

**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. 3 credits

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

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

Major Topics to Be Included:

- Basics of Electricity
- Ohm's Law
- Watt's Law
- Components of an Electrical Circuit
- Circuit Protection Devices
- Meters and Measuring Devices
- Series, Parallel, and Series/Parallel Circuits
- Basic Troubleshooting Techniques and Tips
- Lighting Circuits
- Basics of Electronics and Computers
- Accessory Circuits and Basic Instrumentation
- Batteries and Testing
- Starting System Theory
- Charging System Theory
- Ignition System Theory

Effective Date/Updated: January 24, 2019