

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

**Course Prefix and Number: ETR 101**

**Credits: 3**

**Course Title:** Electrical/Electronic Calculations I

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

Teaches calculation methods and fundamental applications and processes to electrical and electronic problems. Stresses basic calculations required in circuit analysis. Includes problem solving utilizing calculators or computers. Lecture 2 hours. Laboratory 3 hours. Total 5 hours per week.

**General Course Purpose**

This course is part of the Electronics Technology Career Studies Certificate program. It reinforces calculating and analytical skills for program participants.

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

Prerequisite: MTH 3 or equivalent.

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

Upon completing the course, the student will be able to:

- a. demonstrate how to use a hand-held calculator.
- b. utilize number systems and positive and negative numbers in problem solutions.
- c. utilize algebraic techniques to solve electrical problems in series, parallel, and series-parallel circuits.
- d. utilize trigonometry of the right triangle to solve problems involving ac circuits with inductive and capacitive components.
- e. utilize exponential functions to solve problems in transient circuit analysis.

**Major Topics to be Included**

- a. Hand-held calculators
- b. Number systems
- c. Square roots and cube roots
- d. Percentages
- e. Algebraic equations
- f. Series and parallel circuits
- g. Graphing
- h. Polynomials
- i. Kirchhoff's Laws
- j. Simultaneous equations
- k. Exponents
- l. Trigonometry of the right triangle

**Effective Date of Course Content Summary (Month, Date Year):** May 2009