

J. Sargeant Reynolds Community College
Course Content Summary

Course Prefix and Number: ETR 203

Credits: 3

Course Title: Electronic Devices I

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

Studies active devices and circuits such as diodes, power supplies, transistors, amplifiers and others. Prerequisite: Knowledge of D.C. and A.C. theory. 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*)

Prerequisites: Knowledge of D.C. and A.C. theory; ETR 113 or equivalent.

Course Objectives

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

- a. describe basic semiconductor properties.
- b. analyze and troubleshoot power supply circuits.
- c. analyze and troubleshoot special diode circuits.
- d. analyze and troubleshoot BJT amplifier circuits.
- e. analyze and troubleshoot JFET and MOSEFET amplifier circuits.
- f. analyze and troubleshoot power amplifiers.

Major Topics to be Included

- a. Semiconductor principles
- b. Rectifier diodes and circuits
- c. Operation and circuits for Zener diodes and other special purpose diodes
- d. Clippers and clampers using diodes
- e. BJT operation, biasing and amplification
- f. JFET operation, biasing and amplification
- g. MOSFET operation, biasing and amplification
- h. Power amplifiers and cascaded stages
- i. Troubleshooting basics

Effective Date of Course Content Summary: May 2009