Selections  
c. Proper Techniques  

4. Ohm’s Law  
a. Series Circuits  
b. Parallel Circuits  
c. Series-Parallel Circuits  

5. Batteries  
a. Construction  
b. Ratings  
c. Testing  
d. Securing  

6. Starting Systems  
a. Types  
b. Starter Types  
c. Operation/Magnetism  
d. Control Circuits  
e. Testing  
f. Engagement  

7. Charging Systems  
a. Types  
b. Operation/Generation  
c. Testing  

8. Wiring diagrams  

9. Lighting Systems Introduction (used often to introduce wiring diagrams, Ohm’s law, and meter usage)