

J. Sargeant Reynolds Community College
Course Content Summary

Course Prefix and Number: ETR 222

Credits: 4

Course Title: Electronic Controls II

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

Discusses characteristics and performance of linear control systems with one or more feedback loops. Includes functions and properties of various components encountered in control systems including servo-amplifiers and error detectors, machine synchronization for automatic operations. 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 203 or equivalent.

Course Objectives

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

- a. implement closed-loop industrial systems.
- b. identify wound-rotor DC motors.
- c. identify nontraditional DC motors.
- d. identify AC motors.
- e. implement starting, reversing and breaking.
- f. implement DC motor speed control.
- g. implement AC motor speed control.
- h. apply closed-loop industrial control with an on-line microcomputer.

Major Topics to be Included

- a. Feedback and servomechanism principles
- b. Circuit and device theory
- c. Advanced troubleshooting practice.
- d. Digital electronics applications for closed loop control of industrial automation systems
- e. AC and DC motors and motor speed control

Effective Date of Course Content Summary: May 2009