

NVCC COLLEGE-WIDE COURSE CONTENT SUMMARY

ETR 221 - ELECTRONIC CONTROLS I (4 CR.)

COURSE DESCRIPTION

Study of practical open and closed loop control systems. Includes control modes and functional properties of: sensors, actuators, controllers, and devices usually found in power control in industry. Lecture 3 hours. Laboratory 3 hours. Total 6 hours per week.

GENERAL COURSE PURPOSE

To provide a comprehensive coverage of the theory of operation, design considerations, and trouble shooting.

ENTRY LEVEL COMPETENCIES

Prerequisite or corequisite is ETR 250 – “Solid State Electronics” or ETR 261 – “Microprocessor Application I”.

COURSE OBJECTIVES

As a result of the learning experiences provided in this course, the student should be able to analyze, design, and trouble shoot circuitry involving those topics in course information.

MAJOR TOPICS TO BE INCLUDED

LECTURE

- A. Switches, solenoids, and electro magnetic relays
- B. Thyristors and thyristor triggering
- C. IC Instrumentation amplifiers
- D. DC & AC motors
- E. Power control circuits
- F. Transducers & Sensors
- G. Industrial Process Control
- H. Sequential Process Control

LABORATORY

- A. DC Electromagnetic relay
- B. Silicon Controlled rectifier
- C. Injunction transistor
- D. Zero voltage switch
- E. Photoresistor
- F. Instrumentation Amplifier
- G. Phase Control
- H. Triac/Diac
- I. Motor Control
- J. Sequence Timer