

# ELECTRONICS ENGINEERING TECHNOLOGY (EET)

For additional information, contact the Industrial Technology Department at 503-594-3318.

## **EET-112 Electronic Equipment and Assembly I**

1 credits, Fall

This is the first course in a three course sequence. Focus is on building and testing simple DC prototype circuits. Covers DC power supplies, DMMs, breadboarding, resistor codes, and capacitor codes. Spreadsheets will be used to organize and analyze data.

## **EET-113 Electronic Equipment and Assembly II**

1 credits, Winter

This is the second course in a three course sequence. Exploration of oscilloscope and function generator functions to create and measure time varying signals. Spreadsheets are used to analyze and plot experimental data. Create circuits using PCB software.

Prerequisites: EET-112

## **EET-114 Electronic Equipment and Assembly III**

1 credits, Spring

This is the third course in a three course sequence with a focus on soldering skills. Through-hole and SMT techniques will be introduced.

Prerequisites: EET-113

## **EET-127 Semiconductor Circuits I**

2 credits, Fall

Introduction to the basic concepts of semiconductor devices. Various types of diodes and diode applications will be studied. Industry standard devices will be used.

Prerequisites: EET-142

Recommended Prerequisites: MTH-112Z

## **EET-137 Electrical Fundamentals I**

4 credits, Fall

Introduction to the basic concepts of voltage, current, resistance and their relationships in DC circuits. Use SI units, engineering notation and prefixes. Analysis of series, parallel and series-parallel circuits will be made using Ohm's & Kirchhoff's laws.

Prerequisite or Corequisite: EET-112 and MTH-095

## **EET-139 Principles of Troubleshooting I**

2 credits, Fall

Emphasizes theories and practices useful in troubleshooting failures in electrical applications. Focuses on the overall philosophy and strategy of troubleshooting, drawing applications from residential and varied industrial situations. Includes laboratory projects.

Recommended Prerequisite or Corequisite: EET-112, and EET-137 or MFG-130

## **EET-141 Electrical Fundamentals II**

4 credits, Winter

Learn methods of electrical circuit analysis, using proper DC theorems. Study energy storage elements including inductors and capacitors. Transient analysis of RC and RL circuits will be studied.

Prerequisites: EET-137

Prerequisite or Corequisite: EET-113

Recommended Prerequisite or Corequisite: MTH-111Z

## **EET-142 Electrical Fundamentals III**

4 credits, Spring

Covers sinusoidal functions and phasors and complex impedance. Analyze systems to determine AC circuit parameters and complex power. Circuits contain voltage and current sources, resistors, inductors, and transformers.

Prerequisites: EET-141

Recommended Prerequisite or Corequisite: MTH-112Z

## **EET-157 Digital Logic I**

3 credits, Fall

An introduction to digital logic principles, numbering systems & conversions and gate operations. Using principles, circuit analysis will be used to minimize logic networks. Industry standard devices will be used.

Prerequisite or Corequisite: EET-112

Recommended Prerequisites: MTH-065

## **EET-215 Technical Mechanics**

3 credits, Fall

Introduction to mechanics. Covers theory of force, work, torque, energy, power, strength, and motion. Vectors and simple machines provide applications for these concepts.

Prerequisites: MTH-080 or MTH-112Z or EET-142

## **EET-225 Mechatronics I**

2 credits, Winter

This course explores automation of industrial systems. Students will study the fundamental components of industrial motion control, relay circuits, stepper and servo motors; and power transmission components.

Prerequisites: EET-215

## **EET-227 Semiconductor Circuits II**

3 credits, Winter

Second in a series concentrating on the application, design and circuit analysis of circuits using transistors. Industry standard devices will be used.

Prerequisites: EET-127

## **EET-233 Programmable Logic Controllers I**

3 credits, Winter

Study of basic skills necessary to program, install and maintain industrial control systems utilizing programmable logic controllers. Course content lays a foundation of hardwired relay control systems and components, and then builds on this for an understanding of programmable logic controller (PLC) systems.

Recommended Prerequisites: MFG-130

## **EET-234 Programmable Logic Controllers II**

3 credits, Spring

An advanced course of study that will develop the student's understanding of Programmable Logic Controllers (PLC) in more detailed Industrial applications through lectures, labs and hands-on examples. This course will emphasize advanced PLC functions and data sets, networking schemes and human machine interfaces.

Prerequisites: EET-233

## **EET-235 Mechatronics II**

2 credits, Spring

This course expands on advanced electromechanical principles with applications in manufacturing and industrial systems. Students will study the applications of Proportional Integral Differential (PID) controllers for motion and process control and the electromechanical components that are integral to industrial machinery.

Prerequisites: EET-225

**EET-239** Principles of Troubleshooting II

2 credits, Fall

Covers advanced applications of diagnosis, maintenance and repair of systems. Includes preventative maintenance, applied statistical process, and AC/DC motor controls.

Prerequisites: EET-139; EET-141 or MFG-131

Recommended Prerequisites: IMT-223

**EET-250** Linear Circuits

3 credits, Spring

Introduction to the operation and functions of operational amplifiers and linear devices. Design and circuit analysis of op-amps, comparators, converters and special purpose linear devices. Industry standard devices will be used.

Prerequisites: EET-227

**EET-254** Introduction to Microcontrollers

3 credits, Spring

Introduction to processor architecture and microcontrollers. Internal structure, registers, busses, control unit. Clock, machine and instruction cycling timing, interrupts and DMA. Instruction set, mnemonics, functions, and assembly language programming. Interfacing to external memory and I/O on-chip peripherals.

Prerequisites: EET-157

Recommended Prerequisites: EET-257

**EET-257** Digital Logic II

3 credits, Winter

Bus systems and computer peripherals & systems using latches, registers, counters, and memory circuits are developed and analyzed.

Prerequisites: EET-157