

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



**MASTER SYLLABUS**

**COURSE NUMBER – COURSE NAME  
AUTO 122 – AUTOMOTIVE ELECTRICAL SYSTEMS LABORATORY**

**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 Laboratory
- B. **COURSE NUMBER:** AUTO 122
- C. **CREDIT HOURS:** (Hours of Lecture, Laboratory, Recitation, Tutorial, Activity)

# Credit Hours: 1  
# Lecture Hours:     per week  
# Lab Hours: 3 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:**

The laboratory component of this course consists of hands-on activities involving theories learned in the classroom. Students use service information, both hard-copy and electronic. Testing involves batteries; series, parallel, and series-parallel circuits, as well as charging and starting systems component identification and service.

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

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

AUTO 112 Automotive Electrical Systems

**I. STUDENT LEARNING OUTCOMES: (see key below)**

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

<u>Course Student Learning Outcome</u> <u>[SLO]</u>	<u>Program Student Learning Outcome</u> <u>[PSLO]</u>	<u>GER</u> <i>[If Applicable]</i>	<u>ISLO &amp; SUBSETS</u>	
Demonstrate knowledge basic electrical and electronic theories.			2-Crit Think 5-Ind, Prof, Disc, Know Skills ISLO	CA IA PS Subsets
Interpret DVOM readings to diagnose electrical circuits.			2-Crit Think 5-Ind, Prof, Disc, Know Skills ISLO	CA IA PS Subsets
Read and interpret electrical schematic charts.	ALO2		2-Crit Think 5-Ind, Prof, Disc, Know Skills ISLO	CA IA PS Subsets
Diagnose & service the charging, starting, and accessory systems.	ALO2, ALO3		2-Crit Think 5-Ind, Prof, Disc, Know Skills ISLO	CA IA PS Subsets
	ALO2		ISLO ISLO ISLO	Subsets Subsets Subsets Subsets
.	ALO2		ISLO ISLO ISLO	Subsets Subsets Subsets Subsets

	ALO2		ISLO ISLO ISLO	Subsets Subsets Subsets Subsets
.	ALO2		ISLO ISLO ISLO	Subsets Subsets Subsets Subsets
	ALO2		ISLO ISLO ISLO	Subsets Subsets Subsets Subsets
	ALO2		ISLO ISLO ISLO	Subsets Subsets Subsets Subsets

<b>KEY</b>	<b><u>Institutional Student Learning Outcomes [ISLO 1 – 5]</u></b>
<b>ISLO #</b>	<b>ISLO &amp; Subsets</b>
<b>1</b>	<b>Communication Skills</b> Oral [O], Written [W]
<b>2</b>	<b>Critical Thinking</b> <i>Critical Analysis [CA] , Inquiry &amp; Analysis [IA] , Problem Solving [PS]</i>
<b>3</b>	<b>Foundational Skills</b> <i>Information Management [IM], Quantitative Lit./Reasoning [QTR]</i>
<b>4</b>	<b>Social Responsibility</b> <i>Ethical Reasoning [ER], Global Learning [GL], Intercultural Knowledge [IK], Teamwork [T]</i>
<b>5</b>	<b>Industry, Professional, Discipline Specific Knowledge and Skills</b>

\*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:

- |   |  |
|---|--|
| <input checked="" type="checkbox"/> Classroom/Lab | <input type="checkbox"/> Civic Engagement              |
| <input type="checkbox"/> Internship               | <input type="checkbox"/> Creative Works/Senior Project |
| <input type="checkbox"/> Clinical Placement       | <input type="checkbox"/> Research                      |
| <input type="checkbox"/> Practicum                | <input type="checkbox"/> Entrepreneurship              |
| <input type="checkbox"/> Service Learning         | (program, class, project)                              |
| <input type="checkbox"/> Community Service        |  |

K. **TEXTS:**

Electrical and Electronic Systems; NATEF standards job sheets, by Jack Erjavec/Ken Pickerill

L. **REFERENCES:**

ShopKeyPro, AllData, Subaru STIS

M. **EQUIPMENT:** None  Needed: Snap-On 504 DVOM, VAT-40, jumper wires, Snap-On Electrical Trainers

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

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

Lab Performance, Lab Practical, Job Sheet completion

P. **DETAILED COURSE OUTLINE:**

Q. **LABORATORY OUTLINE:** None  Yes

**1. Introduction**

- a. Tools
- b. Safety
- c. Filing out a repair order

**2. Snap-On 504 Meter Training and Certification**

**3. Basics of Circuit Construction**

- a. Protection Devices
- b. Components of Snap-On Training Boards
- c. Construction of Circuits on Training Boards
  - 1. Series
  - 2. Parallel
  - 3. Series Parallel
  - 4. Use of Relays

#### **4. On-Car Service**

- a. Checking Fuses**
- b. Jump Starting**
- c. Charging a Battery**
- d. Checking Continuity**
- e. Checking Voltage Drops**
- f. Checking for Parasitic Draw**
- g. Checking Blower Resistors**
- h. Checking Solenoids**
- i. Battery Testing**
- j. Starter Testing**
- k. Charging System Testing**
- l. Accessories Testing (if time permits)**