STATE UNIVERSITY OF NEW YORK
COLLEGE OF TECHNOLOGY
CANTON, NEW YORK

MASTER SYLLABUS

COURSE NUMBER – COURSE NAME
AUTO 112 – AUTOMOTIVE ELECTRICAL SYSTEMS

Created by: Brandon Baldwin
Updated by: Brandon Baldwin

Canino School of Engineering Technology
Department: AUTOMOTIVE TECHNOLOGY
Semester/Year: FALL 2018
A. **TITLE:** Automotive Electrical Systems

B. **COURSE NUMBER:** AUTO 112

C. **CREDIT HOURS:** (Hours of Lecture, Laboratory, Recitation, Tutorial, Activity)

- # Credit Hours: 3
- # Lecture Hours: 3 per week
- # Lab Hours: per week
  - Other: per week

  Course Length: 15 Weeks

D. **WRITING INTENSIVE COURSE:** Yes ☐ No ☒

E. **GER CATEGORY:** None: ☒ Yes: GER !
   *If course satisfies more than one: GER !

F. **SEMESTER(S) OFFERED:** Fall ☒ Spring ☐ Fall & Spring ☐

G. **COURSE DESCRIPTION:**

A study of fundamental electrical relations and circuits as applied to the automobile and powersports machines. Topics include series, parallel, and series-parallel circuits, magnetism, direct and alternating current fundamentals; battery, charging, and starting systems.

H. **PRE-REQUISITES:** None ☒ Yes ☐ If yes, list below:

   **CO-REQUISITES:** None ☐ Yes ☒ If yes, list below:

   AUTO 122 Automotive Electrical Systems Lab
I. **STUDENT LEARNING OUTCOMES:** *(see key below)*

By the end of this course, the student will be able to:

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<tr>
<th>Course Student Learning Outcome [SLO]</th>
<th>Program Student Learning Outcome [PSLO]</th>
<th>GER [If Applicable]</th>
<th>ISLO &amp; SUBSETS</th>
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<td>Construct series, parallel, and series-parallel circuits demonstrating fundamentals of automotive electricity.</td>
<td>ALO2</td>
<td>2-Crit Think 5-Ind, Prof, Disc, Know Skills ISLO</td>
<td>CA IA PS Subsets</td>
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<td>Calculate circuit elements of voltage, resistance, and current using Ohm’s Law</td>
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<td>Write and recite battery, starting, and charging systems theory of operation</td>
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<td>Evaluate wiring diagrams to produce a simplified version to show understanding of the above.</td>
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| 1     | Communication Skills  
       Oral [O], Written [W] |
| 2     | Critical Thinking  
       Critical Analysis [CA], Inquiry & Analysis [IA], Problem Solving [PS] |
| 3     | Foundational Skills  
       Information Management [IM], Quantitative Lit./Reasoning [QTR] |
| 4     | Social Responsibility  
       Ethical Reasoning [ER], Global Learning [GL], Intercultural Knowledge [IK], Teamwork [T] |
| 5     | Industry, Professional, Discipline Specific Knowledge and Skills |

*Include program objectives if applicable. Please consult with Program Coordinator!
J. **APPLIED LEARNING COMPONENT:** Yes ☒ No ☐

If YES, select one or more of the following categories:

☒ Classroom/Lab
☒ Internship
☒ Clinical Placement
☒ Practicum
☒ Service Learning
☐ Community Service

☐ Civic Engagement
☐ Creative Works/Senior Project
☐ Research
☐ Entrepreneurship (program, class, project)

K. **TEXTS:**

Auto Electricity and Electronics, 6th Edition, James Duffy

L. **REFERENCES:**

ShopKeyPro, AllData

M. **EQUIPMENT:** None ☒ Needed:

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

O. **SUGGESTED MEASUREMENT CRITERIA/METHODS:**

Exams, quizzes, and homework

P. **DETAILED COURSE 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)

Q. LABORATORY OUTLINE: None ☐ Yes ☐