

project. Financial, legal, ethical, societal, regulatory, environmental, manufacturability, and quality issues will be discussed and will constrain the designs as appropriate.

Lecture: one hour; laboratory: four hours.

ELEC 422      *Design II*      Three Credit Hours

Prerequisite: ELEC 421 taken the preceding semester.

Required of all electrical engineering seniors.

Continuation of the major design project begun in Elec 421. Project implementation, documentation, and reporting. Normally to be accomplished by students working in the small groups formed in ELEC 421. The impact of the practical, societal, and governmental issues raised in ELEC 421 will be assessed. Each student will make written and oral presentations on their contributions to the project. A prototype demonstration and presentation of final results in a symposium format is required.

Lecture: one hour; laboratory: four hours.

ELEC 423      *Digital Signal Processing*      Three Credit Hours

Prerequisite: ELEC 312 and ELEC 330

Introduction to the characteristics, design, and applications of discrete time systems including discrete time Fourier Transforms, FIR, and IIR Systems. Design of FIR and IIR filters. Design of Chebyshev and Butterworth filters. Introduction to DSP architecture.

Lecture: three hours.

ELEC 424      *Solid-State Devices*      Three Credit Hours

Prerequisites: PHYS 222/272, MATH 234, and ELEC 306

Basic principles governing the operation of solid-state devices are developed from fundamental concepts. P-N junction theory is developed and applied to the analysis of devices such as bipolar transistors, solar cells, detectors, and photo devices. The theory of field-effect devices is developed.

Lecture: three hours.

ELEC 425      *Interference Control in Electronics*      Three Credit Hours

Prerequisites: ELEC 309, ELEC 318, and ELEC 330

An introduction to the control and measurement of interference between electronic devices. Analysis methods and practical design techniques to minimize both radiated and conducted emissions and susceptibility will be taught. The course will also cover ways of enhancing signal integrity in high-speed circuits and reducing crosstalk. Laboratory exercises and demonstrations will be used to reinforce the material.

Lecture: three hours.

ELEC 426      *Antennas and Propagation*      Three Credit Hours

Prerequisites: ELEC 318

Transmission, radiation, and propagation of electromagnetic waves by means of transmission lines, waveguides, optical fibers, and antennas.

Lecture: three hours.