

**J. Sargeant Reynolds Community College
Course Content Summary**

Course Prefix and Number: AUT 241

Credits: 3

Course Title: Automotive Electricity I

Course Description (including lecture hours, lab hours, total contacts)

Introduces electricity and magnetism, symbols and circuitry as applied to alternators, regulators, starters, lighting systems, instruments and gauges and accessories. Lecture 2 hours. Laboratory 3 hours. Total 5 hours per week.

General Course Purpose: To examine the basic theory, operation and repair of charging, starting, ignition and accessory systems found on various automotive vehicles. Safety will be emphasized.

Course Prerequisites/Corequisites (*Entry-level competencies **required** for enrollment*)

None

Course Objectives (Each item should complete the following sentence.)

Upon completing the course, the student will be able to:

- a. Define various electrical terms
- b. Identify and demonstrate the proper use of standard testing tools and equipment
- c. Define how a storage battery works
- d. Demonstrate the proper methods of removing, installing, testing, charging and maintaining storage batteries
- e. Demonstrate the proper test and repair procedures for starters and starter circuit
- f. Demonstrate the proper test and repair procedures for alternators and charging circuits
- g. Demonstrate the proper test and installation procedures for components for the ignition system
- h. Demonstrate the proper test and repair procedures for basic light wiring

Major Topics to be Included

- a. Basics of Electricity
- b. Ohm's Law
- c. Watt's Law
- d. Components of an Electrical Circuit
- e. Circuit Protection Devices
- f. Meters and Measuring Devices
- g. Series, Parallel, and Series/Parallel Circuits
- h. Basic Troubleshooting Techniques and Tips
- i. Lighting Circuits
- j. Basics of Electronics and Computers
- k. Accessory Circuits and Basic Instrumentation
- l. Batteries and Testing
- m. Starting System Theory
- n. Charging System Theory
- o. Ignition System Theory

Effective Date of Course Content Summary (Month, Date Year): February 9, 2009