

NVCC COLLEGE-WIDE COURSE CONTENT SUMMARY

ETR 250 – SOLID STATE ELECTRONICS (4 CR.)

COURSE DESCRIPTION

Teaches the theory and application of amplifiers and oscillators. Includes amplifier circuit configurations, operational amplifiers, large signal amplifiers at audio and radio frequencies and introduces regulated Power Supplies. Lecture 3 hours. Laboratory 3 hours. Total 6 hours per week.

GENERAL COURSE PURPOSE

This course is designed to provide intensive coverage of the theory of operation (and analysis) of various amplifiers.

ENTRY LEVEL COMPETENCIES

Prerequisites are ETR 144 – “Devices and Applications II” and MTH 166 – “Precalculus with Trigonometry”.

COURSE OBJECTIVES

The objective is to teach the student to analyze amplifiers.

MAJOR TOPICS TO BE INCLUDED

LECTURE

- A. Power Amplifiers (Audio)
- B. RF Voltage Amp
- C. RF Power Amp
- D. Oscillators
- E. OP Amp
- F. Linear and Switching Regulators
- G. Introduction to active Filters

LABORATORY

- A. Push-pull AF AMP
- B. Out Put Transformerless AF AMP
- C. LC Oscillators
- D. Crystal Oscillator
- E. 741 OP AMP
- F. Differential OP AMP
- G. Slew rate and distortion in OP AMPS
- H. Wien bridge oscillator

- I. Zener Regulator
- J. IC Linear regulator
- K. Active Filters