Holistic and turnkey education solutions

Laboratory and workshop equipment for science, technology, and education

FESTO
At the forefront

Today, we live in a knowledge economy and in the age of global networking. Production locations and jobs can only be maintained if all employees have access to the best possible basic and further training. Knowledge is a resource that gives a decisive advantage in international competition, and is a guarantor of success especially in demanding industry segments. In many cases, an employee’s original expertise will no longer be sufficient to keep up with the latest developments in the working environment.

Investing early in basic and further training pays off in every possible way. The promotion of lifelong learning thus becomes your most productive long-term investment for the future. The aim of Festo Didactic is therefore to maximize the potential of learning in schools and training centers and to develop skills sustainably in industrial companies around the world.

As a leading global partner for companies and educational institutions, and as a family owned company, Festo is deeply committed to contributing to the development of education and learning environments and the worldwide transfer of knowledge.
Holism

Your key to success is defining a holistic training solution tailored to your needs and goals.

Staying on target
Right from the start of the project, we help you to define and satisfy your specific training requirements so you can reach all your goals, both financial and educational. At Festo, we integrate training and education with the industrial sector, ensuring that your basic and further training package is tailored to real industrial requirements.

Scope of service
Build on our unique range of learning systems and technologies when conceptualizing, planning, and equipping your customized labs or workshops.
- Industrial training centers
- Vocational training centers
- Laboratories for universities and colleges
- Learning factories for research and science

Complete service
Enjoy the full support of your own personal contact person, right from the first day. Throughout the entire course of the project and in every phase of the project, you receive everything from a single source: project management, installation, commissioning, and maintenance. To ensure the sustainability of your success, we offer you comprehensive service for turnkey education projects in more than 53 countries around the world.
Multifunctional learning labs like this training workshop for pneumatics, mechatronics, and factory automation offer a versatile range of possible uses, for individual tailored solutions.

The room’s equipment and fittings can be used for a wide range of different subjects. The furnishings are variable in use, allowing the room layout to be adapted quickly and easily to suit changing requirements. Expansion of the learning space is also possible at any time.

The flexible ceiling system is ideal for both theoretical and practical instruction, with suitable equipment for every learning environment. Connection ports for energy, compressed air, and data are located directly at the learning station. The utility supply lines are routed via the room’s ceiling, and can be lowered individually.

The quick conversion times between the various learning scenarios permit maximum flexibility and efficient utilization of the rooms, whether for individual or group work on the computers, project-based teaching, or classroom-based teaching of theory. Everything needed for the required learning environment was considered during the collaborative project definition phase.

**Flexibility**

Multifunctional learning labs, training workshop, Germany

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**Project facts**

- **Multifunctional learning lab, training workshop**
- **Opened in 2016**

**Customer**

- Industrial company in Germany

**Technologies**

- TecDesign: ceiling system, Frameline, storage furniture/roller containers
- Pneumatics and electro pneumatics
- Energy-efficient compressed air management
- Mechatronics and factory automation, fundamentals of Industry 4.0
Definition

Our many years of productive knowledge exchange with industry will help you define the exact training requirements for your situation.

Project definition
Benefit from our experience and expertise right from the start when defining your training requirements. Whether you want to replace existing installations with new equipment or would like to establish a new field of knowledge in your training facility, our employees all over the world will give you top-quality advice.

Project planning
Design your laboratory for optimum utilization by means of versatile training equipment designed to meet industrial requirements. We work with the latest planning tools to provide maximum security in the planning process and to advance your project both quickly and effectively.

Room planning
Safety and functional design are at the heart of our room and building planning. We consult with our partners, coordinate with architects, and undertake site analyses and safety analyses. You receive detailed 2D and 3D CAD plans providing realistic representations of your preferences prior to implementation.

In three steps – professional lab design for any requirements.

Step 1: Brainstorming
Working together to study and define your needs—with good ideas for efficiency and cost reduction, such as multipurpose training rooms. Together we identify what knowledge and equipment you really need, and what you don’t.

Step 2: 2D planning
A room design in 2D allows an exchange of opinions about different layout options. It illustrates the development of room and lab plans designed to meet the particular training requirements that are to be fulfilled by your training facility.

Step 3: 3D planning
Lab plans in 3D arouse interest and enthusiasm for the project through their realism. In this way they can often help to win over decision-makers in charge of funds and budgets.

Our many years of productive knowledge exchange with industry will help you define the exact training requirements for your situation.
When planning the FACT Technology Center in Uruguay, the widest possible range of options was considered to ensure the best possible match for the market—such as dual education based on the German model, or training towards a qualification as a mechatronics technician.

Training and education projects always require a long-term commitment from all participants. In matters of training and education, a holistic and sustainable approach is therefore the most efficient—with a view to the long, medium, and short term. Often five years will pass between the original idea and the implementation of a project. It usually takes a further 3 to 5 years before output is produced in the form of training programs. For this reason, Festo always takes medium-term (6 or 3 months) training requirements into account, as well as short-term training for employees.

The budget in Uruguay was planned with foresight, investing not only in technology but also in expertise, training, and quite specifically in a marketing strategy and sales promotion. This makes it possible to deliberately intensify both the university use and the industrial use of the five labs with their various learning environments.

* FACT (Festo Authorized and Certified Training)
Requirement

We command expertise as automation specialists in every industry segment, and are experienced in technological knowledge transfer through teaching.

Industry segment expertise
With us, your requirements are in the best of hands. As a leading automation expert, Festo caters to customers in all industry segments. Consequently, Festo Didactic knows which skills employees in the industry need and which technologies are required in the relevant labs in order to teach the necessary competencies and achieve the desired learning outcomes.

Technological expertise
Regardless of the vocational fields involved, Festo Didactic covers the full spectrum and supplies learning labs with all the necessary technologies. As a driving force in technical education, Festo Didactic also knows the technologies and competencies that will be required in the future – such as Industry 4.0 and Aquatronic – and how to implement them through teaching.

Comprehensive service
For equipment, workbenches, and fittings we offer you technical reliability, centralized procurement, guaranteed functionality, and turnkey processing. Solutions that extend beyond our own Festo equipment are covered by our selected, best-in-class industry partners.

Leading partner in all industry segments
- Metallography and material testing
- Electrical engineering
- Mechatronics
- Factory and process automation
- Water and wastewater engineering
- Machining technology
- Agricultural engineering
- Green energy
- Building automation systems
- Automotive technology
- Robotics

Technologies in industrial quality
Security of investment due to the outstanding quality of the tools:
- Chip-removal machining
- Measuring and test instruments
- Operating and workshop equipment
- General tools
- Handling technology and machines

Everything from a single source— turnkey education solutions with guaranteed functionality.

An eye to the future
Renewable energies are becoming increasingly important for our energy supply. Industries with an ecological focus are creating new markets and require well-trained personnel. We offer solutions that prepare trainees and professionals for the implementation and optimization of new, sustainable technologies and services.

Workbenches and workstation systems
Find out more about the full range of our labs and learning systems on the following fold-out panorama page.
Industry 4.0

Labs and learning environments

Training for the factory of the future
Flexible, agile, dynamic learning and a focus on practical application are among the prominent features of Industry 4.0. This defines a successful training concept and learning environment. The training materials are designed in such a way as to complete learning family. Based on a modular and flexible structure, the learners are immersed step-by-step in Industry 4.0 content, all the way up to the Cyber-Physical Factory. Since learning areas and needs are constantly changing, the lab is modular and flexible in structure and can be adapted and expanded at any time.

Range

Equipped with the latest learning systems, our state-of-the-art campuses are the perfect place for all technical vocational fields.

Fluidics

Fundamentals of pneumatics and hydraulics. The learners can dive into the fluid power basics from basic low-pressure hoses to complex high-pressure pipelines. They are taught the mechanisms and principles of the working components and measurable system properties. The participants are trained in distinguishing safety aspects and design challenges, and familiarize themselves with the theory and application of the choices in group work with the equipment and

Multimedia and Simulation

Virtualized training is a key element of Industry 4.0. The use of virtual simulation allows optimization training of the topics for the future. The learning concept is designed to simulate the real work environment. The learners are introduced to the basics of pneumatics and hydraulics using both theory and practice, and are taught the fundamentals of pneumatics and hydraulics through practice-oriented exercises.

Mechanical engineering

Welding technology

Welding is used in virtually all workshops and industrial companies that process metal, to produce a variety of products economically and to the highest precision, sturdy designs, easy maintenance, high safety standards, exceptionally long operation, and test runs on all the necessary labs for all technical vocational fields. We are committed to quality training for metalworking, the use of high-quality machines, and all the necessary tools. We guarantee that all the necessary qualifications.

Electrical, electronics, and data technology

Training in the basic disciplines of mechatronics is the first step in training at automation. The combination of theoretical lessons with practical applications is the solution to the requirements. The learners are taught the technologies involved. The learners are introduced to the basics of pneumatics and hydraulics using both theory and practice, and are taught the fundamentals of pneumatics and hydraulics through practice-oriented exercises.

Process automation

Process automation. Automatic and controlled use of pressure in mechatronics and automation technology. Conveyors, feeding, welding, and robotic arms. The learners are taught the technologies involved. The learners are introduced to the basics of pneumatics and hydraulics using both theory and practice, and are taught the fundamentals of pneumatics and hydraulics through practice-oriented exercises.

Partly automated systems

Training technology operates independently, in all the disciplines of technology. It is teaching, time, and more common for skillful workers and students to be responsible for interpreting the instructions of automation technology. The learners are taught the technologies involved. The learners are introduced to the basics of pneumatics and hydraulics using both theory and practice, and are taught the fundamentals of pneumatics and hydraulics through practice-oriented exercises.
During the first visit of the Festo engineers to the site in Lagos, it was clear from the condition of the building that additional conversion work would be necessary in order to realize the Nigerian government’s training plan. The plan envisioned the training of competent professionals in the classrooms and making them available to local industry.

Festo firmly resolved not to leave the additional conversion work of the building to its partner, but instead to take on the responsibility itself despite the financial risk. The long-term commitment displayed by this use of funds was backed by the World Bank in its decision on the outcome.

The training of the Nigerian trainers was also undertaken in collaboration with local partners. Today, these committed and highly motivated trainers are indispensable. They are now also providing valuable support for new training projects in Nigeria. For instance, they made a major contribution to the successful establishment of another FACT* training center in the difficult-to-access north of Nigeria.

* FACT (Festo Authorized and Certified Training)
Operational excellence

Skills creation

We equip employees in industrial companies and teachers in educational institutions with skills—with trainer training, the latest media, and learning systems.

Training expertise
For sustainable success in learning, we combine industry-oriented learning systems with practical training, and offer basic and further training with an international outlook. We train our apprentices and trainees at our headquarters in Esslingen in Germany. Other Festo training centers are located in Rohrbach (Germany) and in Mason (Ohio, USA) and Suzhou (China).

Trainer training
Benefit from experienced, certified specialists with real-world experience. We train trainers, and offer specific train-the-trainer courses for our learning systems. You will thus not only gain technical understanding but also learn how to use and apply our learning systems in your classes.

FACT certification
FACT (Festo Authorized and Certified Training) is a seal of quality representing an internationally valid standard for teaching equipment and methods and for technical equipment in industrial automation and mechatronics. Every FACT center is tailored to the requirements of the local markets and industries and offers industry-oriented training courses to match those requirements.

Training and consulting
With our broad-based program, we give industrial companies the capacity to increase the performance of their supply chain and associated processes and to gain competitive advantages:
• Strategy workshop
• Analysis of processes
• System optimization
• Process optimization
• Change management
• Shopfloor management
• Skills management, personality, and meeting guidance
• and much more

Simulation und blended learning
Learn in a new dimension and seamlessly combine the virtual world with the real world:
• The electronic Classroom Manager manages target groups, content, and media
• The simulation programs of CIROS® or FluidSIM® provide optimum preparation for a variety of technologies
• STEP 7 classroom licenses ensure that every student can access the industrial controller
• The virtual world and the real world interact in Connected Learning
• Our patented solution for Connected Learning: Tec2Screen®

Connected Learning
Our innovative learning concept “Connected Learning” combines the real world of training with the virtual world. This new dimension in learning brings together theory and practice in the direct interaction between software and hardware. It is implemented using the mobile, interactive, multi-media learning assistant Tec2Screen®.

Designing learning processes
Any future-oriented training needs to base its day-to-day content on work and business processes. We design learning strategies and offer training to develop the right skills to prepare your graduates for the job market in the best possible way.

The perfect training—knowledge and experience at first hand.
The start-up of the Learning Factory 4.0 in fall 2016 marked the rapid entry of the Philipp Matthäus-Hahn school in Balingen in southern Germany into the age of Industry 4.0. In 2015, the school received the go-ahead for the project, which was backed by the state of Baden-Württemberg and funded by businesses in the region.

In a few short months, Festo Didactic set up the five learning labs for a wide range of technologies, which brought an enthusiastic reaction from the vocational and technical students, their teachers, and local industries.

With the Learning Factory 4.0, the school takes on two important roles in the region: First, it strengthens the skills of the trainees, skills they will need in computerized production. The Learning Factory also provides hands-on experience of Industry 4.0. The school will also be an important partner for many industrial companies in the region in the future, offering specialist further training tailored to the requirements of each branch of production.

Alongside the Industry 4.0 Learning Factory, all the requirements of the manufacturing sector are met. The two CNC labs allow the students to learn about the production techniques of milling and turning. At the eight hydraulics workstations, they can be taught the fundamentals of hydraulics on a practical basis.

### Project facts

**Learning Factory 4.0**, Gewerbliches Schulzentrum, Balingen

**Opened in 2016**

**Customer**

- Philipp Matthäus-Hahn Schule, Gewerbliches Schulzentrum, Balingen

**Technologies in 5 learning labs**

- Hydraulics
- CAD/CAM/CNC, turning and milling
- Industry 4.0 fundamentals
- Industry 4.0 training factory
Security

For sustainable project success, we guarantee outstanding project management, high-performance procurement and logistics processes, and sound funding advice.

Value creation
The supply of customized, turnkey learning labs from a single source puts our customers in the best position for value creation. All the factors come together in synergy: procurement of the learning systems and laboratory equipment from a single source, optimized logistics processes, professional project management, training of teachers and trainers, and commissioning of the learning systems.

Sustainability
It is important for us that our learning solutions work over a long period of time. We will only supply you with products and solutions that will benefit you well into the future. We are more than willing to recommend low-cost solutions to you when they make sense in the long term, from a holistic perspective.

Sustainable project success
Thanks to optimized processes and 100% implementation
• Established project methods
• Centralized spare parts warehouse
• Technical documentation
• Setup, installation, and commissioning
• Preventive maintenance
• Extended warranties and after-sales service
• International standards
• Worldwide on-site service

Funding advice
Different options for project financing
• Access to funding from development banks
• Public-private partnership programs
• Offset agreements
• Financing models

Outstanding quality
The outstanding quality of all tools and pedagogical training materials ensures the necessary investment security. Festo Didactic is certified as a provider of education and training in accordance with DIN ISO 9001.

Project security
You can depend on your project running smoothly in every way. We have at our disposal more than 50 years of experience, optimized processes, and cumulative expertise in teaching and training—from the definition of goals through to logistics and financing options, often going far beyond the end of the project itself. You can rest assured that we always operate at your level.

Logistics
Reliable and punctual delivery all over the world
• Smooth procurement management from a single source, even in a difficult environment
• Strategic warehouse management worldwide
• Specialized expertise in direct delivery to multiple locations
Festo Didactic

Festo Didactic is the world’s leading service provider for basic and further technical training. The company’s range of products and services provides customers with holistic training solutions in all areas of pneumatics as well as its unique range of Industrial training and vocational education programs.

In the field of factory and process automation, the company currently provides more than 300,000 customers in 200 industry segments around the world with pneumatic and electric drive technology, as well as the latest training solutions for industrial environments.

The Festo Group has a global presence with around 18,700 employees in 250 locations.

Partnerships

We design and implement learning systems, training environments/laboratories, training factories, e-learning solutions and training programs, right on up to complete training centers which systematically prepare people for work in dynamic and complex industrial settings. Our goal is to maximize learning success in schools and training centers, and to ensure lasting skills development in industrial companies around the world.

WorldSkills

WorldSkills has been the leading platform for international benchmark tests in vocational technical training for many years. Festo looks forward every year to this vocational world championship: as an employer, as a trainer of apprentices and trainees, as a provider of materials and solutions in the field of technical training, and as a promoter of the dual system for vocational training. It is our goal to support and advance young people at college, high school, and in industry in the best possible way through our products and services.