AUTOMATION SYSTEMS TECHNOLOGY (664)

664-100 - Introduction to Industrial Control Systems
Students are introduced to the basic concepts of industrial computer-controlled systems. The student is exposed to various types of programming using robots, Computer Numerically Controlled (CNC) machines, and Programmable Logic Controllers (PLC). The student also gains basic knowledge of Ethernet communications and applies industrial manufacturing controls to a basic automated system. (Prerequisite: 664-110 Introduction to Mechatronics)
2 Credit hours
18 Lecture hours
36 Lab hours

664-105 - Introduction to Industrial Robotics
Students learn to safely program and operate robots utilizing teach pendant operation, motion types, user frames, tool frames, inputs, outputs, branching instructions, and program verification procedures. All units include hands-on activities programming and operating a robot.
2 Credit hours
18 Lecture hours
36 Lab hours

664-110 - Introduction to Mechatronics
Students are introduced to the principles of Mechatronics and Advanced Manufacturing by learning the basics of drawing interpretation, measurement, mechanical drives, AC/DC electrical systems, fluid power systems, and electrical relay control systems. All units include foundational instruction and hands-on activities.
2 Credit hours
18 Lecture hours
36 Lab hours

664-115 - Robotics and Vision Systems
Students learn to utilize condition monitors, to setup a camera used for vision, create frames necessary for use with vision, setup a 2D single-view vision process, and program the robot based on results determined from the vision process. (Prerequisite: 664-105 Introduction to Industrial Robotics)
2 Credit hours
18 Lecture hours
36 Lab hours

664-120 - Introduction to Industrial Internet of Things
Students are introduced to theoretical and practical topics of the Industrial Internet of Things (IIoT). The learner investigates the range of sensor and actuator devices available, ways in which they communicate and compute, methods for getting information to and from IIoT-enabled devices, and ways of visualizing and processing data acquired from the IIoT. Upon completion, learners will utilize hardware and software to construct a sensor network within an existing system and utilize industry standard tools to visualize the data captured. (Prerequisite: 664-100 Introduction to Industrial Control Systems)
2 Credit hours
18 Lecture hours
36 Lab hours