Integrated Industrial Technologies (IIT)

IIT 101: Industrial Safety Health & Environment
The Safety Health and Environment course emphasizes the development of knowledge and skills to reinforce the attitudes and behaviors required for safe and environmentally sound work habits for industrial work environments. Coursework, demonstrations and exercises highlight the importance of regulatory compliance issues to be addressed in the performance of all job tasks. Course topics will be reinforced through scenarios performed at the campus as well as industrial sites as available.

Credits: 3
Program: Integrated Industrial Technology

IIT 121: Electro Hydraulics and Pneumatics (fluid Power Systems)
This course covers the fundamentals of fluid power and fluid power systems. Students will learn the operating principles and components of hydraulic and pneumatic systems including pumps, compressors and actuating devices. Students will learn to design, configure and troubleshoot hydraulic and pneumatic systems for industrial automation and process control, incorporating automated actuator control and fail-safe interlocks into the design process. Facilitated learning and practical exercises reinforce the learning.

Credits: 3
Program: Integrated Industrial Technology

IIT 131: Mechanical Drive Systems
This course is an introduction to mechanical drive systems that are typical to automated manufacturing and process systems. The course provides students with an understanding of mechanical energy transmission concepts. Students will apply these concepts to design, configure and conduct performance analysis on mechanical transmission systems.

Credits: 3
Program: Integrated Industrial Technology

IIT 151: Rapid Prototyping
This course introduces the student to 3d modeling using the CAD/CAM mechanical design automation software. Students will build parametric models of parts and assemblies, and make drawings of those parts and assemblies. The student will study CAD/CAM software configurations, and translate parametric models to produce prototypes using both additive and subtractive manufacturing methods. The course will cover g-code and basic machine safety.

Credits: 3
Program: Integrated Industrial Technology

IIT 171: Principles of Process Quality
Principles of Process Quality introduces the student to quality concepts, including operating consistency, continuous improvement, plant economics and statistical process control (SPC).

Credits: 3
Program: Integrated Industrial Technology

IIT 201: Ac/Dc Circuits
The Fundamentals of DC and AC Circuits introduces the student to direct current and alternating current theory and the laws that represent electrical concepts. The course includes circuit configurations, source and load types, as well as the wiring configurations of common DC and AC electrical devices. Practical exercises reinforce theory, incorporate experiential learning, and emphasize basic circuit analysis and troubleshooting. The course contextualizes the proper use of electrical tools and test equipment.

Credits: 4
Prerequisites: ICS 141 with a grade of C or better and MATH 103 or higher in STEM track with a grade of C or better.
Program: Integrated Industrial Technology

IIT 205: Digital and Analog Circuits
Digital and Analog Circuits introduces the student to the characteristics and applications of semiconductor devices and circuits

as well as digital logic functions, combinational, flip flop, and register memory logic circuits. Practical exercises reinforce theory, incorporate experiential learning, and emphasize basic circuit analysis and troubleshooting. The course contextualizes the proper use of electrical tools and test equipment.

Credits: 4
Prerequisites: ICS 141 and IIT 201 with a grade of C or better.
Program: Integrated Industrial Technology

IIT 221: Programmable Logic Control
This course covers the fundamentals of programmable logic controller (PLC) hardware, programming and integration with mechatronic automation systems. Students will integrate PLC functions by writing logic programs and testing these programs on a functioning system. Students will identify malfunctioning PLC programming and apply troubleshooting strategies to identify and localize problems caused by PLC hardware.

Credits: 4
Prerequisites: ICS 141 with a grade of C or better.
Program: Integrated Industrial Technology
Recommended Prep: Must be able to use a desktop and/or laptop computer with a high degree of proficiency.

IIT 231: Process Control and Instrumentation
This course is a study of the instruments and instrument control systems used in a variety of processing industries, including instrumentation unique to manufacturing and automated production and processing systems. Topics include terminology, process variables, symbology, control loops, and basic troubleshooting, as well as temperature, pressure and flow formulas used in the process and industrial automation industries.

Credits: 4
Prerequisites: ICS 141 with a grade of C or better and MATH 103 or higher in STEM track with a grade of C or better.
Program: Integrated Industrial Technology

IIT 251: Motor and Motion Control
The Fundamentals of Motors and Motion Control Systems is an introductory course to AC & DC motors of various types and the integrated control systems used to control the power and function of electric motors. It is designed to give the student an overview of, and introduction to the basic principles of the components and circuitry logic programs that integrate motors to systems. Course work emphasizes an overall understanding of the systems, engineering, equipment, and operations of a typical motor system.

Credits: 4
Prerequisites: ICS 141 with a grade of C or better.
Program: Integrated Industrial Technology

IIT 271: Distributed Control Systems
This course introduces the student to logical process automation systems such as Distributed Control Systems (DCS) and Programmable Automation Controllers (PAC).

Credits: 3
Prerequisites: ICS 141 and IIT 221 with a grade of C or better.
Program: Integrated Industrial Technology

IIT 281: Supervisory Control and Data Acquisition (scada) Systems
This course introduces students to Supervisory Control and Data Acquisition (SCADA) Systems concepts, including basic architecture and technology. This course includes how SCADA software is configured, programmed and networked. Students will program SCADA software, integrate input/output devices, networking, and communication configurations.

Credits: 4
Prerequisites: IIT 221 with a grade of C or better.
Program: Integrated Industrial Technology