

# ELECTRONIC ENGINEERING TECHNOLOGY (EET)

## EET 1110 – Circuit Analysis I

**Credit Hours: 3.00 Total Contact Hours: 4.00 Lecture Hours: 2.00 Lab Hours: 2.00**

Covers the analysis of networks with resistive loads, the transient response to capacitive and inductive networks and an introduction to instruments. Laboratory activity will include verification of circuit analysis methods by circuit construction and electrical measurement. Lab report writing is emphasized. There is an introduction to MULTISIM, a computer simulated circuit analysis.

**Offered:** Fall

**Transfer:** TAG.

## EET 1120 – Circuit Analysis II

**Credit Hours: 3.00 Total Contact Hours: 4.00 Lecture Hours: 2.00 Lab Hours: 2.00**

Covers the analysis of networks with a combination of resistive, capacitive, and inductive loads. Topics include methods of analysis, network theorems and power. Laboratory activity will include verification of circuit analysis methods by circuit construction and electrical measurement. Course offers additional work with MULTISIM.

**Offered:** Spring

**Transfer:** TAG

**Prerequisites:** EET 1110.

## EET 1130 – Electronics

**Credit Hours: 4.00 Total Contact Hours: 5.00 Lecture Hours: 3.00 Lab Hours: 2.00**

Introduces the theory, operation, and practical applications of solid state devices. Topics include diodes, bipolar junction transistors, amplifiers, frequency response, operational amplifiers, oscillators, power supplies, and voltage regulators. Includes hands-on labs.

**Offered:** Spring

**Transfer:** TAG

**Prerequisites:** EET 1110.

## EET 1250 – Battery Safety

**Credit Hours: 3.00 Total Contact Hours: 3.00 Lecture Hours: 3.00**

Introduces battery safety with a focus on those designed for electric vehicles. It covers the safety fundamentals of battery charging, battery charging stations and the related equipment that exist when working with or around industrial batteries. Emphasis will be placed on proper selection and use of personal protective equipment while maintaining OSHA compliance. A focus on the hazards associated with charging and charging batteries will be studied to protect workers while performing the required work duties.

**Offered:** Fall.

## EET 1270 – EV Energy Storage

**Credit Hours: 4.00 Total Contact Hours: 4.00 Lecture Hours: 4.00**

Introduces energy storage systems for electric vehicles. It covers the fundamentals of energy conversion including thermodynamics, chemical energy storage in fuels and hydrogen, electrochemical systems for storing energy, battery chemistry in charging and discharging batteries, and the sustainability of advanced energy storage systems. This course will also compare the environmental effects of current fossil-fueled energy systems and conversion processes with more sustainable systems using renewable energy and more efficient conversion processes.

**Offered:** Spring.

## EET 1330 – Digital Circuits

**Credit Hours: 4.00 Total Contact Hours: 5.00 Lecture Hours: 3.00 Lab Hours: 2.00**

Introduces students to computer based number systems, symbolic logic concepts, Boolean Algebra, logic devices, and basic logic circuits. Logic circuits are analyzed using truth tables and timing diagrams. Laboratory work will demonstrate and verify the principles studied in the classroom.

**Offered:** Fall

**Transfer:** TAG.

## EET 1990 – Independent Study in EET

**Credit Hours: 0.00 Total Contact Hours: 0.00**

Provides the student with the opportunity for in-depth work on a special topic within the field of Electronic Engineering Technology, which the student was not able to pursue in-depth during the regular course offerings. During the first week of the semester, the student is required to describe in writing the proposed course of study he/she wishes to pursue. Such proposal must be submitted to the division dean for approval and student assignment to an Electronic Engineering Technology area faculty member for overseeing the project. This course of independent study may be substituted for an Electronic Engineering technical course if it is applicable. No more than five (5) credit hours will count toward graduation.

**Offered:** Summer, Fall, Spring.

## EET 2030 – Motor Controls

**Credit Hours: 3.00 Total Contact Hours: 4.00 Lecture Hours: 2.00 Lab Hours: 2.00**

Introduces motor control devices and the circuits they are designed to be used in. Electronic components used as controlling and sensing devices are reviewed. Magnetic relays, motor starters, timers, forward and reversing starters and other motor control devices are introduced. Different types of motors are also discussed. These may include direct current motors, three-phase and single-phase alternating current motors and stepping motors. Different methods for starting, accelerating, stopping, and reversing motors will be discussed. Laboratory activity will be used to wire up control circuits and analyze important characteristics of these circuits.

**Offered:** Fall

**Prerequisite:** EET 1110.

## EET 2200 – Panel Wiring and Arc Flash Safety

**Credit Hours: 3.00 Total Contact Hours: 4.00 Lecture Hours: 2.00 Lab Hours: 2.00**

Provides students with the ability to read industrial electrical prints. Students will learn to wire industrial electrical panels and use soldered and crimped-on connectors. Students will learn to properly layout wires in an industrial panel using the correct size and colors of wires according to applicable codes and standards. Students will also learn to safely open live high voltage electrical panels following the latest Arc Flash safety standards and use the appropriate protective equipment.

**Offered:** Spring.

**EET 2310 – Microcontroller Fundamentals**

**Credit Hours: 4.00 Total Contact Hours: 5.00 Lecture Hours: 3.00 Lab Hours: 2.00**

Covers the fundamentals of microcomputers. Since the introduction of the 8-bit microprocessors in 1973, the marketplace for the microprocessor has advanced into all areas of industrial and consumer goods. The microcontroller incorporates a microprocessor and additional I/O and can be customized for specific application. In order to use the microcontroller, users must know how to instruct it, get information into and out of the circuits and communicate with the system in language the machine understands-this means software and programming. Hence, this course will give the student a good knowledge of the basic instructions of a microcontroller (Motorola 68HC12) and use these instructions to control the device and peripheral devices.

**Offered:** Spring

**Transfer:** TAG.

**EET 2311 – Microcontroller Fundamentals**

**Credit Hours: 3.00 Total Contact Hours: 4.00 Lecture Hours: 2.00 Lab Hours: 2.00**

Covers the fundamentals of microcomputers. Since the introduction of the 8-bit microprocessors in 1973, the marketplace for the microprocessor has advanced into all areas of industrial and consumer goods. The microcontroller incorporates a microprocessor and additional I/O and can be customized for specific application. In order to use the microcontroller, users must know how to instruct it, get information into and out of the circuits and communicate with the system in language the machine understands-this means software and programming. Hence, this course will give the student a good knowledge of the basic instructions of a microcontroller (Motorola 68HC12) and use these instructions to control the device and peripheral devices.

**Offered:** Summer, Fall, Spring.

**EET 2320 – C# Programming**

**Credit Hours: 3.00 Total Contact Hours: 4.00 Lecture Hours: 2.00 Lab Hours: 2.00**

Covers more advanced programming concepts using the Visual C# programming language. Students will create Windows applications using methods, classes, structures, arrays, writing to and reading from files and error trapping.

**Offered:** Fall

**Prerequisites:** CPT 1120.

**EET 2600 – Electrical and Electronic Maintenance**

**Credit Hours: 3.00 Total Contact Hours: 4.00 Lecture Hours: 2.00 Lab Hours: 2.00**

Introduces the student to electrical and electronic concepts associated with manufacturing maintenance. First half topics include safety, ladder logic, switches, sensors, measurements, fuses, motors, grounds, three-phase, electro-fluid control, and soldering. Second half topics include safety, relays, VFD installation, PLC programming, and troubleshooting.

**Offered:** Spring.

**EET 2900 – Electric Codes and Application**

**Credit Hours: 2.00 Total Contact Hours: 2.00 Lecture Hours: 1.00 Lab Hours: 1.00**

Provides combined classroom-laboratory study of the National Electrical Code and its application to wiring installations. Particular attention will be devoted to the electrical principles that dictate the various provisions of the code. The laboratory work will concur with the classroom studies. Actual wiring installations will be examined for adequacy and compliance with the code.

**Offered:** Spring.

**EET 2910 – Programmable Controllers**

**Credit Hours: 3.00 Total Contact Hours: 4.00 Lecture Hours: 2.00 Lab Hours: 2.00**

Introduces the field of programmable logic controllers (PLC). The student will use relay logic and ladder diagrams to control circuits with programmable controllers. The special aspects of the PLC, such as sequencers and timers, will also be utilized.

**Offered:** Spring

**Prerequisites:** EET 1330.

**EET 2911 – Programmable Logic Controllers**

**Credit Hours: 3.00 Total Contact Hours: 4.00 Lecture Hours: 2.00 Lab Hours: 2.00**

Introduces the field of programmable logic controllers (PLC). The student will use relay logic and ladder diagrams to control circuits with programmable controllers. The special aspects of the PLC, such as sequencers and timers, will also be utilized.

**Offered:** Fall

**Transfer:** TAG.

**EET 2920 – Advanced Programmable Controllers**

**Credit Hours: 3.00 Total Contact Hours: 4.00 Lecture Hours: 2.00 Lab Hours: 2.00**

Provides advanced experience in the application of programmable logic controllers (PLC). The students will gain experience in interfacing and networking PLC's to other PLC's and to industrial automation equipment.

**Offered:** Spring.

**EET 2970 – Electronic Engineering Technology Capstone **

**Credit Hours: 2.00 Total Contact Hours: 4.00 Lab Hours: 4.00**

Allows students to demonstrate their proficiency by integrating technical knowledge with core skills and abilities. This course will emphasize the evaluation of the total system requirements in designing systems for specific industrial applications. A laboratory project (or projects) will provide students with an opportunity to develop and solve a typical control problem using the programmable controller, or other industrial circuits. The course will include an e-portfolio assignment and an exit evaluation of critical thinking and writing.

**Offered:** Spring

**Prerequisites:** COM 1110.

**EET 2991 – Field Experience**

**Credit Hour: 1.00 Total Contact Hour: 1.00 Lecture Hour: 1.00**

Enables work activity which relates to an individual student's occupational objectives. With permission of a faculty advisor, the field experience replaces elective or required courses in a student's associate degree program. The experience is coordinated by a faculty member of the college who assist the student in planning the experience, visits the site of the experience for a conference with the student and his/her supervisor at least once during the semester and assigns the course grade to the student after appropriate consultation with the employer/supervisor. This course is graded S/U.

**Offered:** Summer, Fall, Spring

**Prerequisites:** Completion of 1st semester and faculty advisor approval.