Introduction to Mechatronics

Estimated Duration: 16 hours

As an Introduction to Mechatronics, this course aims to relay foundational information and develop hands on skills in the areas of Mechanical, Electrical, and Control Technology. Students will develop competencies to operate and maintain pneumatics, electricity, sensors, actuators, and controls. Utilizing real-world automation devices students will also gain additional skills in STEM (Science, Technology, Engineering, and Math). These skills that are at the core of automation, production, and manufacturing are in high demand. At the conclusion of the course, students will be prepared to enter into high levels of Mechatronics and Industry 4.0 training, as well as filling much needed career positions such as certified production technicians and/or operators.

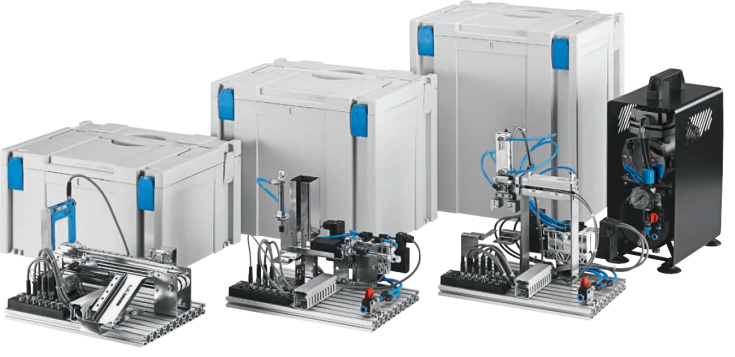
Course Topics

- Introduction to industrial automation technical terms
- Planning, developing, and building automated systems
- Building models and creating simulations
- Open and closed-loop control systems
- Pneumatic and electrical actuators, sensors and controllers
- Using computers as tools for programming

Core Competencies

- Explain the function of electro-pneumatic systems
- Explain and demonstrate the function of Stacking, Conveying and Handling Systems
- Identify the components of automated systems
- Explain and demonstrate the functionality of Pneumatics, Electrical and Mechanical components
- Utilize software tools to design, simulate and control automated systems
- Identify the elements of Programmable Logic Controllers
- Analyze logic circuits and develop sequence programs
- Apply the engineering design process to create automated systems and solutions
- Apply critical thinking, problems solving, and teamwork

Equipment

MecLab Training Package and Introduction to Mechatronics e-Learning Course

- Three complete stations: Conveyor, Stack Magazine, and Handling
- Each station is assembled and ready for use
- Only real-world industrial components are used to withstand the rigors of a training environment
- Lockable & stackable storage containers are included
- Package comes as a turn-key solution including:
  - Portable air compressor
  - 18 Licenses of FluidSIM design and control software
  - All needed tools and accessories
  - Complete documentation