Automation Engineer Technology (AET)

Courses

AET 110 Industrial Maintenance (3 Hours)
This is an introductory course that discusses common industrial maintenance topics, such as industrial tools and equipment, mechanical drive systems and maintenance programs. The lab component to this course will expand on concepts taught in lecture by incorporating hands-on projects using common components found in industry. 2 hrs. lecture/wk. and 3 hrs. lab/wk.

AET 111 AC/DC Circuits (4 Hours)
This is an introductory course that addresses the basics of Direct Current (DC) and Alternating Current (AC) circuits. The lab component to this course will expand on concepts taught in lecture by incorporating hands-on projects using common components found in the electrical industry. Students will gain experience in the process of reading and troubleshooting schematic drawings using electrical measuring equipment. AET 111 and ELTE 111 are the same course; enroll in one only.

AET 120 Industrial Fluid Power (3 Hours)
This course examines theory, applications and operation of industrial hydraulic and pneumatic systems. The inspection, maintenance and repair of the various components are covered in this course. Interpretation of the various schematic symbols used in hydraulic and pneumatic circuit diagrams will be discussed. 2 hrs. lecture/wk. and 3 hrs. lab/wk.

AET 122 Industrial Code (3 Hours)
This course addresses how to reference and interpret common electrical codes found in an industrial setting. Electrical standards, such as the National Fire Protection Association (NFPA), National Electrical Code (NEC), National Electrical Manufacturers Association (NEMA) and Underwriters Laboratories (UL), will be utilized in this course.

AET 140 Actuator and Sensor Systems* (3 Hours)
Prerequisites : (AET 111 or ELTE 111 or ELTE 110) or ELEC 234.
This course examines types, installation and troubleshooting of industrial actuators and sensors. Contemporary control methods in process control and proportional-integral-derivative (PID) process loops are covered in this course.

AET 160 Programmable Logic Controllers I* (3 Hours)
Prerequisites : (AET 111 or ELTE 111 or ELTE 110) or ELEC 234.
This is an introductory course that examines types, installation and troubleshooting of programmable logic controllers (PLC). Hardware and programming aspects, as well as ladder logic symbols and operations necessary to develop a PLC program, are covered in this course. Students will enter, edit and test controller programs through assigned laboratory projects.

AET 185 LAN Cabling and Installation (3 Hours)
This course is designed to provide specialized skills for installing and testing local area network cabling and wireless installation. Twisted-pair, coax and fiber cables will be introduced and contrasted based on their characteristics and applications. Laboratory exercises for terminating and testing network cables and installing wireless systems will accompany the lectures. Students will be trained how to use common wiring tools and testing instruments. Methods of documenting LAN systems will also be introduced.

AET 240 Industrial Robotics* (3 Hours)
Prerequisites : (AET 111 or ELTE 111 or ELTE 110) or ELEC 234.
This course examines types, applications and troubleshooting of industrial robots and subsystems. Included in this course is the programming of industrial robotic control software. Students learn to home a robot, test teach points and design simple robot programs for different applications.

AET 255 Motor Controls and Variable Frequency Drives* (3 Hours)
Prerequisites : AET 111 or ELTE 111 or ELTE 110.
This course is an introduction to three-phase plant wiring methods and motor control practices that include practical application and hands-on experience in implementing the NEC requirements. Motor installation and control, conduit bending, and various wiring methods will also be discussed. The student will explore the necessary skills to install motor control systems in an industrial manufacturing facility, meeting the minimum requirements as set forth in the current National Electrical Code (NEC). 2 hrs. lecture/wk. and 3 hrs. lab/wk.

AET 260 Programmable Logic Controllers II* (3 Hours)
Prerequisites or corequisites: AET 160.
This course is a continuation of Programmable Logic Controllers I. Principle topics include sequencers, file and block transfers, analog control and proportional-integral-derivative (PID) functions. In addition, methods of networking and advanced user interface will be covered.

AET 270 Programmable Logic Controllers III* (3 Hours)
Prerequisites : AET 160.
This course provide the students with the understanding of the structured text elements for the Programmable Logic Controller. The students will be able to demonstrate a clear progression from basic concepts in Structured Text to more complex applications in PLC programming, ensuring that learners will have a well-rounded understanding of how to apply Structured Text in industrial control systems.

AET 280 Automation Engineer Technology Capstone Course* (3 Hours)
Prerequisites : AET 270.
A capstone course serves as a culmination of all the learning in a degree program, requiring students to apply knowledge from various areas in a comprehensive project. This course integrates multiple core aspects of an automation engineer technician. By covering these areas, the course ensures students apply a multidisciplinary approach, synthesizing their understanding of electrical, programming, sensors, and industrial systems, which is the essence of automation.