

J. Sargeant Reynolds Community College
Course Content Summary

Course Prefix and Number: ETR 114

Credits: 4

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

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. Part II of II. 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*)

Prerequisite: ETR 113 or equivalent.

Course Objectives

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

- a. solve dc circuits requiring circuit theorems or advanced methods.
- b. solve transformer circuit problems.
- c. solve RLC circuit problems using complex numbers.
- d. solve ac circuits requiring circuit theorems or advanced methods.
- e. solve pulse response circuit problems.
- f. solve three phase circuit problems.

Major Topics to be Included

- a. Circuit theorems (superposition, Thevenin, Norton, and Millman) for dc
- b. Delta-wye conversions for dc
- c. Branch, mesh, and node analysis for dc
- d. Transformers
- e. Complex numbers and phasors
- f. Series, parallel, and series-parallel RC, RL and RLC circuits
- g. Circuit theorems (superposition, Thevenin, Norton and Millman) for ac
- h. Frequency response and filter circuits
- i. Three phase ac and Delta-wye conversions for ac

Effective Date of Course Content Summary: May 2009