

**ELECTRICAL ENGINEERING****EET 107****Electronic Computer Applications (3)**

This course will introduce students to computer software and hardware specific to the Electrical/Electronics curriculum, and give them experience using word processors, spreadsheets, and presentation software in electronic course work.

**2 Class Hours, 2 Laboratory Hours; Co-requisite: EET121 DC & AC Circuits or equivalent.**

**EET 110****Introduction to Electricity (4)**

This course provides a general overview of topics covered in the Electrical Engineering Technology curriculum. Basic circuit theories are introduced and used to describe the operation of more complex systems. Power generation and distribution, communication systems and networking, robotics and automation, and consumer electronics are some of the topics used to illustrate application of these basic concepts. Laboratory exercises and demonstrations will be integrated with the lectures to give students experience in taking basic electrical measurements and recording those measurements for a technical report. Computers will be used for recording data and for researching the topics listed above.

**4 Class Hours**

**EET 111****Electrical Construction Laboratory (2)**

An introductory course in residential and commercial wiring procedures, basic measuring techniques, and fundamentals of basic machine operations. A course where experience in the installation, fabrication and maintenance of electrical equipment by means of the "hands-on" approach is incorporated. This course also includes National Electrical Code topics with an emphasis on electrical safety. Safety Glasses are required for this course.

**1 Class Hour, 3 Laboratory Hours.**

**EET 112****Electrical Fabrication Laboratory (1)**

An introductory course in electronic project construction which includes learning how to layout and manufacture a printed circuit board, and then to construct a case and assemble the final project. A course where printed circuit board surface mount technology is studied; and where telecommunication cabling such as telephone, coaxial, computer networking, and fiber optic methods are incorporated. This course also includes advanced National Electric Code topics with an emphasis on electrical safety, advanced residential wiring techniques, and low voltage control applications.

**3 Laboratory Hours; Prerequisite: EET 111 Electrical Construction Laboratory.**

**EET 115****Introduction to Digital Electronics (3)**

This course serves as an introduction to digital logic including number systems, binary arithmetic, logic gates, flip flops, counters, memories, and basic computer architecture. It includes the use of digital circuit simulation software.

**3 Class Hours**

**EET 121****DC & AC Circuits and Laboratory (4)**

This course teaches the fundamentals of electrical circuits, application of circuit laws, theorems and measuring techniques for both DC and AC single and polyphase circuits.

**4 Class Hours, 3 Laboratory Hours; Prerequisite or Corequisite: MAT 130 Applied Algebra and Trigonometry or equivalent.**

**EET 150W****Electronic Devices & Laboratory (3, 1)**

A first course in Electronics introducing semiconductor physics and the active devices fundamental to the field. Introduction to diodes, bipolar and field effect transistors, thyristors, and optoelectronic devices. Design and analysis of amplifiers and other representative circuits, based on these building blocks, using traditional, computer based, and other methods. Perform frequency response analyses of amplifier circuits.

**3 Class Hours, 3 Laboratory Hours; Prerequisite: EET121 DC & AC Circuits and Laboratory, EET107 Electronic Computer Applications, and MAT130 Applied Algebra and Trigonometry.**

**EET 162****Computer Aided Network Analysis (1)**

This course covers computer analysis of complex electric and electronic circuits by application of network theorems. The Visual BASIC programming language will be used to analyze and display the response of two port networks. Computer programming will also be used to apply matrix methods to the analysis of complex circuits and the solution of network problems.

**3 Class Hours; Prerequisites: EET107 Electronic Computer Applications, EET121 DC & AC Circuits, and MAT130 Applied Algebra and Trigonometry.**

**EET 183****Applied Electricity (3)**

Practical applications of electricity, electronics, computing and emulation. Topics include DC and AC circuits with computer emulation and Internet research. Laboratory work includes demonstration of basic electrical and electronic concepts using measuring instruments, Electronic Work Bench, computers, and a course website.

**2 Class Hours, 3 Laboratory Hours; Prerequisite or Corequisite: MAT130 Applied Algebra & Trigonometry.**

**EET 201****Senior Seminar (0)**

A weekly lecture series intended to make the student aware of the changing elements of the Electrical, Electronic and Computer industry and help the student focus on areas of concern presented by industry experts. Where appropriate, emphasis will be placed on the responsibility by technologists to society as a whole in the area of ethical and moral values. Topics may include Quality Assurance, Ethics in Engineering, Artificial Intelligence, Telecommunications, Robotics, Power Engineering, Modeling and Simulation, CIM, Interpersonal Communications, Statistics.

**1 Class Hour; Prerequisite: ENG110 Written Expression. Corequisite: EET267**

Microprocessors, or EET270 Control Systems & Robotics, or EET252 Electronic Communication Systems

**EET 210****Applied Electricity and Electronics (4)**

This course provides a practical overview of topics in electricity, energy conversions, electronics, and digital circuitry. Topics include DC and AC circuit theory, power generation, DC and AC motor operation, electronic devices, and digital and logic microprocessors. Laboratory exercises include use of measuring instruments such as digital multimeters, oscilloscopes, function generators, counters, wattmeters, and bridges.

**3 Class Hours, 3 Laboratory Hours; Prerequisites: MAT130 Applied Algebra & Trigonometry or equivalent and PHY161 Physics I or equivalent.**

**EET 230****Electronic Design and Fabrication (1)**

This course involves the prototyping, package design and construction of an electronic project in a team environment. The project will include the use of both electronic and mechanical computer aided design software. Various electronic and mechanical manufacturing processes will be used to fabricate the project. Industrial standard documentation practices will be used to properly describe all phases of the project. Chassis layout, printed circuit board design, exposure, machining, wiring, soldering and enclosure fabrication are required. This course also includes discussion of product cost, developing a business plan, marketing a product and other topics related to small businesses and entrepreneurship.

**3 Laboratory Hours; Prerequisites: EET112 Electronic Fabrication Laboratory, MET113 Engineering Drawing I w/CAD, and EET150W Electronic Devices.**

**EET 247W****Energy Conversions & Automation and Laboratory (3, 1)**

Theory, operation, and application of DC and AC motors, generators and their control. Theory and application of single and polyphase transformers, power generation systems, and power transmission. Programmable controller applications.

**3 Class Hours, 3 Laboratory Hours; Prerequisite: EET150W Electronic Devices.**

**EET 251****Electronic Circuitry (3, 1)**

A second course in Electronics that incorporates the devices introduced in EET150W Electronic Devices into representative circuits of moderate complexity. These include amplifiers, oscillators, regulators, op-amp active filters, and other related data acquisition circuits. Op-amp characteristics and various linear and non-linear applications will be explored in some detail. Computer simulation and programming software are used to design, analyze, and perform frequency response analyses of active filter circuits.

**3 Class Hours, 3 Laboratory Hours; Prerequisite: EET150W Electronic Devices and Laboratory.**

**EET 252****Electronic Communication Systems (3, 1)**

Explore basic analog and digital communications concepts and systems such as communications media, amplitude and frequency modulation, phase locked loops, analog and digital television, satellite communications, frequency, time and wave division multiplexing, pulse modulation and encoding techniques, bandwidth, baud and bit rate considerations, digital data transmission and networking basics.

**3 Class Hours, 3 Laboratory Hours; Prerequisite:** EET251 **Electronic Circuitry.**

**EET 260****Digital Electronics (3)**

Study of number systems, logic gates and families (TTL/CMOS), logic design and simplification techniques, digital black box design, Karnaugh maps, standard circuits such as counters, shift registers and decoders, Boolean algebra, programmable logic, analog to digital interfacing, computer arithmetic, digital data transmission, memories, and microcomputer basics.

Appropriate laboratory exercises provide hands-on experience building and troubleshooting many types of digital circuits. Electronic circuit simulation software is also used.

**2 Class Hours, 2 Laboratory Hours; Prerequisite:** EET150W **Electronic Devices.**

**EET 267****Microprocessors (3)**

Study of microprocessor and microcontroller hardware and software. Microprocessor (Intel and Motorola 8/16/32/64-bit machines) assembly language programming using assemblers, DEBUG, disassemblers, monitors, and loaders will be applied to industrial applications of microprocessors and microcontrollers. Computer architecture and system design methods for microprocessor-based systems are also covered.

Appropriate laboratory exercises provide hands-on experience in two areas: microprocessor and microcontroller assembly language, and system interface hardware.

**2 Class Hours, 2 Laboratory Hours; Prerequisite:** EET 260 **Digital Electronics.**

**EET 270****Control Systems & Robotics (3, 1)**

Incorporated with this course are the theory, operation, design and implementation of open and closed loop control systems, including mathematical modeling and stability analysis. Theory and application of both analog and digital controls are introduced. Robotic applications and programming are integrated with this course. Process control techniques with additional Programmable Logic Controller programming are included.

**3 Class Hours, 3 Laboratory Hours; Prerequisites:** EET247W **Energy Conversions & Automation and Laboratory, and EET260 Digital Electronics & Laboratory.**

**EET 297****Cooperative Work Experience (1)**

Cooperative education in Electrical Engineering Technology may be available. On-the-job experience may be obtained by working with business, industries, and offices whose operations require the use of electrical engineering technology, electrical technology, or related skills. To be eligible, a student must maintain a cumulative grade point average of 2.2 with no 'F' grades, and have completed at least 24 credit hours, including EET112, EET121, EET150 and MAT130 or higher.

**EET 299****Independent Study (1-4)**

The student undertakes an independent project in his/her specialty under the guidance of a faculty member. Only one independent study course allowed per semester. Consideration may be given a project involving a job-related assignment. Any independent study project is based on instructor availability.

**Prerequisite: Department chairperson approval.**