COURSE OUTLINE

AUTO 122 - AUTOMOTIVE ELECTRICAL SYSTEMS LABORATORY

Prepared By: BRANDON BALDWIN

CANINO SCHOOL OF ENGINEERING TECHNOLOGY
AUTOMOTIVE TECHNOLOGY
November 2015
A. **TITLE:** Automotive Electrical Systems Lab

B. **COURSE NUMBER:** AUTO 122

C. **CREDIT HOURS:** 1

D. **WRITING INTENSIVE COURSE:** NO

E. **COURSE LENGTH:** 15 weeks

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

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

H. **CATALOGUE 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.

I. **PRE-REQUISITES/CO-COURSES:**
   a. Pre-requisite(s): NONE
   b. Co-requisite(s): AUTO 112

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

<table>
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<tr>
<th>Course Objective</th>
<th>Institutional SLO</th>
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<tr>
<td>Demonstrate knowledge basic electrical and electronic theories</td>
<td>2. Crit. Thinking  3. Prof. Comp</td>
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<td>Interpret DVOM readings to diagnose electrical circuits</td>
<td>2. Crit. Thinking  3. Prof. Comp</td>
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<td>Read and interpret electrical schematic charts</td>
<td>2. Crit. Thinking  3. Prof. Comp</td>
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<tr>
<td>Diagnose &amp; service the charging, starting, and accessory systems</td>
<td>2. Crit. Thinking  3. Prof. Comp</td>
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K. **TEXTS:** Electrical and Electronic Systems; NATEF standards job sheets, 4th edition, by Jack Erjavec/Ken Pickerill

L. **REFERENCES:** Shop manuals of manufacturers, Mitchell manuals, All Data, General Motors EST

M. **EQUIPMENT:** Snap-On 504 DVOM, VAT-40, jumper wires, Snap-On Electrical Trainers

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

O. **MEASUREMENT CRITERIA/METHODS:** Laboratory performance tests, attendance

P. **LABORATORY OUTLINE:**

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)