

# Level 2: Advanced Mechatronics

## Applied Robotics

**Estimated Duration: 20 hours**

Level 2

The Applied Robotics Course expands on Robotics Fundamentals. Students will work more extensively with the CIROS software and real industrial robotic applications. Robots rarely do work in isolation. They interact with other manual and automated systems. The MPS Robot Cell allows students to learn about these topics and how to program and edit robot programs and positions to accomplish various tasks.

### Course Topics

- Integration of an industrial robot in an assembly process
- Teaching of robots in complex assembly environments
- Commissioning of complex systems
- Maintenance, servicing, and troubleshooting of complex systems
- Programming of industrial robots combined with the integration of sensors and additional actuators
- Programming of multitasking applications

### Core Competencies

- Program and edit complex robot applications
- Incorporate sensors and other automated elements into the robot application
- Effectively work with subroutines
- Efficiently maintain and service industrial robots
- Teach precise robot positions

### Equipment

#### MPS Robot and Assembly Station

The Festo Robot and Assembly station is based on the proven design of the Festo MPS® and can easily be integrated with upstream and/or downstream stations. The robot determines the orientation of the bodies and places them in the assembly holder in the correct orientation. It takes the piston from the pallet and assembles it in the body. Controlled magazines feed the piston springs and cylinder end caps to the robot. The fully assembled pneumatic cylinder is then placed on a slide.

The system includes:

- Trolley with Safety Guarding System
- Industrial Robot (Mitsubishi, Fanuc, ABB, Kuka, Etc.)
- Handling Module
- Assembly module

