J. Sargeant Reynolds Community College
Course Content Summary

Course Prefix and Number: EGR 255 **Credits:** 1

Course Title: Electric Circuits Laboratory

Course Description: Teaches principles and operation of laboratory instruments such as VOM, electronic voltmeters, digital multimeters, oscilloscopes, counters, wave generators and power supplies. Presents application to circuit measurements, including transient and steady-state response of simple networks with laboratory applications of laws and theories of circuits plus measurement of AC quantities. Introduces computer-based circuit analysis software. Includes applications of graphing calculators and electronic spreadsheet software to circuit analysis. Co-requisite: EGR 251. Laboratory 3 hours per week.

General Course Purpose: This is the companion laboratory course for EGR 251.

Course Prerequisites and Co-requisites:
Co-requisite: EGR 251

Course Objectives:
Upon completing the course, the student will be able to
a. Demonstrate a basic familiarity with laboratory instruments;
b. Build, debug, and operate basic electric circuits;
c. Demonstrate a basic understanding of DC circuit analysis;
d. Demonstrate an understanding of basic operational amplifier circuits;
e. Demonstrate a basic understanding of DC transient and AC steady state response;
f. Demonstrate a basic understanding of circuit quantities;
g. Complete formal lab reports;
h. Work effectively in a team-based learning environment; and
i. Design LED-based circuits to present information, such as an electronic voltmeter.

Major Topics to Be Included:
a. Principles and operation of laboratory instrumentation
b. Applications of circuit analysis to laboratory-based circuits
c. Measurement of transient and steady state response
d. Computer-based circuit analysis software
e. Application of graphing calculators to circuit analysis
f. Construction and operation of basic operational amplifier circuits
g. Design of operational amplifier circuits

Effective Date of Course Content Summary: May, 2009