

J. Sargeant Reynolds Community College
Course Content Summary

Course Prefix and Number: ETR 113 Credits: 4

Course Title: D.C. and A.C. Fundamentals I

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

Studies D.C. and A.C. circuits, basic electrical components, instruments, network theorems, and techniques used to predict, analyze, and measure electrical quantities. Lecture 3 hours. Laboratory 3 hours. Total 6 hours per week.

General Course Purpose

This was a required course in the Electronics Technology AAS degree program. That program has been discontinued and will be undergoing its teach out phase in 2009 and following.

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

Co-requisite or prerequisite: MTH 4 or equivalent or permission of the instructor.

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

Upon successful completion of the course, the student will be able to

- a. solve series, parallel, and series-parallel resistive circuits for dc circuit parameters.
- b. solve series, parallel, and series-parallel resistive circuits for ac circuit parameters.
- c. solve capacitor or inductor circuits for dc circuit parameters.
- d. solve capacitor or inductor circuits for ac circuit parameters.
- e. perform measurements for dc and ac circuits including use of an oscilloscope.

Major Topics to be Included

- a. Engineering notation, quantities, units and symbols
- b. Resistance, voltage, current and basic measurements
- c. Ohm's law and power
- d. Series, parallel, and series-parallel resistive circuits for ac
- e. Capacitors and inductors in dc circuits
- f. AC, sine waves, pulse waves and the oscilloscope
- g. Series, parallel, and series-parallel resistive circuits for ac
- h. Capacitors and inductors in ac circuits

Effective Date of Course Content Summary: May 2009