

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

Course Prefix and Number: AUT 241

Credits: 3

Course Title: Automotive Electricity I

Course Description: Introduces electricity and magnetism, symbols and circuitry as applied to alternators, regulators, starters, lighting systems, instruments and gauges, and accessories. Part I of II. 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 and Co-requisites:

None

Student Learning Outcomes:

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; and
- 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

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