

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

**Course Prefix and Number: ETR 113 Credits: 3**

**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 2 hours. Laboratory 3 hours. Total 5 hours per week.

**General Course Purpose**

This is a required course in the Electronics Technology Career Studies Certificate program.

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

Co-requisite or prerequisite: MTH4 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**