

COURSE OUTLINE

Developed By: B. Hughes July, 07

DEPARTMENT:	Automotive Technology
CURRICULUM:	General Service Technician Program
COURSE TITLE:	Introduction to Electricity
COURSE NUMBER:	AUT 100
TYPE OF COURSE:	Vocational Preparatory
COURSE LENGTH:	Normally 3 weeks
CREDIT HOURS:	4
LECTURE HOURS:	15
LAB HOURS:	60
CLASS SIZE:	20 maximum
PREREQUISITES:	MVM 100 (Introduction to Automotive Technology I), MVM 102 (Introduction to Automotive Technology II), basic math skills, and 9 <sup>th</sup> grade or higher reading level (as evidence by appropriate test scores), and/or instructor's permission.

COURSE DESCRIPTION:

Contents include: electrical theory, diagnosing electrical system problems, as well as removal, repair and installation of electrical components from vehicles. In addition, the function and construction of each component, as well as their diagnosis and service procedures will be covered. Instruction in safety, environmental awareness, human relations and leadership are taught as an integral part of this unit of study.

STUDENT LEARNING OUTCOMES ADDRESSED:

1. Critical Thinking - Use problem solving skills to diagnose and repair automotive electrical system problems. (SLO 4.1)
2. Technology – Proper use and care of electrical repair tools and equipment. (SLO 5.1)

PROGRAM OUTCOMES:

1. Inspect, diagnose, disassemble, repair, replace and service each of the major systems in various types of vehicles. (SLO 4.1)
2. Locate sources, make parts write-ups, calculate costs and explain repair or service. (SLO 2.1, 2.2 & 7.1)
3. Handle customer needs, complaints, questions and special challenges. (SLO 3.1 & 3.2)
4. Access and apply manufacturer's specifications in repair and replacement. (SLO 7.1)
5. Work safely and responsibly within all shop safety and environmental guidelines and standards. (SLO 6.4 & 6.5)
6. Demonstrate ability to pass the ASE test required for NATEF certification. (SLO 1.1, 1.2 & 7.1)
7. Communicate and document service records. (SLO 2.1)
8. Compute costs, time and measurements. (SLO 2.1, 2.2 & 7.1)
9. Work independently and in groups to service, repair, test and maintain vehicles. (SLO 3.1 & 6.3)
10. Use technology to test vehicles. (SLO 5.1)
11. Work with accuracy, dependability, proficiency and in a timely manner, when servicing equipment. (SLO 6.3 & 6.4)

GENERAL COURSE OBJECTIVES:

At the end of the course the student will:

1. Identify the components and parts of various automotive electrical systems.
2. Explain the functions of the various automotive electrical components and parts.
3. Demonstrate how to diagnose and troubleshoot problems with automotive electrical systems.
4. Perform service procedures on automotive electrical systems.
5. Demonstrate proficiency in NATEF competencies.

TOPICAL OUTLINE:

APPROX. HOURS

I. Automotive safety	5
II. Principles of automotive electrical systems	10
III. Components of automotive electrical systems	10
IV. Demonstrate how to use electrical wiring diagrams	10
V. Diagnosing and service automotive batteries	10
VI. Diagnosing and service the starting system	10
VII. Diagnosing and service the charging system	10
VIII. Diagnosing and service lighting and wiring systems	<u>10</u>
Total	75