SUBJECTS AND COURSES

COURSE DESCRIPTIONS - ELECTRONICS CORE (ETC)

ETC 101 DC Fundamentals
EET-100(Intro to Engineering Technolog) with a grade of C or higher
PREREQUISITE: As determined by school NOTE: There is an approved standardized plan-of-instruction for this course. This course is designed to provide students with a working knowledge of basic direct current (DC) electrical principles. Topics include safety, basic atomic structure and theory, magnetism, conductors, insulators, use of Ohm's law to solve for voltage, current, and resistance, electrical sources, power, inductors, and capacitors. Students will perform lockout/tagout procedures, troubleshoot circuits and analyze series, parallel, and combination DC circuits using the electrical laws and basic testing equipment to determine unknown electrical quantities. CORE This course is also taught as AUT 110, CCT 111, ELT 108, IAT 145, ILT 160, **5 Credit Hours**

ETC 102 AC Fundamentals
ETC-101(DC Fundamentals) with a grade of C or higher
PREREQUISITE: As determined by school NOTE: There is an approved standardized plan-of-instruction for this course. This course is designed to provide students with a working knowledge of basic alternating current (AC) electrical principles. Topics include basic concepts of electricity, electrical components, basic circuits, measurement instruments, the laws of alternating current, and electrical safety with lockout procedures. Hands on laboratory exercises are provided to analyze various series, parallel, and combination alternating current circuit configurations containing resistors, inductors, and capacitors. Upon course completion, students will be able to describe and explain alternating current circuit fundamentals such as RLC circuits, impedance, phase relationships, and power factors. They should also be able to perform fundamental tasks associated with troubleshooting, repairing, and maintaining industrial AC systems. This is a CORE course. This course is also taught as AUT 111, CCT 121, ELT 109, IAT 145, ILT 161
5 Credit Hours

ETC 103 Solid State Fundamentals
This course provides instruction in basic solid state theory beginning with atomic structure and including devices such as diodes, bipolar transistors, field effect transistors, amplifiers, thyristors, operational amplifiers, oscillator and power supply circuits. Emphasis is placed on the practical application of solid-state devices, proper biasing and amplifier circuit analysis and the use of test equipment to diagnose, troubleshoot and repair typical solid-state device circuits. This course also provides the opportunity for students to apply the solid-state principles and theories learned in class in the laboratory setting. Emphasis is placed on the practical application of solid-state devices, proper biasing and amplifier circuit analysis and the use of test equipment to diagnose, troubleshoot and repair typical solid-state device circuits. This is a CORE course. **5 Credit Hours**

ETC 104 Digital Fundamentals
This course provides instruction on basic logic gates, flip-flops, registers, counters, microprocessor/computer fundamentals, analog to digital conversion, and digital analog conversion. Emphasis is placed on number systems, Boolean algebra, combination logic circuits, sequential logic circuits, and typical microprocessor data manipulation and storage. This course also has an embedded lab with exercises designed to develop skills required by industry. Upon completion, students should be able to analyze digital circuits, draw timing diagrams, determine output of combinational and sequential logic circuits and diagnose and troubleshoot electronic components as well as demonstrate knowledge of microprocessor and computer circuits. This is a CORE course.
5 Credit Hours

ETC 108 Motor Controls I
ETC-101(DC Fundamentals) with a grade of C or higher
PREREQUISITE: As determined by school NOTE: There is an approved standardized plan-of-instruction for this course. This course is a study of the construction, operating characteristics, and installation of different motor control circuits and devices. Emphasis is placed on the control of three phase AC motors. This course covers the use of motor control symbols, magnetic motor starters, running overload protection, pushbutton stations, multiple control stations, two wire control, three wire control, jogging control, sequence control, and ladder diagrams of motor control circuits. Upon completion, students should be able to understand the operation of motor starters, overload protection, interpret ladder diagrams using pushbutton stations and understand complex motor control diagrams. This course is also taught as ATM 115, AUT 234, ELT 209, ILT 197, ILT 209, INT 113 **5 Credit Hours**