Digital training programmes
Digital training programmes
Well-prepared knowledge

Festo Didactic training programmes are flexible; they offer tutors room to be creative and increase students’ motivation.

All our training programmes have the following features:
– Excellent didactic and multimedia course topics
– Scope for self-study during classroom-based training
– Learning scenarios can be individually customised
– Varied programme functions, such as a glossary, search function, notes
– Can be used in conjunction with Classroom Manager
– Can be integrated into training concepts which use other media (Word, Excel, PDF, etc.)
– Participant guidance
– Monitoring of learning progress and certification

The training programmes are optionally available as follows:
– CD-ROM
– Licence for local networks (on request)
– Web-based training (WBT) for Classroom Manager
– For installation on one of your servers
– For use via the internet (on request)

Should you have any other wishes, we will be pleased to create an e-learning package specially tailored to your needs. We will gladly advise and guide you through each step, from the design phase through to the installation of the complete Learning Management system.

Overview of our programmes:

Fluid engineering
– Pneumatics
– Electropneumatics
– Hydraulics
– Electrohydraulics

Electrical engineering
– Electrical engineering 1
– Electrical engineering 2
– Electronics 1
– Electronics 2
– Electrical safety measures

Automation technology
– Sensor technology 1
– Sensor technology 2
– Actuators – DC motor
– Electric drives 1
– Electric drives 2
– Open- and closed-loop control
– LOGO! Training
– Fieldbus technology
– GRAFCET
– PLC programming in accordance with IEC 61131
– Discover MPS® 200
– Machine vision
– Safety engineering
– Process automation

The fascination of technology
– The fascination of technology

Training
– Basic principles of accounting
– Compliance
– Safety at work
– General law on equality and discrimination (German: AGG)

Management systems
– Classroom Manager
– Competence Manager
– Content Builder
– Recruiting Manager
– Knowledge Portal Manager

System requirements for WBTs
– PC with Win 2000/XP/Vista/Windows 7
– Flash Player, version 8.0 or higher
– Sound card
– DVD drive
– Screen resolution:
  Minimum 1024 x 768 pixels

Languages
All of our WBTs are available in several languages. The language is selected when starting the WBT and can be changed directly on every page during the training. This gives you a multilingual dictionary in addition to our training programs.

If your language is not listed, we can provide an individual quotation.

Organisation and methods
– Renewable energies
– Environmental protection in the office
– Project management
– Time management
– Internet search

Lean Management/Lean Production
– Value stream analysis and mapping
– Poka Yoke
– 5S – Workstation organisation
– TPM – Total Productive Maintenance

Management and teamwork
– Customer orientation
– Team performance
– Personnel management

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– 5S – Workstation organisation
– TPM – Total Productive Maintenance

Management and teamwork
– Customer orientation
– Team performance
– Personnel management
Everything on the subject of pneumatics. The program is divided into technical knowledge and coursework.

Technical knowledge
This interactive self-taught program covers the basics of pneumatic control. Participants learn to find practical and theoretical solutions to the key tasks of a basic course on pneumatics, e.g. as part of a basic vocational training course.

Course
In this course the theoretically acquired technical knowledge is reinforced. A wide range of exercise types makes the course interesting and successful: participants have to draw symbols and circuit diagrams, answer multiple-choice questions and set up and connect circuits in PC-based video clips.

From the contents:
- Physical basics (units, properties, laws)
- Energy supply (production, preparation and distribution of compressed air)
- Circuit diagram (circuit diagram, symbols)
- Drive components (applications, linear drives, rotational drives)
- Valves (designs, directional valves, stop valves, pressure control valves, flow control valves, valve combinations, logic elements)
- Signalling components (manual signalling, endpoint detection)
- Additional requirements

E.g. single licence with CD-ROM/DVD
Online DE/EN/ES/FR/FI/ET/EL/ZH
Order no. 540911
Network DE/EN/ES/FR/FI/ET/EL/ZH Order no. 540913

The Electropneumatics training program builds on the Pneumatics training program and reinforces material already learned from practical projects. Starting with concrete industrial applications, fundamental electropneumatic circuits are produced. With the help of numerous exercises, learnt material will be revised, applied and further developed by you. During an exercise, the programme reacts to each answer with varying feedback.

The trainee is supported by the basic knowledge module, which provides fundamental knowledge on electropneumatics in a structured, systematic manner. In the components module, the structure, function and application of typical electropneumatic components is described. Various supporting materials are available to complete the exercise such as PDF documents, a variety of downloads and a comprehensive glossary.

From the contents:
- Advantages and drawbacks of electropneumatics
- Safety in electropneumatic circuits
- Fundamentals of electrical engineering
- Pneumatic circuit diagram
- Electrical circuit diagram
- Basic logic functions
- Direct and indirect electrical control, time and pressure dependent process controls
- Signal storage in the power and in the control unit, latching circuit
- Documentation for a control unit
- Maintenance and repair of electropneumatic systems
- Solenoid actuated valves
- Double-acting cylinders
- Electrical buttons and switches
- Sensors
- Relays and contactors, timed relays
- Pressure switch
- Standardised circuit diagrams, electrical and pneumatic circuit diagrams

E.g. single licence with CD-ROM/DVD
Online DE/EN/ES/FR/FI/ET/EL/ZH
Order no. 540923
Network DE/EN/ES/FR/FI/ET/EL/ZH
Order no. 540925
Everything on the subject of hydraulics. The program is divided into technical knowledge and coursework.

**Technical knowledge**
This interactive self-taught program covers the basics of hydraulic control. Participants learn to find practical and theoretical solutions to the key exercises in a basic course on hydraulics, e.g. as part of a basic vocational training course.

**Course**
In this course the theoretically acquired technical knowledge is reinforced. A wide range of exercise types makes the course interesting and successful: participants have to draw symbols and circuit diagrams, answer multiple-choice questions and set up and connect circuits in PC-based video clips.

From the contents:
- Physical basics (units, properties, laws)
- Hydraulic systems (principles of a hydraulic system)
- Drive units (components, pumps, containers, filters)
- Drives (single-acting cylinders, double-acting cylinders, hydraulic motors)
- Directional valves (design characteristics, 2/2 directional valves, 3/2 directional valves, 4/2 directional valves, 4/3 directional valves, special circuits)
- Stop valves (non-return valves, pilot operated non-return valves)
- Pressure control valves (pressure relief valves, pressure regulation valves)
- Flow control valves (throttle valves, flow control valves)
- Additional requirements

E.g. single licence with CD-ROM/DVD
Online DE/EN/ES/FR/FI/ET/ZH
Order no. 540917
Network DE/EN/ES/FR/FI/ET/ZH
Order no. 540919

The Electrohydraulics training program builds on the Hydraulics training program and reinforces material already learnt from practical projects. Starting with concrete industrial applications, fundamental electrohydraulic circuits are produced. With the help of numerous exercises, learnt material will be revised, applied and further developed by you. During an exercise, the programme reacts to each answer with varying feedback.

The trainee is supported by the basic knowledge module, which provides fundamental knowledge on electrohydraulics in a structured, systematic manner. In the components module, the structure, function and application of typical electrohydraulic components is described. Various supporting materials are available to complete the exercise such as PDF documents, a variety of downloads and a comprehensive glossary.

From the contents:
- Advantages and drawbacks of electrohydraulics
- Safety in electrohydraulic circuits
- Fundamentals of electrical engineering
- Hydraulic circuit diagram
- Electrical circuit diagram
- Basic logic functions
- Direct and indirect electrical control, time and path-dependent process controls
- Signal storage in the power and in the control unit, latching circuit
- Documentation for a control unit
- Maintenance and repair of electrohydraulic systems
- Solenoid actuated valves: spring return and pulse valves
- Double-acting cylinders
- Electrical buttons and switches
- Sensors
- Relays and contactors, timed relays
- Standardised circuit diagrams, electrical and hydraulic circuit diagrams
- Documentation of electrohydraulic controllers
- Simulation of a hydraulic and electrical circuit diagram

E.g. single licence with CD-ROM/DVD
Online DE/EN/ES/FR/FI/ET/ZH
Order no. 540929
Network DE/EN/ES/FR/FI/ET/ZH
Order no. 540931

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Our authoring tool:
Content Builder
Devise and design your own training media
Electrical engineering 1

The "Electrical engineering 1" training program is one of a series of new programs in the field of electrical engineering and electronics. These programs are practically oriented and authentically structured. Case studies from practice provide a concise illustration of the matters covered. All training content is taught by means of audio clips. Additionally, the narrative text can be viewed on the sitemap.

Trainees experience a regular exchange of input and output, with phases of presentation and explanation alternating with phases of activity and interaction. This enhances motivation and learning.

Progress monitoring exercises are scheduled after a maximum of five pages of learning. The aim of this is to have trainees repeat, apply and develop what they have learned themselves. Exercises are incorporated during teaching, at the end of each learning step and within the case studies. During an exercise, the program responds to each of the trainee's answers with appropriate feedback.

Various tools are built-in to the training program, such as Excel worksheets, an integrated calculator, PDF files and various downloads. The training programs include an extensive glossary and a full text search facility.

Content extracts:
- Closed circuit
- Electrical conductivity
- Ohm's Law
- Measuring in the circuit
- The resistor as a component
- Series connection of resistors
- Parallel connection of resistors
- Voltage divider
- The resistor as a sensor
- Battery-powered screwdriver
- Measuring range extension
- Temperature controlled heating
- Level detection

E.g. single licence with CD-ROM/DVD
Online DE/EN/ES/FR/FI/ET/SV/EL/ZH
Order no. 549623
Network DE/EN/ES/FR/FI/ET/SV/EL/ZH
Order no. 549625

Electrical engineering 2

The "Electrical engineering 2" training program is one of a series of new training programs in the field of electrical engineering and electronics. These programs are practically oriented and authentically structured. Case studies from practice provide a concise illustration of the matters covered. All training content is taught by means of audio clips. Additionally, the narrative text can be viewed on the sitemap.

Various tools are built into the training program, such as Excel worksheets, an integrated calculator, PDF files and various downloads. The training programs include an extensive glossary and a full text search facility.

Content extracts:
- Electric charge
- Capacitor
- A capacitor in a DC circuit
- A capacitor in an AC circuit
- Applications of the capacitor
- Variable capacitor
- Coil
- A coil in a DC circuit
- A coil in an AC circuit
- Applications of the coil
- Physical variables
- Calculating with changing values
- Light switch-off delay
- Electrical behaviour of a grinder
- Power generation and transmission

E.g. single licence with CD-ROM/DVD
Online DE/EN/ES/FR/FI/ET/SV/EL/ZH
Order no. 549626
Network DE/EN/ES/FR/FI/ET/SV/EL/ZH
Order no. 549628
The “Electronics 1” training program is one of a series of new programs in the field of electrical engineering and electronics. These programs are practically oriented and authentically structured. Case studies from practice provide a concise illustration of the matters covered. All training content is taught by means of audio clips. Additionally, the narrative text can be viewed on the sitemap.

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Various tools are built into the training program, such as Excel worksheets, an integrated calculator, PDF files and various downloads. The training programs include an extensive glossary and a full text search facility.

Content extracts:
- Semiconductor technology
- Diodes
- Bipolar transistors
- Field-effect transistors
- Regulated power supply
- Audio amplifier
- Audio amplifier with sound control

E.g. single licence with CD-ROM/DVD
Online DE/EN/ES/FR/FI/ZH

Order no. 549629
Network DE/EN/ES/FR/FI/ZH
Order no. 549631

The “Electronics 2” training program is one of a series of new programs in the field of electrical engineering and electronics. These programs are practically oriented and authentically structured. Real case studies provide a concise illustration of the matters covered. All training content is taught using audio clips. Additionally, the narrative text can be viewed on the sitemap.

Various tools are built into the training program, such as Excel worksheets, an integrated calculator, PDF files and various downloads. The training programs include an extensive glossary and a full text search facility.

Content extracts:
- Signal types
- Integrated circuits
- Operational amplifier (OpAmp)
- AC voltage of various frequencies
- Characteristic values of amplifying circuits
- Circuit technology of amplifiers
- Filters
- Bistable flip-flop
- Single flip-flop
- Sine wave generator
- Thyristor-controlled drilling machine
- Brightness control with triac
- Adjusting the speed of an electric screwdriver

E.g. single licence with CD-ROM/DVD
Online DE/EN/ES/FR/FI/ZH

Order no. 549632
Network DE/EN/ES/FR/FI/ZH
Order no. 549634
Electrical protective measures

This interactive multimedia training program provides an introduction to the complex topic of protective measures. It explains what electrical protective measures are and how they are classified. Trainees will also become familiar with all the legal regulations in this area.

The measures that are effective in preventing direct and indirect contact are outlined using various specific examples and functional principles.

Finally, there is an explanation of how protective measures are tested and what actions should be taken in case of an accident involving electricity.

From the contents:
- The dangers of electricity
- Humans and electricity
- Electric shock hazards
- What are electrical protective measures and how are they classified?
- Protection levels
- Protective measures, protection classes
- Differences between DIN standards, VDE regulations and DIN-VDE standards, statutory requirements and legal consequences.
- Definition and overview of protective measures to prevent direct contact
- Protection by insulating active components
- Protection by covering or cladding
- Protection by barriers
- Protection by distance
- Definition and overview of protective measures to prevent indirect contact
- Production by disconnecting power supply
- Mains systems (TN, TT, IT systems)
- Protection by disconnection
- Testing protective measures
- Measurement and measuring devices
- Safety and assistance
- Summary and questions to check understanding

E.g. single licence with CD-ROM/DVD
Online DE/EN/ES | 571118
Network DE/EN/ES | 571119

PLC programming in accordance with IEC 61131

Programmable logic controllers play a central role in automation. These devices are used to control machines and systems.

The program of a programmable logic controller can be flexibly adapted for any task. Various programming languages, which are all based on the IEC 61131 international standard, are available for creating the control program in conformance with standards.

This training program allows users to get to grips with function charts, ladder diagrams, instruction lists, sequential function charts and structured texts in five programming languages. Through the use of various practice-related examples, the programming languages are presented step by step.

Contents:
- Programmable logic controllers
- Project organisation
- Programming languages in accordance with IEC 61131
- Link-oriented programming languages
- Sequential function chart
- Structured text
- Sequence programming project

The training program provides beginners with an ideal introduction to IEC-compliant programming.

In addition to trainees, pupils and students, it also appeals to skilled workers, technicians and engineers who have previously only programmed in IL, LDR or FCH. The higher, IEC-compliant languages provide a range of benefits to be discovered and used.

E.g. single licence with CD-ROM/DVD
Online DE/EN/ES | 574488
Network DE/EN/ES | 574489

Our authoring tool: Content Builder
Devise and design your own training media
Sensors in pneumatics

This training program deals in detail with the sensors used to detect end position on cylinders and with pressure and flow sensors in pneumatic systems. Based on a complex example from industrial practice, trainees are taught to select suitable sensors. The necessary basic knowledge for this is provided in the Technical Knowledge and Components modules, to which they can refer at any time.

All training content is taught by means of audio clips. Additionally, the narrative text can be viewed.

Content extracts:
- Project: Selection of sensors in one of the clamping units of a processing centre
- Advantages and disadvantages of various end position sensors on cylinders
- Simple displacement encoders on cylinders
- Use of pressure sensors to improve safety in pneumatic systems
- Use of flow sensors to safeguard system cycle times
- Output signals from sensors
- Connection technology
- NO/NC (Normally Open, Normally Closed)
- Switching functions
- Sensors for end position detection
- Pneumatic and mechanical limit switch, reed switch, transistor switch, Hall sensor, position sensor
- Types of pressure measurement
- Sensors for pressure measurement: Mechanical pressure switch, electronic pressure sensor,
- Sensors for flow measurement: Volumetric flow meter, effective pressure principle, ultrasonic flow meter, mass flow meter, heat-loss method

E.g. single licence with CD-ROM/DVD
Online DE/EN/ES/FR/FI/ET/ZH/USA
Order no. 549752
Network DE/EN/ES/FR/FI/ET/ZH/USA
Order no. 549755

Sensors for object detection

This training program deals in detail with the sensors used to detect objects in automated systems. Based on a complex example from industrial practice, trainees are taught to select the suitable sensors. The necessary basic knowledge for this is provided in the Technical Knowledge and Components modules, to which they can refer at any time.

All training content is taught by means of audio clips. Additionally, the narrative text can be viewed.

Content extracts:
- Project: Selection of sensors in a milk bottling plant
- Object detection in industrial practice
- Switching characteristics of proximity sensors
- Hysteresis
- Connection technology: Two-wire technology, three-wire technology, four-wire technology
- NO/NC (Normally Open, Normally Closed)
- Inductive sensors: Construction and mode of operation, factor-1 sensors, special designs, flush-fitting sensors, application examples
- Optical sensors: Diffuse sensor, through-beam sensor, retro-reflective sensor, background fade-out, fibre optic cable, light types, reflection types, adjustment, contrast sensor, colour sensor
- Capacitive sensors: Construction, mode of operation, examples
- Ultrasonic sensors: Construction, mode of operation, applications

E.g. single licence with CD-ROM/DVD
Online DE/EN/ES/FR/FI/ET/ZH
Order no. 549758
Network DE/EN/ES/FR/FI/ET/ZH
Order no. 549761
Actuators – DC motor

Using the everyday example of a car park access control system, the trainee learns the basics of a mechatronic system.

Building on this, the training program determines what function the actuators have in the controller. A DC motor is then studied in more detail as an example of a typical actuator, e.g. its structure and the laws which govern its operation. Further chapters cover speed control and the use of data sheets as well as the transmission ratios which can be achieved by using a gearbox.

From the contents:
- The function of actuators in mechatronic systems
- Electric motors
  - DC motor
  - Torque and current
  - Behaviour of DC motors
- Induced voltage and speed control
- Characteristic torque/speed curve
- Working with data sheets
- Determining the transmission ratio

E.g. single licence with CD-ROM/DVD
Online DE/EN/ES/FR/EL/ZH
Order no. 540953
Network DE/EN/ES/FR/EL/ZH
Order no. 540955

Electric drives 1

The “Electric drives 1” interactive multimedia training program provides an interesting introduction to the world of electric motors.

The first section sets out the basic principles of electric drives. The second section illustrates the construction and functioning of DC motors, while the third section deals with the special features of AC motors.

From the contents:
- Basic principles of electric drives
- Getting to know different motor types (stepper motor, asynchronous motor, universal motor)
- Mechanical principles (conversion of mechanical/electrical energy, motor - generator, circuit diagram and current direction, transmission variables (force, mechanical power, efficiency etc.), definitions of torque and speed)
- Electronic principles (basic principle of the motor, Lorentz force using the example of a conduction loop, electrical and magnetic fields, occurrence of torque, right-hand rule)
- Getting to know different DC motors
- General (functional principles, commutation, technical data, brushless DC motor, load dependency, difference between series and parallel connection)
- Parallel connection behaviour
- AC motors
- Difference in power supply (DC, AC, three-phase AC)
- Getting to know different AC motors
- General functional principle (difference between synchronous and asynchronous motor), technical data, rating plate, characteristic curves and their interpretation, definition of reactive, apparent and effective power)
- Single-phase AC motor
- Three-phase AC motor special cases (stepper motors)
- Summary and review exercises

E.g. single licence with CD-ROM/DVD
Online DE/EN/ES/FR/ZH
Order no. 571120
Network DE/EN/ES/FR/ZH
Order no. 571121
The learning program "Electric drives 2" further explores the material covered in "Electric drives 1" and also includes new topic areas.

This learning program is suitable for beginners and advanced students. The first two chapters address the topic of controlling DC and AC motors. The third chapter focuses on the energy efficiency of electric drives, looking at economic and environmental aspects.

From the contents:
- Controlling DC motors
- Armature reaction
- Speed control
- Four-quadrant operation

Controlling AC motors
- Motor characteristic curve
- Open-loop and closed-loop speed control
- Frequency converters
- Smooth start-up

Energy efficiency
- Economic aspects
- Degree of efficiency
- Minimising losses
- Reliability
- Energy efficiency measures
- Environmental aspects
- Merits of electric motors

E.g. single licence with CD-ROM/DVD
Online DE/EN/ES/FR/ZH
Order no. 573775
Network DE/EN/ES/FR/ZH
Order no. 573776

The training program uses practical examples to show the difference between open- and closed-loop control in automation. Easy-to-understand tasks are used first to examine the overall process of a simple functioning system. Later sections then look at different types of controllers, the different ways in which signals are represented and processed and the ways in which programs are implemented.

From the contents:
- Differences between open- and closed-loop control (characteristics of controllers, characteristics of regulators
- DIN 19226
- Signal types
- Differences between types of control
- Signal processing (synchronous control, controlling links, asynchronous control, process control)
- Types of control (regulating to fixed values, tracking values)
- Regulators (P, I and D controllers, combined controllers such as PI or PID controllers)

E.g. single licence with CD-ROM/DVD
Online DE/EN/ES/FR/ZH
Order no. 540947
Network DE/EN/ES/FR/ZH
Order no. 540949

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Our authoring tool:
Content Builder
Devise and design your own training media
This training program provides an introduction to logic functions. First of all, AND & OR functions and their processing are shown in function tables. Other basic control functions such as memory, timer and counter functions round off the contents. The second part starts by covering the basics of open-and closed-loop control circuits and describes the elements of a controller. It then takes a detailed look at minicontrollers with their features and areas of application.

From the contents:
- Basic technical functions (AND & OR function, memory function, timer function, counter function)
- Digital minicontrollers (differentiation between open- and closed-loop control)
- Control components
- Positioning with digital minicontrollers
- Design and function of a minicontroller
- Cyclical programme processing
- Areas of application
- Programming languages

E.g. single licence with CD-ROM/DVD
Online DE/EN/ES/FR/ZH
Order no. 540941
Network DE/EN/ES/FR/ZH
Order no. 540943

The multimedia and interactive training program will teach you the basics of Fieldbus technology. It is suitable for beginners who would like to get an overview of the subject. Animations are used to illustrate various practical examples. All relevant terms on the subject of bus technology can be found in the integrated lexicon.

From the contents:
- Advantages of Fieldbus systems
- The design of Fieldbus systems (different areas of application, open and closed technical concepts such as message-oriented bus systems, user-oriented bus systems, multi-master concepts, database concepts, installation concepts)
- RS 485/RS 422 (introduction, cabling, function)
- Topology (introduction, line, ring, tree)

E.g. single licence with CD-ROM/DVD
Online DE/EN/ES/FR/ZH
Order no. 540959
Network DE/EN/ES/FR/ZH
Order no. 540961
GRAFCET – The new specification language for sequential function charts

Good documentation is a prerequisite for the quick construction and smooth commissioning of a system. As a result, products reach customers quicker. Furthermore, the sequence description is an important tool for quickly and accurately locating and eliminating errors and thus reduces production downtimes. GRAFCET can describe what the function chart has previously been unable to represent.

It introduces the new standard step by step, with the aid of practice-related examples.

From the content:

- Definitions
- Advantages of GRAFCET
- Differentiation from PLC programming language
- Configuring a GRAFCET
- Graphical representation of the language elements
- Graphical representation of the sequential structures
- Structuring of GRAFCETS
- Case studies
- Exercises
- Glossary

E.g. single licence with CD-ROM/DVD
Online DE/EN/ES/FR/ZH
Order no. 557688
Network DE/EN/ES/FR/ZH
Order no. 557689

A multimedia introduction makes it simple to work with the MPS® 200 modular production systems by Festo Didactic. First, we introduce you to the principle behind the complete system, and then we show you how to operate and commission it. You then become familiar with the individual “Distribute” and “Sort” stations in the process and learn how the modules function. You can apply your new knowledge of MPS® 200 in a short test, then relax and play a game.

Discover MPS® 200

Online DE/EN/ES/FR/EL/PT/ZH
Order no. 542682
Network DE/EN/ES/FR/EL/PT/ZH
Order no. 549834

Our authoring tool:
Content Builder
Devise and design your own training media
Machine Vision – the use of camera systems in production – is a relatively young, but swiftly growing area in automation technology. This web-based training unit deals with industrial image processing, from the creation of images up to the evaluation of the information in the picture. Working from actual practical industrial applications, students can follow all the steps in the image processing project in a practical manner. The basic knowledge required for this is clearly explained in the individual chapters of the technical knowledge module. In the components module, cameras and lighting systems are presented using examples.

From the contents:
- How does a machine see?
- Steps in industrial image processing
- Image sensors: CCD and CMOS
- Focal length and lens formula
- Aperture and depth of focus
- Types of illumination: objects subject to backlighting and incident light
- Filters to improve the image
  - Point operators, local and global
  - Average and median filters
  - Sobel operators and Laplace filters
- Process for image segmentation
- Global and local threshold processes
- Tools to calculate characteristics
- The classification of parts and characteristic curves
- Image processing and computing times
- Intelligent compact vision systems
- Lighting systems
- Sample applications of industrial vision systems

E.g. single licence with CD-ROM/DVD
Online DE/EN/ES/FR/2H
Order no. 557691
Network DE/EN/ES/FR/2H
Order no. 557692

Safety engineering

This training programme provides an introduction to the complex subject of safety engineering in industrial machines and systems. The aim is to make participants more aware of the problems in the design aspects of safety engineering and help them understand safety engineering equipment and hazard analysis methods.

The training programme is based on an amended version of the EC machinery directive 2006/42/EC.

How is the overall performance level of a technical safety measure determined? The training programme explains concepts such as probability of failure (POF), diagnostic coverage (DC), common cause failure (CCF), redundancy and diversity. There is also a detailed explanation of all the components for safety equipment.

From the contents:
- Introduction to machine safety
- The question of liability (who is liable in the case of an accident?)
- European directives
- The relationship between directives and standards
- The new EU machinery directive 2006/42/EC
- The hierarchy of the European standards for machine safety
- Machine safety in the USA
- Risk assessment procedure according to EN ISO 14121 and EN ISO 12100
- Definitions
- Risk evaluation: determining the required performance level
- Risk reduction measurements: design measures, technical safety measures, instructional measures
- Selecting the safety function
- Determining the control category

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Basic principles of process automation
This training program deals with the broad spectrum of technical process automation in a compact way. The characteristics and special features of process automation are conveyed in a simple manner via images from real situations, graphical representations of physical-technical processes and animated processes which you yourself can manage and control.

From the contents:
The three chapters “Handling substances”, “System planning” and “Process engineering processes in practice”, give you a step-by-step guide to a complete on screen system. The content of these chapters is reflected in the MPS® PA stations, which you will use during the practical part of your training.

– Handling substances
Product manufacture is usually subject to defined physical and chemical characteristics. The student’s awareness should be heightened so that he/she can accurately assess production conditions and deal with them correctly.

– System planning
This guides the student around a planning office, providing an insight into the planning and development of a system. The student can examine all the fundamental activities of the planning phase, from the basic principles of project management to drawing a circuit diagram until the system can finally be built.

– Process engineering processes in practice
The vast number of process engineering processes can be reduced to four typical ones: filtration, tempering, mixing and filling. Design and function are analysed using the four MPS® PA stations and the modular products from Festo Didactic and answers given to any questions that may arise when studying process engineering processes.

The fascination of technology
This exciting journey through the history of technology shows how inventions have changed the world. New forms of work have been created: from the hunter to the engineer. "The fascination of technology" is an interactive journey through the world of automation. The program contains many different multimedia components to help you on your journey. Experience the excitement of discovery and learning – this is pure entertainment!

The programme consists of 4 modules:

Technology and automation
Every day we come across technology and automated processes. This introduction illustrates, with practical examples, just how much life is affected by technology, in earlier times too but particularly today.

The history of automation technology
Mankind has always tried to make work easier through mechanisation and automation. Fascinating examples show how hard this development has sometimes been and how impressive the results can be.
Organisation and work techniques

Environmental protection in the office

Environmental protection has become an essential part of modern working life. You can actively reduce your impact on the environment and the climate in your everyday work. Our web-based training "Environmental Protection in the Office" provides you and your employees with concrete methods to make your daily working routine more environmentally friendly. Not only will this allow you to save on energy, water and office supplies but it will also help to reduce the costs of these resources.

From the contents:
– The carbon-neutral office
– Saving electricity
– Paper as a raw material
– Environmentally friendly office supplies
– Sustainable waste management
– Saving and protecting water

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Project management
Successfully manage complex technical projects and systems.
Investing around 60 minutes of your time in training pays for itself many times over, through increased professionalism and confidence when managing projects. The three modules contain essential information about basic principles and provide you with lots of practical hints and tips.

Content extracts:

Basic principles
– What is a project?
– Project planning
– Project organisation
– Project documentation

Project in practice
– Analysis
– Structuring
– Time intervals and dates
– Resources
– Organisation
– Documentation

Means of control
– 4-room apartment method
– S.M.A.R.T.
– Project structure plan
– Work packages and milestones
– Network planning
– Successful planning
– Time and expenditure planning
– Adherence to deadlines and capacity planning

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Time management
Optimise the way you manage your most valuable asset. Create new freedom, thus generating more energy for new things.

In this training program you have the chance to achieve an extremely high return. The time commitment is around 60 minutes; the time you save could be many times more. In two modules, you will learn the basics of time management and how to apply it to your everyday work.

Content extracts:

Basics
– The time phenomenon
– Goal-oriented working
– Time robbers
– Biorhythms
– Day planning
– Limits of time management

Application to everyday practice
– Goals and tasks
– Definition as per S.M.A.R.T.
– Setting priorities
– Pareto principle
– ABC0 analysis
– Workplace organisation
– ALPEN method

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Internet search
Give yourself an advantage by learning quick and easy ways to search for relevant information on the World Wide Web.

In two modules, you will learn to utilise the Internet effectively as an information resource and to use search methods and tools.

Content extracts:
The Internet as an information resource
– The right preparation
– The difference between catalogues and search engines
– Search terms and logic operations
– Using filters

Tools and methods
– Search processes
– Goal description
– Consolidation circle
– Relevance of search results
– Verification of search results
– Making content available

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Value stream analysis and mapping

Those who deal with value stream analysis and value stream mapping have one goal: to create production and production processes that achieve a true value stream.

The purpose of value stream analysis is to make all the processes (from the initial request through to the delivery of the product) transparent. This can quickly highlight a significant potential for effective reshaping of processes.

From the contents:
– Improving the value stream
– Added value and value stream
– Value stream analysis
– Use of value stream analysis and value stream mapping
– Working with value stream mapping methods
– Overview of the ACTUAL situation
– Example: The Cycle Accessories GmbH & Co. KG
– Value stream mapping
– The seven types of waste
– The situation as it SHOULD be
– Tasks and exercises

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Poka Yoke

Nowadays, Poka Yoke measures are an established part of quality assurance. Poka Yoke is a well-known principle, which originated in Japan. In Japanese, Poka Yoke means avoiding unintentional human error. Poka Yoke describes a principle that includes technical measures/equipment for preventing errors and eliminating them immediately.

Content topics:
– The story of Poka Yoke
– Inclusion of the seven types of waste
– The Poka Yoke system
– Typical examples of human error
– Basic elements of Poka Yoke
– Error-oriented approach
– Process-oriented approach
– Production-oriented approach
– Case studies
– Tasks and exercises

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5S – Workstation organisation

The objective of the 5S training programme is to become familiar with methods to create exemplary, well-organised workstations (both in industrial and administrative areas), where work can be carried out without searching unnecessarily, without long transport distances and without waiting times (i.e. waste-free).

The basic principle of every high-quality product or service is a clean and orderly working environment. Quality, as a basic customer need, has the highest priority at such value-added locations and therefore contributes to securing the order.

Content topics:
– General basic principles
– The 5S model
– The seven types of waste
– Visualisation in 5S
– The 5S audit and its application
– 5S in production
– 5S in administration
– 5S workshop procedure

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TPM – Total Productive Maintenance

It is always better to act than to react. Bearing this in mind, many businesses strive to stabilise the performance of their plants and to introduce preventative maintenance. The term TPM stands for ”Total Productive Maintenance”.

The following results were achieved in industry processes thanks to the implementation of this method: a 40% increase in operating times, a 10% increase in machine speed, a 95% reduction in the number of unexpected machine downtimes, a 90% reduction in the error rate as well as an increase in productivity of up to 50% and an increase of almost 200% in ROI. However, in spite of the concept being very simple, many companies fail at the implementation stage. TPM requires meticulous planning as well as interlinking with other methods of the value added system; it should also be targeted at the specific conditions of employees and machines. 20% of TPM is therefore a technical challenge, while 80% of it is an organisational challenge.

The learning program imparts fundamental knowledge about TPM. Here you will find out what TPM is and how you can implement this model in practice.

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Customer orientation
The subject of customer orientation is playing an increasingly important role. The success of a company also depends on how strongly it focuses on the needs of its customers.

This training programme offers an introduction to the complex subject of customer orientation. With the help of many practical examples, users learn how to optimally prepare for a customer meeting, how to successfully deal with customers and how to develop long-term business relationships.

Content topics:
– How to correctly prepare for a customer meeting
– How to proceed during a customer meeting
– Customer expectations
– Questioning techniques, paraphrasing
– How to correctly communicate one’s own services
– How to keep the customer in mind during discussions
– Recognising purchasing signals
– Needs analysis
– Relationship management

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Team performance
Human resources and their integration into teams are becoming more and more important. What basic rules should be followed for team success? How do you motivate team members and use group dynamics for improving performance?

Based on specific examples, executive or project managers will learn the most important success factors for leading a team.

Content topics:
– How does a team work?
– Phases of team development
– The role of the team leader
– Basic communication model
– Efficient meetings
– Motivation as a success factor
– Initiating motivation
– Empathy
– Group dynamics
– Conflict management
– Obstacles to project success
– Mediation
– Discussions about conflict and criticism

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Personnel management
Competent management is not a talent, it can be learned. This training programme provides a good overview of how to delegate successfully by using management tools and how to create a positive working atmosphere with motivated employees using specific management communication techniques. Furthermore, users discover how to handle difficult situations and how to manage crises and conflicts in a positive way.

Some sample topics:
– Optimal personnel management
– What does personnel management mean?
– Management behaviour and styles
– Social competence of executive managers
– Tools for personnel selection
– Employee development
– Agreeing on objectives
– Competence management

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The Classroom Manager is the quick and easy way to create, manage and supervise training sessions and courses. It enables you to combine presence-based courses, e-learning modules and many other training modules to make complete training units.

All the digital training media are compiled in a central library. Direct access to training media greatly reduces course preparation time.

The participants are provided with the right material for each session. You can create new tests, questionnaires or other training media whenever you need for participants completing courses or training sessions.

The Classroom Manager defines course structures and sets time frames, dates for attendance, training aids, access requirements and certification options. Participants and potential applicants can access this information as required.

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- WBTs that have already been installed from CD-ROM cannot be integrated into the Classroom Manager after installation. To do this, you will require a new version.
- The training programs are not included in scope of delivery for the Classroom Manager. Please order separately.

For details of the WBTs and the available languages, please see the product description or the website.

**System requirements**
- Windows operating system Windows 2000 server (Web Edition) or higher
- Flash Player version 8.0 or higher
- Administrator access is essential for installation
- In addition to Classroom Manager, a number of free open-source components must be installed (Apache 2.x/MySQL 4.x or 5.x/PHP 4.x/Zend Optimizer). These are supplied in the installation bundle.
- For standard installation, the required ports are Port 80 (Apache) and 3306 (MySQL)
- The hardware should be an Intel/AMD x86 or x86-64 platform. No minimum requirements for CPU, memory or hard disk

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- Project management
- Time management
- Internet search
- Value stream analysis and mapping
- Poka Yoke
- S - Workstation organisation
- TPM – Total Productive Maintenance
- Customer orientation
- Team performance
- Personell management
- Basic principles of accounting
- Compliance
- Safety at work
- General law on equality and discrimination (German: AGG)