UTAH SYSTEM OF HIGHER EDUCATION

Utah System of Higher Education
Industrial Systems Fundamentals
FY2028 / 2 Credits (60 Clock-Hours)

Foundational Courses

Foundational

TEIS 1015 Introduction to Industrial Automation **2 Credits / 60 Clock-Hours**

The Introduction to Industrial Automation course provides students and incumbent workers with foundational technical and workplace skills needed for advanced manufacturing environments. Students develop knowledge and skills related to safety, assembly, mechanical systems, quality practices, manufacturing processes, and maintenance awareness. Upon completion, students will be prepared for entry-level employment in manufacturing or continued training in specialized manufacturing disciplines.

Objectives
1. Apply safe work practices and follow industry safety procedures while performing manufacturing tasks.
2. Assemble components according to specifications using appropriate tools, materials, and procedures.
3. Assemble, align, and perform basic maintenance on mechanical system components.
4. Use measurement and inspection tools to verify product quality against established specifications.
5. Identify common manufacturing processes and describe their role within a production environment.
6. Recognize maintenance requirements and report equipment conditions that affect safe and efficient operation.

Supplemental Courses Varies by Institution

Ogden-Weber

TEIS 1020 Fundamentals of Industrial Control Systems **2 Credits / 60 Clock-Hours**

This course introduces electrical, pneumatic, motor control, and programmable logic controller (PLC) systems used in modern industrial environments. Students learn the fundamentals of AC/DC circuits, pneumatic system operation, motor control principles, PLC programming, and Human-Machine Interface (HMI) navigation. Through hands-on laboratory activities, participants develop skills in system operation, troubleshooting, process monitoring, and automated control, preparing them for entry-level positions in industrial automation and manufacturing.

Course Objectives
1. Interpret electrical, pneumatic, and control schematics to determine system operation and component relationships.
2. Operate HMI systems to monitor equipment status, acknowledge alarms, and adjust process parameters as required.
3. Execute and test basic PLC programs that control industrial devices and processes.
4. Configure and operate electrical, pneumatic, and motor control components according to system requirements and safety standards.
5. Diagnose and correct common faults in PLC, HMI, electrical, and pneumatic systems using documented troubleshooting procedures.