Festo Learning Systems Overview

Festo facts
• Founded 1925
• 15,500 employees worldwide
• 59 independent national companies
• 250 branch offices
• Authorized agencies in 39 countries

Blended Learning Media

Textbooks and workbooks available to complete training aims for:
• Pneumatics/Hydraulics and Sensors
• Electronics/PLCs/Electrical/Closed-loop control technology
• Mechatronics/Process automation and CNC technology

Automation Technology Training

Fluid Power
Festo offers an extensive line of training packages for Pneumatics and Hydraulics.

Electrical Engineering
Professional laboratory equipment and furniture for electrical engineering, from single workstations to complete laboratory configurations depending on user need can be configured.

Automation Technology Seminars
Festo’s automation technology seminars serve our extensive list of industrial customers that compete in numerous industries including process automation, food & beverage, packaging, semiconductors and the automotive industries.

Integrated Learning Systems

MPS® won the Worlddidac Award in 1998, 2000, 2002

A Member of

Preferred Partner

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Interactive software
• EasyVeep – 2D Virtual models of real-world applications
• FluidSIM – Pneumatic/Hydraulic design, simulation and control
• FluidLab – Process Control Simulation and Control
• CIROS – 3D Mechatronics, Robotics and Manufacturing Simulation and Control
• Robotino View – Virtual Mobile Robotics design, programming and interaction

Efficiency and productivity – Festo offers a wide range of simulation and control software packages that can work independently or in combination with real hardware via our EasyPort device:
• FluidSIM
• FluidLab
• CIROS
• Robotino View

Festo Learning Systems Overview

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Automation Technology Training

Fluid Power
Festo offers comprehensive line of training packages to Thermodynamics, Fluid Power and Hydraulics.

Areas of study include:
• Basic and Advanced Pneumatics/Electro-Pneumatics
• Closed Loop Pneumatics
• Vacuum technology
• Basic and Advanced Hydraulics/Electro-Hydraulics
• Proportional Hydraulics
• Mobile Hydraulics

Electrical Engineering
Professional laboratory equipment and furniture for electrical engineering, from single workstations to complete laboratory configurations depending on user need can be configured.

Areas of study include:
• Fundamentals of Electricity and Electronics
• Fundamentals of Circuits and Contacts
• Sensors and PLCs
• Motor Controls
• Servo and Stepper Motor Technology

Festo Learning Systems Overview

Fluid and pneumatics available to complete training aims for:
• Pneumatics/Hydraulics and Sensors
• Electronics/PLCs/Electrical/Closed-loop control technology
• Mechatronics/Process automation and CNC technology

Automation Technology Seminars
Festo’s automation technology seminars are an excellent way of industrial training that is necessary for the automation of industrial applications; local knowledge and Logic building seminars online are available.

1. FluidPower: Pneumatic/Hydraulic Design, Simulation and Control, FluidSim, EasyPort, FluidLab, CIROS, Robotino ...
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Automation Technology Training
Textbooks and workbooks available to complete training aims for:
• Pneumatics/Electro-pneumatics and Hydraulics/Electro-hydraulics
• Electrical engineering and Electronics
• Sensors, Actuators, DC Motors, Process automation and many more…

Interactive software
- EasyVeep – 2D Virtual models of real-world applications
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Automation Technology Seminars
Festo’s automation technology seminars serve our extensive list of industrial customers that compete in numerous industries including process automation, food & beverage, packaging, semiconductors and the automotive industries. Festo seminars help maintain the competiveness of our automation workforce in Fluid Power, PLC Controls, Sensors, Robotics and even Lean Manufacturing.
Introduction to Mechatronics and Process Control

**Mechatronics**
- How to control the behavior of systems that operate in the world.
- An integration of electromechanical and mechanical systems.
- Emphasis on practical experience.

**Students can learn**
- The principles of Mechatronics.
- Understanding of production processes and provides an introduction to the Mechatronics.

**MecLab**
- A turn-key learning system that replicates real industrial uses.

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**Mechatronics Systems and Process Control**

**Mechatronic Systems Trainers**
- The MPS series provides the highest level of performance.
- Complete Mechatronic training systems available.
- MPS 200: Flexible Manufacturing Systems
- MPS 201: Process Engineering Systems
- MPS 202: Complex Systems
- MPS 500: Industrial Automation Systems

**Flexible Manufacturing Systems**
- MPS PA-204: modular, flexible and scalable to meet all training aims.
- Parameter setting and optimization of P, PI, or PID controllers.
- Process operation and monitoring, systems management.
- Networking of process engineering systems.
- Measurement of electrical and process engineering variables such as level, flow rate, pressure and temperature.

**Complete Process Automation Systems**
- MPS PA-611: enables the teaching of complex systems, including the design and construction of prototypes.
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**Flexible Automation and Advanced Process Automation**

**EduKit PA**
- A Turn-key Learning System for complex systems.
- Observation of level, pressure, flow and time response.
- Variation of voltages to adjust pump actuation.
- Recording measured values with changes in valve positions.
- System start-up procedures.
- Observation of process dynamics over a wide range of control parameters.

**Hybrid and Customized Automation Systems**
- Workcells that incorporate mechanical, electrical, and pneumatic components.
- Solutions for the automation of complex systems.
- Combination of the two.

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**Customized and Hybrid Automation Solutions**

**Solution Center Group**
- Festo's Solution Center Group provides complete process automation systems and hybrid factory solutions.
- These systems feature the latest PLC controls technology, HMI, and other components.
- These systems can be used to train engineers and technicians in the design of complex systems.

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- Emphasis on practical experience.

**Students can learn**
- The principles of Mechatronics.
- Understanding of production processes and provides an introduction to the Mechatronics.

**MecLab**
- A turn-key learning system that replicates real industrial uses.
**Introduction to Mechatronics and Process Control**

- **Mechatronics**
  - Developing and constructing electrical, electronic and pneumatic systems
  - Building models and creating simulations
  - Creating and using schematic diagrams
  - Understanding technical documentation
  - Planning, developing and setting up technical experiments
  - Using computers as tools for programming and simulation
  - Understanding pneumatic and electrical actuators, sensors and control systems
  - Proper use of technical terms

Students can learn principles of Mechatronics.

**MecLab** is a turn-key learning system that replicates real industrial production processes and provides an introduction to the principles of Mechatronics.

**Mechatronics Systems and Process Automation**

- Observation of level, pressure, flow and time response
- Variation of voltages to adjust pump actuation
- Recording measured values with changes in valve positions
- System start-up procedures
- The construction/assembly of a process control system
- Using various control methods:
  - P, PI, PID control
  - 2-Point / Closed loop control
  - Manual / Open loop control
- The measurement, control and regulation of electrical and process engineering variables – temperature, level, pressure and flow rate
- Set-up, wiring and commissioning of process automation systems
- Parameter setting and optimization of P, PI, or PID controllers
- Networking of process engineering systems
- Measurement of electrical and process engineering variables such as level, flow rate, pressure and temperature
- Supervisory software that facilitates learning with process visualization
- Solutions often involve intelligent drives and high-precision mechanical components
- Hybrid and sophisticated production techniques require very flexible hybrid and customized production techniques

**Flexible Automation and Advanced Process Automation**

- To communicate using industrial network protocols including Devicenet and Profinet
- The manufacturing and automated assembly of components
- To follow information flow and energy flow in electrical, pneumatic and hydraulic sub-systems
- To plan and organize production work flow
- The MPS PA – 204 is modular, flexible and scalable to meet all elements covered include:
  - Chemical, pharmaceuticals, water treatment and food processing.
  - Bottling and can be combined in various configurations or with other MPS stations. Functions include Filtering, Mixing, Reacting, and maintaining precise control of a complex production system.
  - MPS / FMS stations become “workcells” capable of producing multiple variations of a product on the same system.
  - The MPS PA – 204 is used to visualize the dynamics of all process variables.

**Customized and Hybrid Automation Solutions**

- To communicate using industrial network protocols including Devicenet and Profinet
- To plan and organize production work flow
- Hybrid and customized production techniques require very flexible hybrid and customized production techniques

- Solutions often involve intelligent drives and high-precision mechanical components
- Hybrid and sophisticated production techniques require very flexible hybrid and customized production techniques
- To plan and organize production work flow
Introduction to Mechatronics and Process Control

Mechatronics
- Developing and constructing electrical, electronic and pneumatic systems
- Creating and using schematic diagrams
- Understanding technical documentation
- Planning, developing and setting up technical experiments
- Using computers as tools for programming and simulation
- Understanding pneumatic and electrical actuators, sensors and control systems
- Proper use of technical terms

Students can learn:
- Principles of Mechatronics
- Production processes and provides an introduction to the teaching of the principal elements of any industrial process control system

Mechatronics Systems and Process Control
- Observation of level, pressure, flow and time response
- Variation of voltages to adjust pump actuation
- Recording measured values with changes in valve positions
- System start-up procedures
- The construction/assembly of a process control system

Flexible Automation and Advanced Process Automation
- Functional relationships of the components of complex process systems
- Communication using industrial network protocols including Profinet
- Commission, troubleshoot and repair Mechatronic systems
- The manufacturing and automated assembly of components
- To follow information flow and energy flow in electrical, mechanical, pneumatic and hydraulic sub-systems
- The measurement, control and regulation of electrical and process automation elements
- Sensing and actuating
- Supervisory software that facilitates learning with process automation system

Flexible Manufacturing Systems
- Two MPS PA systems come together to enhance the learning experience in Mechatronics systems lower or control systems in the context of a real industrial environment
- System start-up procedures
- The construction/assembly of a process control system

Complete Process Automation Systems
- MPS PA. This highly modular, modern intelligent production line consisting of a Mechatronic system, a control system, a process automation system, and a supervision and control system. Festo Didactic's MPS PA systems incorporate the latest in open platform technology including VisiLab, our Factory Design and Control Simulation software, and a Supervisory Control and Data Acquisition System. MPS PA systems can be combined in various configurations or with our Customized and Hybrid Automation Solutions

Customized and Hybrid Automation Solutions
- Solutions often involve intelligent drives and high-precision mechanical components
- Hybrid factory solutions are commonly found in the food, medical, pharmaceutical and confectionery industries
- Solutions can be combined with our MPS PA systems or may be configured as an individual station.
Mechatronics

- Developing and constructing electrical, electronic and pneumatic systems
- Building models and creating simulations
- Creating and using schematic diagrams
- Understanding technical documentation
- Planning, developing and setting up technical experiments
- Using computers as tools for programming and simulation
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Students can learn:
- Principles of Mechatronics
- Production processes and provides an introduction to the manufacturing and automated assembly of components
- Observation of level, pressure, flow and time response
- Variation of voltages to adjust pump actuation
- Recording measured values with changes in valve positions
- System start-up procedures
- The construction/assembly of a process control system
- External controllers:
  - Use of external controllers to control the system
  - The construction of a process control system using external controllers
  - The operation of the system with external controllers
  - The communication of data between the external controller and the process control system

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Automation Technology Training

Fluid Power

Professional training in Fluid Power is available for both basic and advanced applications. Training packages are configurable depending on user needs.

Areas of Study Include:

• Basic and Advanced Pneumatics/Electro-Pneumatics
• Closed Loop Pneumatics
• Vacuum technology
• Basic and Advanced Hydraulics/Electro-Hydraulics
• Proportional Hydraulics

Electrical Engineering

Professional laboratory equipment and furniture for electrical engineering, from single workstations to complete laboratory configurations depending on user needs can be configured.

Areas of Study Include:

• Fundamentals of Electricity and Electronics
• Fundamentals of Circuits and Contacts
• Sensors and PLCs
• Motor Controls
• Servo and Stepper Motor Technology

Automation Technology Seminars

Festo’s automation technology seminars are an excellent addition to any industrial workforce. Training packages can include a wide range of seminars, from basic knowledge to highly specialized advanced topics.

Areas Include:

• Basic and Advanced Automation
• Motion Control and Robotics
• Industrial Communication Protocols

Blended Learning Media

Textbooks and workbooks are available to complete training aims for:

• Pneumatics/Hydraulics and Sensors
• Electronics/PLCs/Electrical/Closed-loop control technology
• Mechatronics/Process automation and CNC technology

e-Learning

– Web Based Training packages include the following topics:

• Pneumatics/Electro-pneumatics and Hydraulics/Electro-hydraulics
• Electrical engineering and Electronics
• Sensors, Actuators, DC Motors, Process automation and many more...

Interactive Software

– Festo offers a wide range of simulation and control software packages that can work independently or in combination with real hardware via our EasyPort device:

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Integrated Learning Systems