

ELECTRONICS/TELECOMMUNICATIONS TECHNOLOGY (ELEC)

ELEC 100. Direct Current Analysis

Credits: 4

Corequisite: Concurrent registration in, or previous successful completion of, ELEC 100L or departmental approval.

Typically Offered: FALL

The study of the concepts of current, voltage and resistance through problem solving and schematic drawings as they apply to DC circuits analysis.

ELEC 100L. Direct Current Analysis Lab

Credits: 1

Corequisite: Concurrent registration in, or previous successful completion of, ELEC 100 or departmental approval.

Typically Offered: FALL

The lab portion of the course is a lab/lecture, which provides hands-on verification of the theory presented in class.

ELEC 114. Digital Electronics I

Credits: 3

Corequisite: Concurrent registration in, or previous successful completion of, ELEC 114L or departmental approval.

Typically Offered: FALL

The study of number systems, logic gates, Boolean algebra, and combination logic circuits.

ELEC 114L. Digital Electronics I Lab

Credits: 1

Corequisite: Concurrent registration in, or previous successful completion of, ELEC 114 or departmental approval.

Typically Offered: FALL

The lab portion of the course is a lab/lecture, which provides hands-on verification of the theory presented in class.

ELEC 115. Digital Electronics II

Credits: 3

Corequisite: Concurrent registration in, or previous successful completion of, ELEC 115L or departmental approval.

Typically Offered: SPRING

The study of arithmetic circuits, code converters, decoders, encoders, multiplexers, demultiplexers, multivibrators, and flip-flops.

ELEC 115L. Digital Electronics II Lab

Credits: 1

Corequisite: Concurrent registration in, or previous successful completion of, ELEC 115 or departmental approval.

Typically Offered: SPRING

The lab portion of the course is a lab/lecture, which provide hands-on verification of the theory presented in class.

ELEC 118. Solid State Devices I

Credits: 4

Corequisite: Concurrent registration in, or previous successful completion of, ELEC 118L or departmental approval.

Typically Offered: FALL

The study of semiconductor physics, fundamentals of semiconductors, power supplies, transistors, characteristics of biasing circuits, amplifier properties, and FET characteristics and applications.

ELEC 118L. Solid State Devices I Lab

Credits: 1

Corequisite: Concurrent registration in, or previous successful completion of, ELEC 118 or departmental approval.

Typically Offered: FALL

The lab portion of the course is a lab/lecture, which provides hands-on verification of the theory presented in class.

ELEC 120. AC Analysis

Credits: 4

Corequisite: Concurrent registration in, or previous successful completion of, ELEC 120L or departmental approval.

Typically Offered: SPRING

The study of dB, complex numbers, RC, RI and RLC circuits, resonance, and passive and active filters.

ELEC 120L. AC Analysis Lab

Credits: 1

Corequisite: Concurrent registration in, or previous successful completion of, ELEC 120 or departmental approval.

Typically Offered: SPRING

The lab portion of the course is a lab/lecture, which provides hands-on verification of the theory presented in class.

ELEC 130. Active Devices

Credits: 4

Corequisite: Concurrent registration in, or previous successful completion of, ELEC 130L or departmental approval.

Typically Offered: SPRING

The study of various electronic devices and circuitry including; Thyristors, Operational Amplifiers, and Regulated Power Supplies.

ELEC 130L. Active Devices Lab

Credits: 1

Corequisite: Concurrent registration in, or previous successful completion of, ELEC 130 or departmental approval.

Typically Offered: SPRING

The lab portion of the course is a lab/lecture, which provides hands-on verification of the theory presented in class.

ELEC 216. Digital Electronics III

Credits: 4

Prerequisite: Completion of first year Electronics/ Telecommunications Technology program, or equivalent and departmental approval.

Corequisite: Concurrent registration in, or previous successful completion of, ELEC 216L or departmental approval.

Typically Offered: FALL

An extension of ELEC 115, a study of advanced integrated circuits. Topics covered are registers, processors, memory and a study of microcontrollers. Each student will have a laptop and a BASIC STAMP microcontroller which will be used as a training tool for interfacing devices in a digital world.

ELEC 216L. Digital Electronics III Lab

Credits: 1

Prerequisite: Completion of first year Electronics/Telecommunications Technology or departmental approval.

Corequisite: Concurrent registration in, or previous successful completion of, ELEC 216 or departmental approval.

Typically Offered: FALL

The lab portion of the course is a lab/lecture, which provides hands-on verification of the theory presented in class.

ELEC 218. Digital Electronics IV

Credits: 4

Prerequisites: ELEC 216 and ELEC 216L or equivalent and departmental approval.

Corequisite: Concurrent registration in, or previous successful completion of, ELEC 218L or departmental approval.

Typically Offered: SPRING

A continuation of ELEC 216, students will become familiar with the architecture, programming, application and troubleshooting of micro-controller circuits. A to D and D to A converters are covered. Basic data acquisition theory and practices are also discussed. The BASIC STAMP will be used to interface with mechanical and optical switches, remote radio control and DC motor monitor/control circuits.

ELEC 218L. Digital Electronics IV Lab

Credits: 1

Prerequisites: ELEC 216 and ELEC 216L or equivalent and departmental approval.

Corequisite: Concurrent registration in, or previous successful completion of ELEC 218 or departmental approval.

Typically Offered: SPRING

The lab portion of the course is a lab/lecture, which provides hands-on verification of the theory presented in class.

ELEC 222. Electronic Communications I

Credits: 4

Prerequisite: Completion of first year Electronics/Telecommunications Technology program or equivalent and departmental approval.

Corequisite: Concurrent registration in, or previous successful completion of ELEC 222L or departmental approval.

Typically Offered: FALL

Review of reactive and resonant circuits. Circuits used to generate and detect amplitude modulation and frequency modulation. Power, current and voltage relationships in an AM and FM wave. Phase relationship between carrier and sidebands. Circuits used to generate and detect amplitude and frequency modulation. Power, current and voltage relationships in an AM and FM wave. Phase relationship between carrier and sidebands.

ELEC 222L. Electronic Communications I Lab

Credits: 1

Corequisite: Concurrent registration in, or previous successful completion of, ELEC 222 or departmental approval.

Typically Offered: FALL

The lab portion of the course is a lab/lecture, which provides hands-on verification of the theory presented in class.

ELEC 224. Electronic Communications II

Credits: 4

Prerequisites: ELEC 222 and ELEC 222L or equivalent and departmental approval.

Corequisite: Concurrent registration in, or previous successful completion of, ELEC 224L or departmental approval.

Typically Offered: SPRING

Topics covered are transmitter circuits, receiver circuits, antennas and transmission lines.

ELEC 224L. Electronics Communications II Lab

Credits: 1

Prerequisites: ELEC 222 and ELEC 222L.

Corequisite: Concurrent registration in, or previous successful completion of, ELEC 224 or departmental approval.

Typically Offered: SPRING

The lab portion of the course is a lab/lecture, which provides hands-on verification of the theory presented in class.

ELEC 232. Telecommunications I

Credits: 4

Prerequisite: Completion of first year Electronics/Telecommunications Technology or departmental approval.

Corequisite: Concurrent registration in, or previous successful completion of, ELEC 232L or departmental approval.

Typically Offered: FALL

This course introduces a basic telephone local loop and the tests that are performed on it. A basic series DC circuit allows students not only an introduction into the access circuit, but is a good review of basic DC circuits in a real world application. Students use specialized test equipment to perform measurements of voltage, current, resistance, capacitance, and noise and circuit length. Students also are be introduced to cable location and ground fault location. An outdoor practice field is used for the student's hands-on tasks. Additional topics covered are the Public Switched Telephone Network, customer premise equipment, analog and digital transmission.

ELEC 232L. Telecommunications I Lab

Credits: 1

Prerequisite: Completion of first year Electronics/Telecommunications Technology program, or equivalent and departmental approval.

Corequisite: Concurrent registration in, or previous successful completion of, ELEC 232 or departmental approval.

Typically Offered: FALL

The lab portion of the course is a lecture/lab that provides hands-on verification of the theory and concepts presented in the lecture class. Activities include underground cable location, cable ground fault location, determining the length of a line using a subscriber loop test set using the capacitance method and using a time domain reflectometer. Line and cable color code are also covered.

ELEC 234. Telecommunications II

Credits: 4

Prerequisites: ELEC 232 and ELEC 232L or departmental approval.

Corequisite: Concurrent registration in, or previous successful completion of, ELEC 234L or departmental approval.

Typically Offered: SPRING

This course is involved with the introductory study of newer technologies other than the plain old telephone service. Topics covered are T carrier, packet switching, FTTx, PON, VOIP, LAN topologies, IPv4, IPv6 and Ethernet.

ELEC 234L. Telecommunications II Lab

Credits: 1

Prerequisites: ELEC 232 and ELEC 232L or departmental approval.

Corequisite: Concurrent registration in, or previous successful completion of, ELEC 234 or departmental approval.

Typically Offered: SPRING

The lab portion of the course provides hands-on practice opportunities for the students in the following areas: connectorizing and testing of Ethernet copper cable; connectorizing and testing of adhesive, crimp-on and fuse-on fiber optic connectors; mechanical splicing, fusion splicing and testing of fiber optic cable. Students become familiar with the operation and use of OTDR, visual fault locator, calibrated light source/power meter, fusion splicer and connector inspection microscope for fiber cable. The students work on a simulated telephone system comprised of two PBXs with both analog and VOIP capabilities. The students also work on a FTTx system that transports data through a PON to each lab bench. Students perform systems checks and troubleshooting on both systems.