

ECET 2310L: Electronics II Lab

1 Credit Hours

Concurrent: ECET 2310

In this course students simulate, build, and test single- and multi-stage transistor amplifier circuits and operational amplifier circuits. Applications include determining amplifier and filter gain and frequency response, measuring differential amplifier performance, investigating feedback principles, and implementing oscillator circuits.

ECET 3400: Data Communications

3 Credit Hours

Prerequisite: ECET 2300 and (PHYS 1112 or PHYS 2212)

This course is a survey of data communication topics. The OSI and TCP/IP protocol models are covered, with emphasis placed on protocols associated with the lower layers. Concepts include synchronous and asynchronous transmission, line codes, signaling, effects of bandwidth and noise, and digital and analog modulation. Error detection and correction are also covered. Other areas studied include analog-to-digital conversion, multiplexing, circuit and packet switching, and network topologies.

ECET 3410: High Frequency Systems

3 Credit Hours

Prerequisite: ECET 2300 and (PHYS 1112 or PPHYS 2212)

This course is a study of electronic signal transmission systems. It includes an analysis of transmission lines with a concentration on their fundamental principles, specifications, operation and practical applications. The course also includes the study of the fundamental principles of waveguides, and wireless and fiber-optic communications.

ECET 3500: Survey of Electric Machines

3 Credit Hours

Prerequisite: ECET 2111

This course is a survey of electric machine topics, focusing on the characteristics and applications of basic electric machinery. It introduces classical electromagnetism and magnetic circuits as the basis for electromechanical energy conversion and machine operation. Single-phase and three-phase transformers are covered, along with three-phase and single-phase induction machines, DC machines, and synchronous machines, with emphasis placed on their operational characteristics and modeling.