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

MASTER SYLLABUS

COURSE NUMBER – COURSE NAME
AUTO 112 – AUTOMOTIVE ELECTRICAL SYSTEMS

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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:

Course Student Learning Outcome [SLO]	***Program Student Learning Outcome [PSLO]***	***GER*** *[If Applicable]*	***ISLO & SUBSETS***	
Construct series, parallel, and series-parallel circuits demonstrating fundamentals of automotive electricity..	ALO2		2-Crit Think 5-Ind, Prof, Disc, Know Skills ISLO	CA IA PS Subsets
Calculate circuit elements of voltage, resistance, and current using Ohm's Law	ALO2		2-Crit Think 5-Ind, Prof, Disc, Know Skills ISLO	CA IA PS Subsets
Write and recite battery, starting, and charging systems theory of operation	ALO2		2-Crit Think 5-Ind, Prof, Disc, Know Skills ISLO	CA IA PS Subsets
Evaluate wiring diagrams to produce a simplified version to show understanding of the above.	ALO2		2-Crit Think 5-Ind, Prof, Disc, Know Skills ISLO	CA IA PS Subsets
	ALO2		ISLO ISLO ISLO	Subsets Subsets Subsets Subsets
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KEY	**Institutional Student Learning Outcomes [ISLO 1 – 5]**
ISLO #	**ISLO & Subsets**
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. <u>LABORATORY OUTLINE</u>: None ☐ Yes ☐