

Festo Learning Systems Overview

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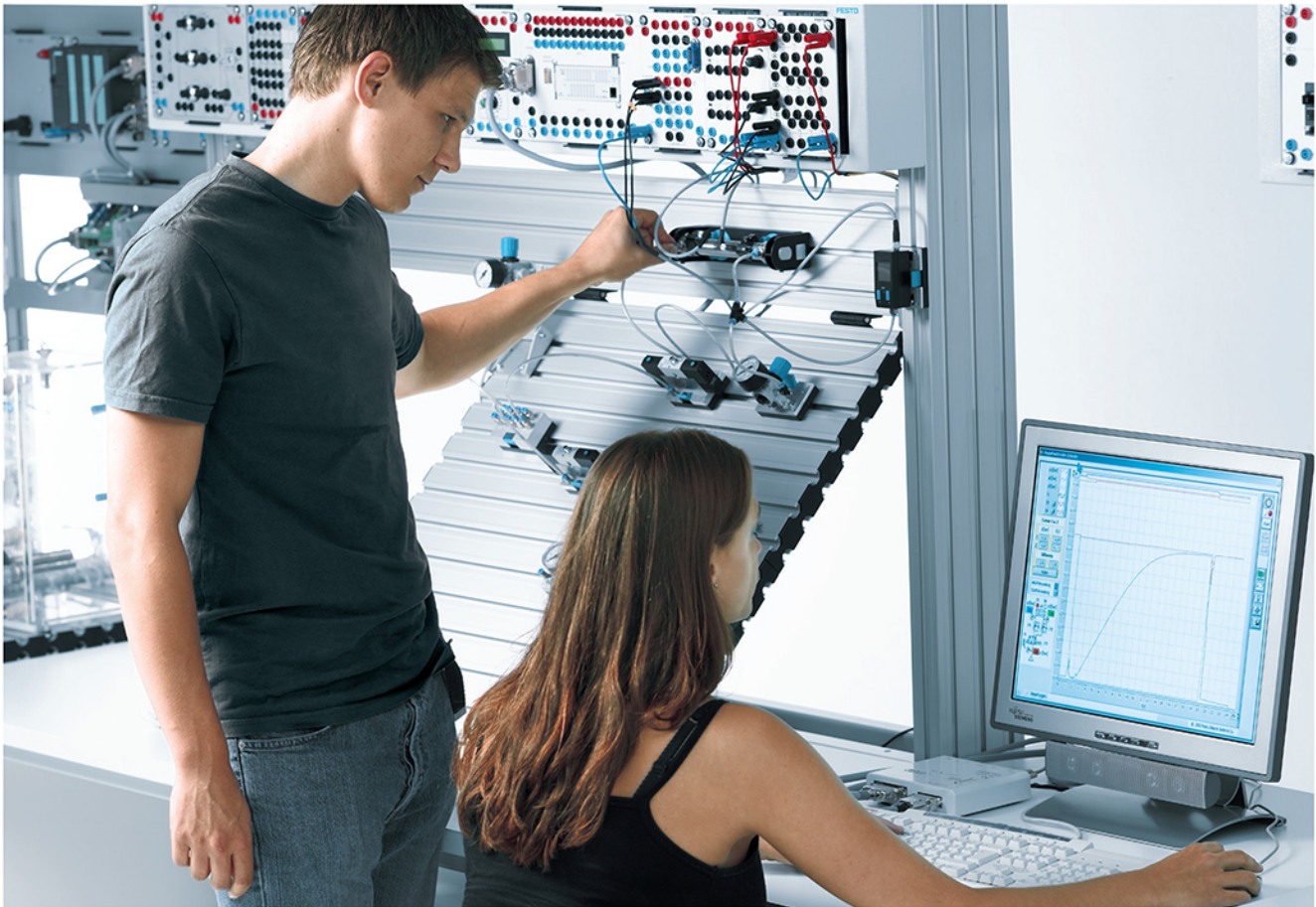


Festo facts

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

www.festo-didactic.com

Blended Learning Media

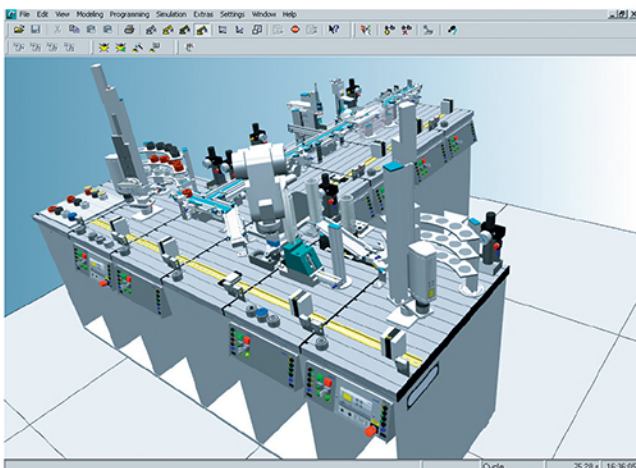


Textbooks and workbooks available to complete training aims for:

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

e-Learning – Web Based Training packages include the following topics:

- Pneumatics/Electropneumatics and Hydraulics/Electrohydraulics
- 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:

- **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

Integrated Learning Systems



Fluid Power

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

Areas of study include:

- Basic and Advanced Pneumatics/Electropneumatics
- 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

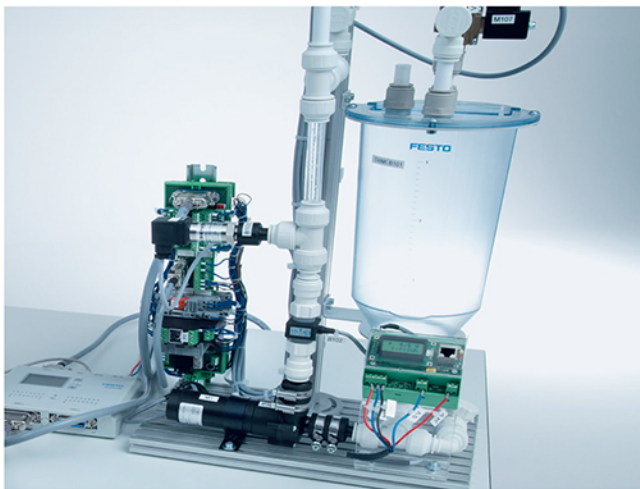
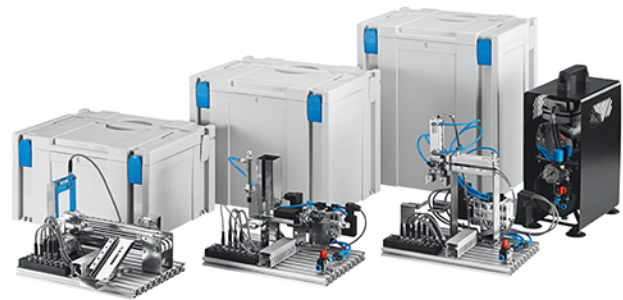
Introduction to Mechatronics and Process Control

Mechatronics

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

Students can learn:

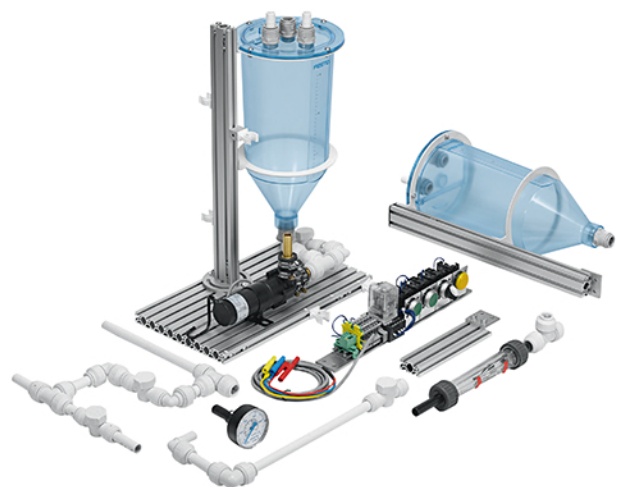
- Proper use of technical terms
- Planning, developing and setting up technical experiments
- Understanding technical documentation
- Creating and using schematic diagrams
- Building models and creating simulations
- Developing and constructing electrical, electronic and pneumatic circuits
- Understanding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



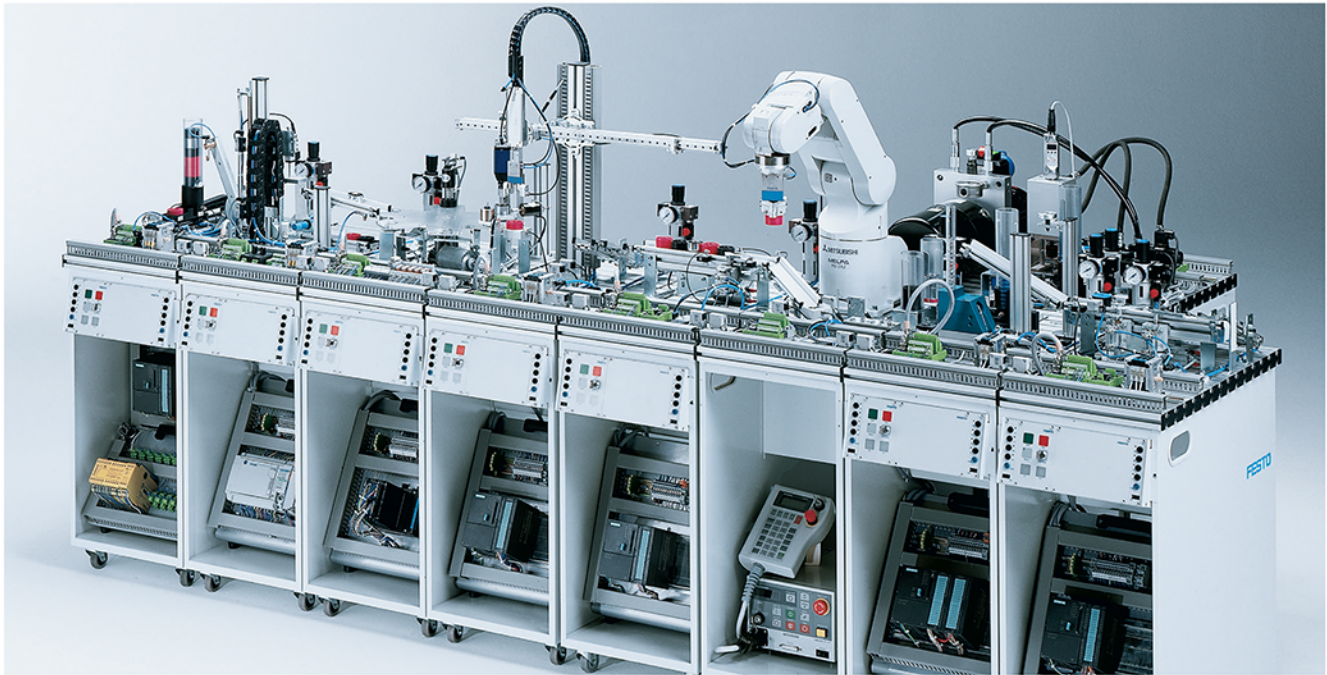
Process Control

EduKit PA is used to introduce students to the fundamentals of open and closed loop control. The basic kit allows for reading, recording and controlling of the process without the need for a PC or sophisticated control technology. The advanced kit incorporates automatic control and feedback with included computer software or external controllers:

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



Mechatronics Systems and Process Automation



Mechatronic Systems Trainers

The **MPS 200** series of Mechatronic trainers is ideally suited to teach the various elements of any Mechatronic system. This **Modular Production System** incorporates a combination of hardware and simulation software to enable students to learn:

- Functional relationships of the components of complex Mechatronic systems
- To plan and organize production work flow
- To follow information flow and energy flow in electrical, pneumatic & hydraulic sub-systems
- The manufacturing and automated assembly of components
- To commission, troubleshoot and repair Mechatronic systems
- To communicate using industrial network protocols including Devicenet and ProfiBus



Process Automation in Mechatronic Systems (MPS-PA)

Festo process automation trainers enable flexible and cost effective teaching of the principal elements of any industrial process control system.

Elements covered include:

- The measurement, control and regulation of electrical and process engineering variables – temperature, level, pressure and flow rate
- Using various control methods:
 - Manual / Open loop control
 - 2 – point / Closed loop control
 - P, PI, PID control
- FluidLab PA, a Lab View based software simulation program, is used to visualize the dynamics of all process variables

Flexible Automation and Advanced Process Automation



Flexible Manufacturing Systems

Festo's **MPS/FMS** product range is able to enhance the learning experience in flexible manufacturing systems when a conveyor is added to an array of MPS stations.

These MPS stations become "workcells" capable of producing multiple variations of a product on the same system.

Elements covered include:

- Production planning and process optimization
- Network communications among workcells
- Production processes controlled by a real PLC
- Numerous options are available including multi-axis robots, vision systems and servo-electric drives
- Supervisory software that facilitates learning with process visualization



Complete Process Automation Systems (MPS-PA)

The **MPS PA – 204** enables the teaching of sophisticated process automation techniques as typically found in industry today. Modern process automation systems utilize "closed-loop control" that relies on continuous feedback from various sensors and meters to maintain precise control of a complex, continuous production process. Station functions include Filtering, Mixing, Reacting and Bottling, and can be combined in various configurations or with our MPS stations.

Systems common to many industries including chemical/petrochemical, pharmaceuticals, water treatment and food processing.

Elements covered include:

- Set-up, wiring & commissioning of process automation systems
- Measurement of electrical & process engineering variables such as level, flow rate, pressure and temperature
- Networking of process engineering systems
- Process operation and monitoring, systems management
- Parameter setting & optimization of P, PI, or PID controllers
- The MPS PA-204 is modular, flexible and scalable to meet all training aims

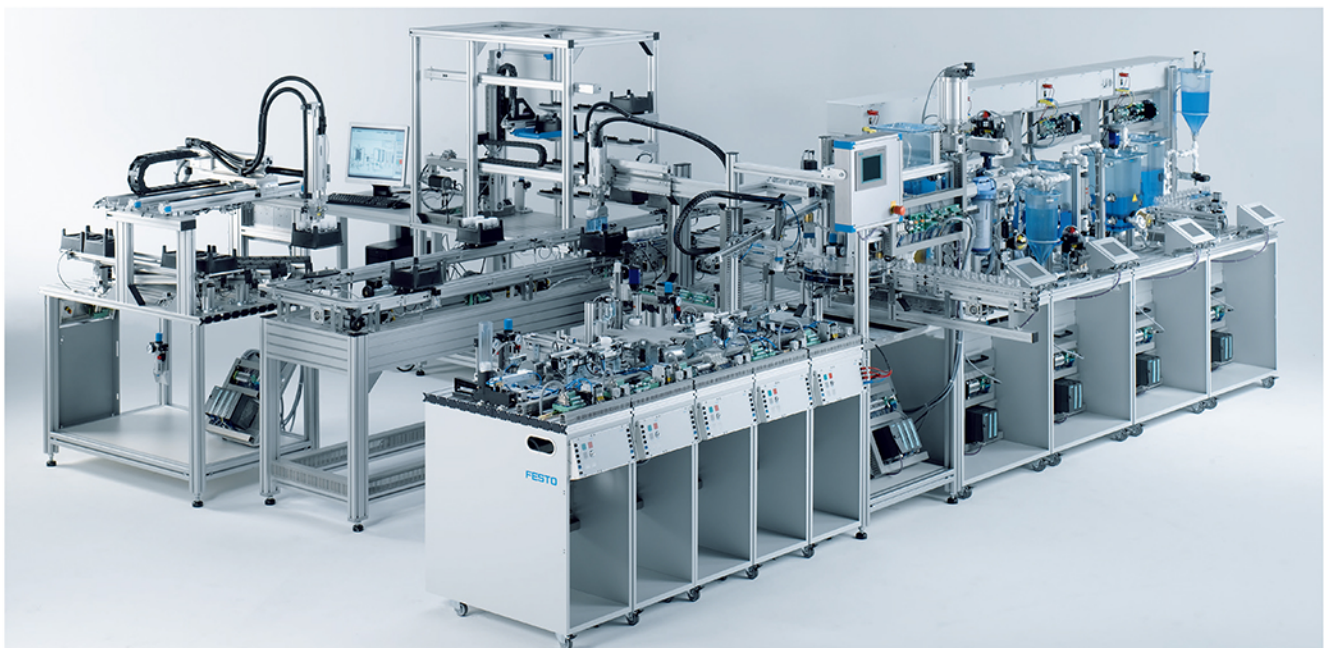
Customized and Hybrid Automation Solutions



Hybrid & customized production techniques require very flexible training systems to properly respond to the training aims of these complex systems. Festo Didactic's **Solution Center Group** can design almost any application-specific system, whether a discrete manufacturing system, a process automation system, or any combination of the two.

These systems feature the latest PLC controls technology, HMI, sensor technology, robotics, and vision systems.

- Hybrid factory solutions are commonly found in the food, confectionery, and pharmaceutical industries
- Solutions often involve intelligent drives and high-precision mechanical components
- Carefully measured and monitored data acquisition
- Integrated communications interfaces ensure safe, optimized process automation



Automation Technology Training



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



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 competitiveness of our automation workforce in fluid power, PLC controls, sensors, robotics and even lean manufacturing.

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