

Course Descriptions

Electronics Technology

ET 1103 Fundamentals of Electricity & Electronics

Principles of electricity covering the applicable units and the activities of current flow, electrical pressure, Ohm's Law, Kirchoff 's Laws, magnetism, inductance and capacitance and complex networks and applications.

ET 1113 Electronics Devices and Amplifiers

Solid state devices used in amplifiers, power supplies and regulation systems. Lecture, discussion, demonstration and application by computerized simulation and laboratory experiences followed by a formal laboratory report. Prerequisite: Fundamentals of Electricity (ET 1103).

ET 1123 Electrical Motor Controls

Students in this course will apply the principles learned in Fundamentals of Electricity to various industrial applications using electrical motor controls. Students will study industrial electrical symbols and line diagrams, logic as applied to line diagrams and control circuits, AC contractors and motor starters, reversing circuits as applied to motor types and electromechanical and solid state relays. Instruction will include application and installation of control devices and applications of photoelectric and proximity controls. Safety will be emphasized throughout the course.

ET 1162 Electronic CADD

Electronic CADD will enhance the student's ability to design in schematic form analog and digital context. This course will emphasize design and analysis using computer-aided design and drafting programs (ORCAD SDT and ORCAD PCB). Being functional with ORCAD relates to the latest of design and construction technologies. After tutorial for PCB is completed, programs developed will be executed through and in conjunction with the electronic construction and design projects in Electronic Construction and Design (ET 2731).

ET 1223 Electronic Amplifiers

Theory and application of amplifiers using bipolar devices covering the design and analysis of RC coupled, direct coupled and transformer coupled circuits through differentiation. Bias stabilization and feedback techniques are emphasized. Prerequisite: Electronic Devices and Amplifiers (ET 1113); Co-requisite: Circuit Analysis (ET 1243).

ET 1243 Circuit Analysis

Transient analysis of electric circuits, network theorems and their applications to both passive and active configurations. This will include resonant circuits and filters, alternating current power and three-phase delts and wye applications. Prerequisites: Fundamentals of Electricity (ET 1103) and College Algebra and Trigonometry (MATH 1715); Co-requisite: Electronic Amplifiers (ET 1223).

ET 1252 Pneumatic Systems

This introductory course in pneumatic fluid power not only covers theory and principles, but also relates their application with industrial components. After demonstrating the principles, separate labs cover component inspection and performance, with tips on application in actual practice. Attention to safety practices throughout stresses the building of safe work habits.

ET 1311 Precision Measurements & Measuring Devices

A course designed to increase individual knowledge in areas of measuring devices and systems including standard and metric systems, scales and rules, vernier scales, micrometer and gauges.

ET 2002 Hydraulic Systems

This course is designed to integrate the theory and application of fundamental fluid power principles and formulas. The course will offer students actual hands-on experience with the functional characteristics of hydraulic components which include pumps, flow valves, pressure valves, directional valves, hydraulic motors, filters, cylinders and accumulators. Students will learn field circuit/component adjustment techniques and in-depth troubleshooting.

ET 2202 Mechanical Systems

Students in this course will learn to select, inspect, maintain and repair components of a mechanical system. Topics will include flexible drives, couplings, bearings, gears, lubrication techniques and troubleshooting a mechanical system. Safety will be emphasized throughout the course.

ET 2243 Operational Amplifiers Techniques

This is a study of the operating principles that are fundamental to the creation of pulse and digital logic

switching systems. Beginning with operational amplifiers structure and theory through the conversion of digital and analog applications. Prerequisite: Electronic Amplifiers (ET 1223).

ET 2373 Digital Logic Analysis

The study of digital codes, number systems, Boolean Algebra, logic simplification, code converters, multiplexers, demultiplexers, flip flop registers, counter circuits, shift registers and analog to digital interfacing.

ET 2460 Internship in Electronic Technology

ET 2513 Process Instrumentation & Control

This course addresses the nature of accessing, measuring and controlling phenomena such as level, flow, pressure and temperature. Students will use devices and formulas that make process instruments work. Theory will emphasize the elements of physics and math needed to evaluate functions and the lab activities or experiments turn the theory into a physical event. Emphasis will be on testing, calibration and record keeping. This course will address the basics of troubleshooting control loops, and the transducers, transmitters, signal conditioners, control valves and controllers that provide process systems with their brain and their brawn.

ET 2731 Electronic Construction & Design

Laboratory projects involving techniques required of modern electronics engineering technicians. Design, prototype, circuit test and analysis, fabrication in printed and wired final format. Prerequisites: Operational Amplifiers Techniques (ET 2243) and Digital Logic Analysis (ET 2373).

ET 2812 Microcomputer Servicing

This course covers the general preventive maintenance procedures for microprocessor-based equipment. Students will continue their study of basic Input/Output systems and the mass storage systems commonly used in microcomputers. Safety will be emphasized throughout the course.

ET 2813 Microcomputer Applications-System

A study of maintenance of microcomputer systems, connections, timing, and troubleshooting computer circuitry. Digital interfacing, analog interfacing, multiple microprocessor systems and buses, microcomputer system peripherals, data communications, networks, fiber optics splicing and networking with fiber optics multiplexers. Prerequisites: Operational Amplifiers Techniques (ET 2243) and Digital Logic Analysis (ET 2373).

ET 2822 Microcomputer Networks

This course covers the vocabulary needed to be considered "network literate". Students will progress through the organization and management of a network including the step-by-step process of installing a network.

ET 2823 Microcomputer Troubleshooting & Repair

This course covers the fundamentals of troubleshooting microprocessor-based equipment. Students will learn the theory of hardware and software used to trouble-shoot and then apply that knowledge to actual microprocessor systems. Safety will be emphasized throughout the course.

ET 2853 Programmable Logic Controllers

Programmable logic controls, industrial robotic circuits and systems are studied along with realistic laboratory theory, installation, analysis and corrective maintenance techniques of system components are stressed.

WIND 1313 Introduction to Wind Energy

This course is designed to familiarize the student with the evolution of wind technology, wind energy anatomy, wind farm design, and characteristics of energy sources. This course include tower rescue training/climb test and first aid/CPR certification.

WIND 2313 Wind Turbine Materials and Electro-mechanical Equipment

Identification and analysis of the components and systems of a wind turbine. Prerequisite: WIND 1313.

WIND 2413 Wind Power Delivery System

In-depth study of the components of the input and output electrical power delivery systems for wind generation. Prerequisite: ET 1243.

WIND 2323 Wind Business

Topics in business as they apply specifically to the wind energy industry.

WIND 2423 Turbine Troubleshooting & Repair

Practice of installation, operation, maintenance, troubleshooting and repair of wind turbine electro-mechanical systems.

WIND 2321 Wind Energy Capstone (LEAD 2321 Principles of Leadership)

The Wind Energy Capstone course is designed to assist students in the transition from college to their career in wind energy. To be effective in a career and in life depends on preparation, attitude, hard work, personal qualities, and the right strategies. This course focuses on practical tips and strategies that will help students succeed in the wind energy work environment. Emphasis will be on time management/organizational skills; resume development posting; interview, communication, and presentation skills; first impression management; and etiquette.