

Electrical Engineering Technology

EET 1120 - Circuits I

Defines resistance, voltage, current, energy, and power, followed by DC network analysis and network theorems. Includes the analysis of transients in capacitive and inductive networks. Lab exercises use electronic test equipment to analyze circuits constructed from schematics.

Credits: 4.0

Lec-Rec-Lab: (0-3-2)

Semesters Offered: Fall, Spring

Pre-Requisite(s): MA 1031(C) or MA 1032(C) or MA 1160(C) or MA 1161(C) or MA 1135(C)

EET 1411 - Basic Electronics

Introduction to basic electrical principles and communication systems, including dc and ac circuits, diodes, transistors, operational amplifier ICs, power supply regulation, elements of communication systems, theory of wave and light propagation.

Credits: 4.0

Lec-Rec-Lab: (0-3-2)

Semesters Offered: Fall, Spring, Summer

Restrictions: Must be enrolled in one of the following Major(s): Mechanical Engineering Tech, Surveying Engineering, Computer Network & System Admn

Pre-Requisite(s): MA 1030(C) or MA 1031(C) or MA 1032(C) or MA 1160(C) or MA 1161(C) or MA 1135(C)

EET 2010 - Computational and Statistical Applications

Solve complex computational problems by using appropriate software (MathCad or MATLAB) to generate solutions. Includes time series and frequency analysis (Fourier, Laplace, Z transforms), statistical analysis of experimental data, and topics such as experimental design, factor analysis, and quality control.

Credits: 3.0

Lec-Rec-Lab: (0-2-3)

Semesters Offered: Fall, Spring

Pre-Requisite(s): MA 2160(C)

EET 2120 - Circuits II

Defines and applies sinusoidal steady-state AC concepts such as impedance, complex power, resonance, and frequency response. Applies basic network analysis tools to AC single phase and balanced three-phase networks, bridge circuits, and filters. AC circuit principles are reinforced by coordinated lab exercises.

Credits: 4.0

Lec-Rec-Lab: (0-3-2)

Semesters Offered: Fall, Spring, Summer

Pre-Requisite(s): EET 1120 and (MA 1160(C) or MA 1161(C) or MA 1135(C))

ET 2141 - Digital Electronics and Microprocessor Fundamentals

A study of the fundamental components used in digital logic circuits and microcomputer architecture and programming. Topics include: number systems and codes, Boolean algebra, combinational logic circuits, flip-flops, arithmetic circuits, counters and registers, decoders, multiplexers, memory organization, microcomputer addressing modes, stacks and subroutines.

Credits: 4.0

Lec-Rec-Lab: (0-3-2)

Semesters Offered: Fall

Pre-Requisite(s): EET 1120 or EET 1411

EET 2142 - Digital Design and Modeling Using VHDL

Emphasizes the language concepts of digital systems design using VHDL with emphasis on good design practices and writing verification testbenches. Students will gain valuable hands-on experience writing efficient hardware design code and performing simulations using ModelSim.

Credits: 3.0

Lec-Rec-Lab: (0-2-2)

Semesters Offered: Spring

Pre-Requisite(s): EET 2141

EET 2220 - Electronic Devices & Circuits

Introduction to solid-state electronic devices and their application. Studies diodes, transistors and operational amplifier ICs. Transistor biasing, temperature stabilization and gain calculations of single and multistage amplifiers. Studies power amplifiers, frequency response, heat sinking and power supply design.

Credits: 4.0

Lec-Rec-Lab: (0-3-3)

Semesters Offered: Fall, Spring

Pre-Requisite(s): EET 2120(C)

EET 2233 - Electrical Machinery

Fundamental steady-state analysis of DC, AC polyphase and AC single-phase electrical machines as well as transformers.

Credits: 4.0

Lec-Rec-Lab: (0-3-3)

Semesters Offered: Fall

Pre-Requisite(s): EET 1411 or EET 2120(C)

EET 2241 - C++ and Matlab Programming

Introduction to C++ programming and MATLAB for use in solving problems encountered in engineering technology. C++ topics include the basics of syntax and program structure. Focus on the basic capabilities of MATLAB and its programming environment.

Credits: 3.0

Lec-Rec-Lab: (0-2-2)

Semesters Offered: Fall

Pre-Requisite(s): MA 2160(C)

EET 2411 - Digital Electronics

Introduction to the fundamentals of the digital electronics that make up microprocessors. Topics include number systems and codes, Boolean algebra, combinational and sequential logic circuits, arithmetic circuits, digital memory.

Credits: 3.0

Lec-Rec-Lab: (0-2-2)

Semesters Offered: Spring, Summer

Restrictions: Must be enrolled in one of the following Major(s): Computer Network & System Admn

Pre-Requisite(s): EET 1411 and (MA 1031(C) or MA 1032(C) or MA 1160(C) or MA 1161(C) or MA 1135(C))

EET 2413 - Data Communications

Introduction to the fundamentals of basic digital data communications methods.

Credits: 3.0

Lec-Rec-Lab: (0-2-2)

Semesters Offered: Fall

Restrictions: Must be enrolled in one of the following Major(s): Electrical Eng Tech (BS), Computer Network & System Admn

Pre-Requisite(s): (EET 1411 or EET 1120) and (MA 1031(C) or MA 1032(C) or MA 1160(C) or MA 1161(C) or MA 1135(C))

EET 3131 - Instrumentation

An investigation of transducers and where they are used. Topics include sensitivity, linearity, hysteresis, process measurements, and position, motion and force measurements.

Credits: 3.0

Lec-Rec-Lab: (0-2-2)

Semesters Offered: Spring

Pre-Requisite(s): EET 1411 or EET 2220

EET 3141 - Computer Architecture and Design

Computer system components, instruction set design, hardwired control units, arithmetic algorithms/circuits, floating-point operations, introduction to memory and I/O interfaces.

Credits: 4.0

Lec-Rec-Lab: (0-3-3)

Semesters Offered: Fall

Pre-Requisite(s): EET 2241 and EET 2142(C)

EET 3142 - Operating System Concepts

Operating system concepts: memory management, process management, and file management; sample operating systems.

Credits: 3.0

Lec-Rec-Lab: (0-2-3)

Semesters Offered: Spring

Pre-Requisite(s): EET 3141 and EET 2142

EET 3143 - Programmable Logic Devices

Emphasizes the concept of design, simulation and implementation of large scale digital systems which incorporate digital devices at all complexity levels.

Credits: 3.0

Lec-Rec-Lab: (0-2-3)

Semesters Offered: Spring

Pre-Requisite(s): EET 2142 and EET 3141

EET 3225 - Special Electronic Devices

An advanced course in the study of linear integrated circuits. Includes op amps, comparators, wave form generators, timers and regulators. Emphasizes practical applications, including the interface of time-continuous measures to the discrete digital world.

Credits: 4.0

Lec-Rec-Lab: (0-3-3)

Semesters Offered: Spring

Pre-Requisite(s): EET 2220

EET 3281 - Electrical Project Development and Troubleshooting

Covers soldering, component layout, printed circuit board artwork, troubleshooting, electrical and environmental factors in design as well as an overview of the practical methods used by industry to process projects. The student designs and fabricates a circuit board and assembles a project.

Credits: 3.0

Lec-Rec-Lab: (0-1-3)

Semesters Offered: Fall, Spring

Pre-Requisite(s): EET 2220

EET 3353 - Data Acquisition with LabView

An introduction to graphical programming in G. National Instruments LabVIEW software is used in learning the fundamentals of graphical programming. Data acquisition and control programs are written, and transducer utilization and signal conditioning studied.

Credits: 3.0

Lec-Rec-Lab: (0-2-3)

Semesters Offered: Spring

Pre-Requisite(s): EET 1411 or EET 2220 or EE 3010

EET 3367 - Communications Systems

A basic course in communications systems. Includes information theory, AM receiving and transmission, SSB, frequency and phase angle modulation systems, TV, and frequency synthesis. Also includes system modeling using block diagrams and analysis of typical circuits.

Credits: 4.0

Lec-Rec-Lab: (0-3-3)

Semesters Offered: Fall

Pre-Requisite(s): EET 3225

EET 3373 - Introduction to Programmable Controllers

The design of discreet sequential control using programmable logic controllers, PLCs. Relay logic is used to introduce ladder logic and ladder logic is used to program the PLC. Introduces a structured approach to sequential control design. Data acquisition is introduced using BridgeVIEW software.

Credits: 3.0

Lec-Rec-Lab: (0-2-3)

Semesters Offered: Fall

Pre-Requisite(s): EET 1411 or (EET 2120 and EET 2141) or EET 2411

EET 3390 - Power Systems

Study of transmission of electric power from generators to loads, system components, and system performance. Covers basic power systems and their analysis, the per-unit system, faults on power systems, circuit interrupting devices, system instrumentation, automatic protection systems, and safety and grounding

Credits: 3.0

Lec-Rec-Lab: (0-3-0)

Semesters Offered: Fall

Pre-Requisite(s): EET 2233

EET 3412 - Introduction to Optical Fiber Communication Systems

Focuses on the basic principles of optical fiber communications, including wave propagation, optical fiber, optical transmitters and receivers, signal processing, analysis of system impairments, and optical networks.

Credits: 3.0

Lec-Rec-Lab: (0-2-2)

Semesters Offered: Spring

Restrictions: Must be enrolled in one of the following Major(s): Electrical Eng Tech (BS), Computer Network & System Admn; Must be enrolled in one of the following Class(es): Junior, Senior

Pre-Requisite(s): EET 1411 and EET 2413(C) and (MA 1135(C) or MA 1160(C) or MA 1161(C))

EET 4141 - Microcomputer Interfacing

The design of systems, hardware, and software needed to perform serial and parallel data transmission between microcomputers. Data collection using analog to digital converters, and analog and digital control outputs.

Credits: 4.0

Lec-Rec-Lab: (0-3-3)

Semesters Offered: Fall

Pre-Requisite(s): EET 2141 or CS 1121

EET 4142 - Digital Signal Processing Applications

Provides students with knowledge in architecture, instruction set, hardware and software development tools associated with a fixed point general purpose DSP. Includes applications of DSP in control of electric drives and power electronic devices.

Credits: 3.0

Lec-Rec-Lab: (0-2-3)

Semesters Offered: Spring

Pre-Requisite(s): EET 3367 and EET 4141

EET 4144 - Real-Time Robotics Systems

Covers the components of a Robot System, types, electronic system components, and analog-digital conversion; error analysis, hardware and software.

Credits: 4.0

Lec-Rec-Lab: (0-3-3)

Semesters Offered: Spring - Offered alternate years beginning with the 2008-2009 academic year

Pre-Requisite(s): EET 4141 and EET 2220

EET 4145 - VLSI Circuits Design

VLSI design methodology; specification of VLSI circuits at various levels of abstraction; design, layout, and computer simulation of circuits; high-level synthesis; design projects.

Credits: 3.0

Lec-Rec-Lab: (0-3-0)

Semesters Offered: Fall - Offered alternate years beginning with the 2009-2010 academic year

Pre-Requisite(s): EET 2220

EET 4146 - Functional Verification of Hardware Design

Techniques for verification of hardware designs; writing testbenches, verifications of increasingly complex hardware systems, circuit designs provided by industry using simulation environments commonly used in industry.

Credits: 3.0

Lec-Rec-Lab: (0-3-0)

Semesters Offered: Fall - Offered alternate years beginning with the 2008-2009 academic year

Pre-Requisite(s): EET 3143

EET 4311 - Advanced Circuits and Controls

This course considers the modeling, design and implementation of basic and advanced process control strategies. Process modeling and dynamics will be considered using LaPlace transform analysis. Control techniques addressed will include feedback, cascade, feedforward, multivariable and model based methods.

Credits: 4.0

Lec-Rec-Lab: (0-3-3)

Semesters Offered: Fall

Pre-Requisite(s): EET 3131 or EET 3353

EET 4353 - Advanced Data Acquisition with LabView

This course focuses on developing techniques in data acquisition, controls, and signal processing. Projects include designing and building circuit interfaces with real world applications and hardware, writing LabView programs for data acquisition, control, and performing noise filtering and signal smoothing.

Credits: 3.0

Lec-Rec-Lab: (0-2-3)

Semesters Offered: On Demand

Pre-Requisite(s): EET 3353 or EET 3131

EET 4367 - Wireless Communications

A continuation of EET3267. Topics include transmission lines, wave propagation, antennas, fiber optics, digital communications, and applications of those ideas to mobile wireless communications systems.

Credits: 4.0

Lec-Rec-Lab: (0-3-3)

Semesters Offered: Spring

Pre-Requisite(s): EET 3367 and MA 2160

EET 4373 - Advanced Programmable Controllers

Using Allen Bradley Micro Logix, SLC500, & PLC-5 programmable controllers, course covers structured programming, Sequential Function Charts, networking, proportional integral differential control, data acquisition and interfacing. The labs will require students to write and troubleshoot complex PLC programs.

Credits: 4.0

Lec-Rec-Lab: (0-2-3)

Semesters Offered: Spring

Pre-Requisite(s): EET 3373

EET 4460 - Senior Project I

Capstone course phase I, requiring the application of knowledge gained in lower division courses. Projects are normally team oriented, require weekly progress reports, and culminate with a final report and oral presentation.

Credits: 3.0

Lec-Rec-Lab: (1-0-2)

Semesters Offered: Fall, Spring, Summer

Restrictions: May not be enrolled in one of the following Class(es):

Freshman, Sophomore

EET 4480 - Senior Project II

A capstone course requiring the application of knowledge gained in lower division courses. Projects are normally team oriented, require weekly progress reports, and culminate with a final report and oral presentation.

Credits: 3.0; Repeatable to a Max of 6

Lec-Rec-Lab: (1-0-2)

Semesters Offered: Fall, Spring, Summer

Restrictions: Must be enrolled in one of the following Class(es): Senior

Pre-Requisite(s): EET 4460

EET 4996 - Special Topics in Electrical Engineering Technology

Selected additional topics of interest in Electrical Engineering Technology based on student and faculty demand and interest. May be a tutorial, seminar, workshop, project, or class study.

Credits: variable to 3.0; Repeatable to a Max of 6

Semesters Offered: On Demand

Restrictions: Permission of instructor required; Must be enrolled in one of the following Major(s): Electrical Eng Tech (BS); Must be enrolled in one of the following Class(es): Senior

EET 4997 - Independent Study in Electrical Engineering Technology

Independent study of an approved topic under the guidance of an Electrical Engineering Technology faculty member. May be either an academic, design, or research problem/project.

Credits: variable to 3.0; Repeatable to a Max of 6

Semesters Offered: On Demand

Restrictions: Permission of instructor required; Must be enrolled in one of the following Major(s): Electrical Eng Tech (BS); Must be enrolled in one of the following Class(es): Senior

EET 4998 - Undergraduate Research in Electrical Engineering Technology

An undergraduate research experience in Electrical Engineering Technology. Under the guidance of an Electrical Engineering Technology faculty member, students work on a selected/approved research problem or work directly with faculty on active research projects/grants. May require more than one semester to complete.

Credits: variable to 6.0; Repeatable to a Max of 6

Semesters Offered: On Demand

Restrictions: Permission of instructor required; Must be enrolled in one of the following Major(s): Electrical Eng Tech (BS); Must be enrolled in one of the following Class(es): Senior

EET 4999 - Professional Practice Seminar

A review of the latest developments in electrical engineering technology.

Credits: 1.0; Graded Pass/Fail Only

Lec-Rec-Lab: (0-1-0)

Semesters Offered: Fall, Spring

Restrictions: Must be enrolled in one of the following Major(s): Electrical Eng Tech (BS); Must be enrolled in one of the following Class(es): Senior