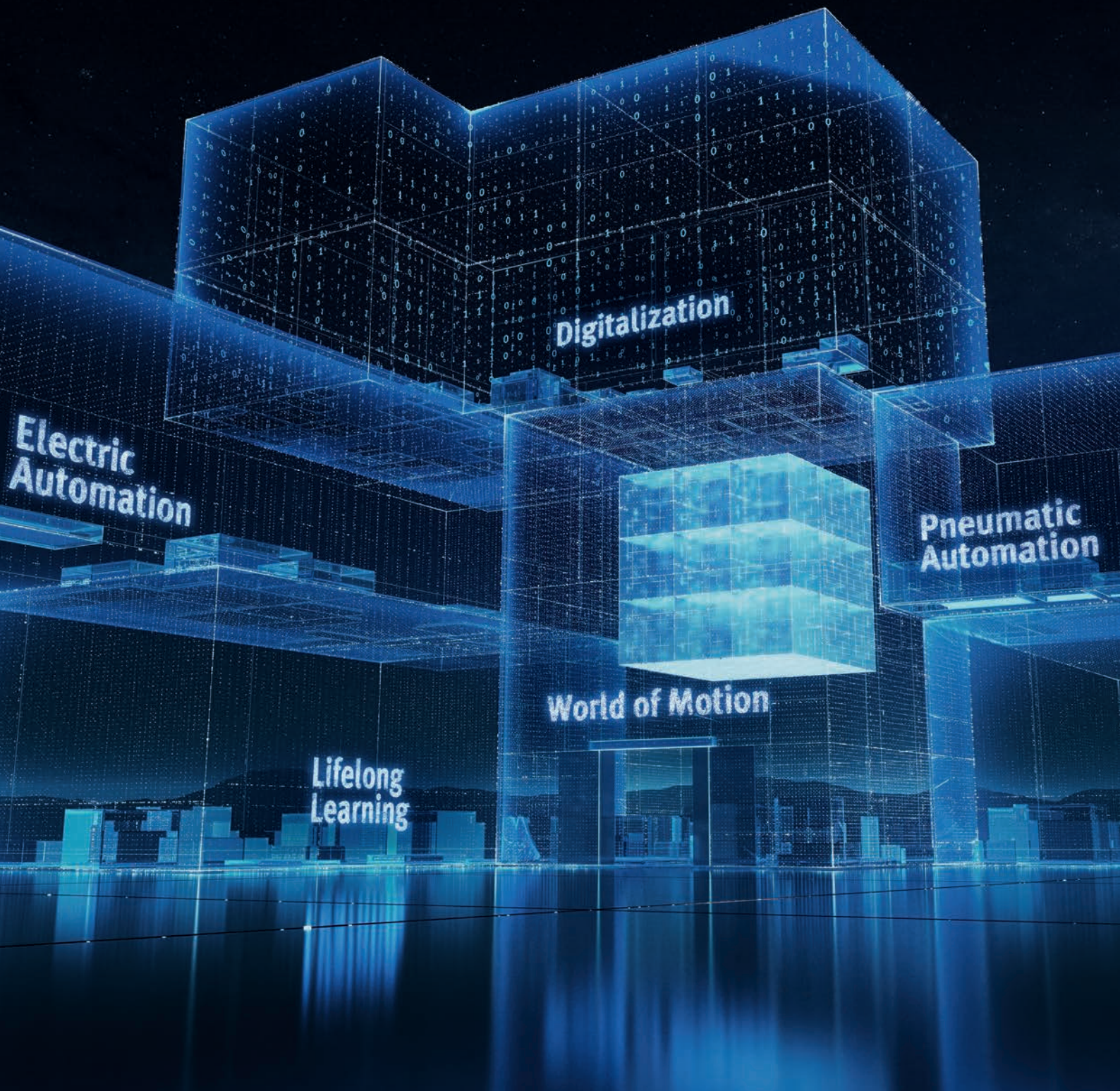
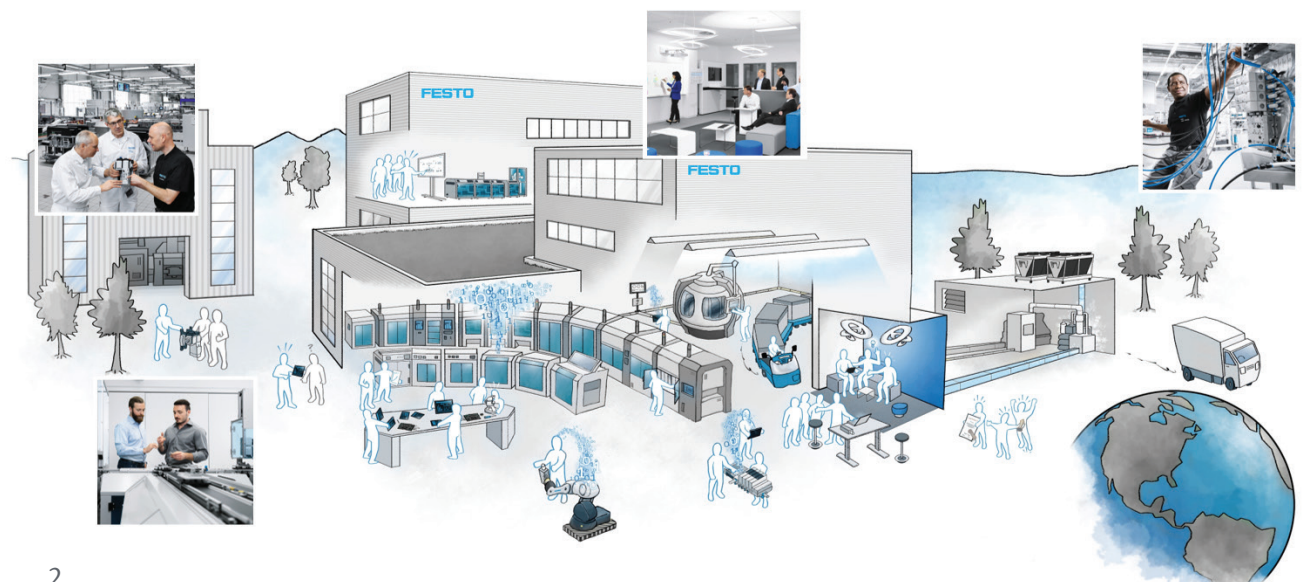


Training Courses

Competence Development towards Digitalisation

FESTO





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Festo Group

Festo is a world leading German company specialising in industrial control and automation, with a wide product range and services providing automation solution to the many different industries in many countries. Established in 1925, the independent family-owned company based in Esslingen a.N., Germany, has been a driving force in automation for over 60 years.

Festo Didactic provides state-of-the-art training solutions for industrial companies and educational institutions worldwide. The product and service portfolio offer customers holistic education solutions for all areas of technology in factory and process automation. Festo Didactic is the world leader in technical education and a global partner for competence development.

Festo Engagement in Industry 4.0

On the way to the production of the future

Festo has a holistic view of the changes in the production world in various perspectives from change and competence management of human resource in the company to process optimisation with emerging digital technologies.

With holistic digitalisation approach from integrating Industry 4.0 practice into Festo new Scharnhaussen Technology Plant to smart products, digital services, AI and the Industry 4.0 training programme offered by Festo Didactic.

Active networking activities and development of standards

Festo is in close co-operation with industry associates to help create the basis for a uniform understanding of the concept of Industry 4.0 and technological standards.

Festo is a member of

- Plattform Industrie 4.0
- Automation Markup Language (AutomationML)
- Labs Network Industrie 4.0
- OPC Foundation



Industry 4.0



“
The Paradigm
Shift to the
Production of
the Future
”

The fourth industrial revolution integrates automation technology and information technology to enhance productivity, efficiency and flexibility in manufacturing processes.

With a high focus on data and connectivity among people and machines, Industry 4.0 technologies enable organisations to become more sustainable and adaptive to changes in market demand.

The driving factors behind this revolution are technology, processes and people.



The Main Pillars | People • Process • Technology

Engineered by people

People remain a crucial success factor in the adoption of Industry 4.0. It is essential for companies to develop transformation roadmaps and strengthen their workforce's skill sets to keep abreast of technological advancements.

The result will be well worth the effort: a thriving organisation and a productive, empowered, and fully engaged workforce.

Driven by process excellence

To maximise the value that Industry 4.0 technology brings, effective and well designed processes must be in place to connect and streamline business activities, and make sure that resources are put to their optimum use.

Powered by technology

Smart factories are now a reality thanks to various digital technologies. By harnessing these innovations, factories can run autonomously as well as aid manufacturers in decision-making. Industry 4.0 technologies also permit decentralised control of production.

Practice-Oriented Training and Qualification

from **Fundamental Technology** to **Industry 4.0**

Festo Training Centre Singapore: A Regional Hub for Future-Ready Industrial Skills

Festo Training Centre in Singapore serves as a leading regional training hub, delivering world-class industrial education to learners across Southeast Asia and beyond. Strategically located and equipped with state-of-the-art facilities, the Centre plays a pivotal role in enhancing workforce capabilities throughout the region. Its training programmes are meticulously designed to address the evolving demands of modern industry, ranging from foundational technologies to advanced Industry 4.0 competencies.

At the heart of its curriculum are fundamental courses in fluid power technologies, including pneumatics, hydraulics, and sensorics—core knowledge areas essential for anyone involved in industrial automation. These foundational modules provide the critical building blocks for more advanced learning and are indispensable for developing a skilled and adaptable workforce.

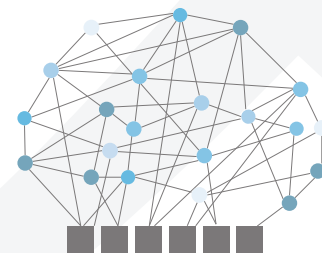
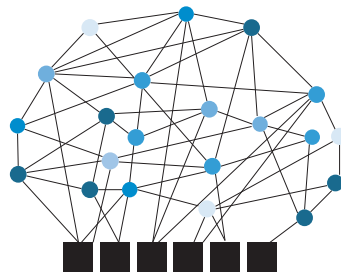
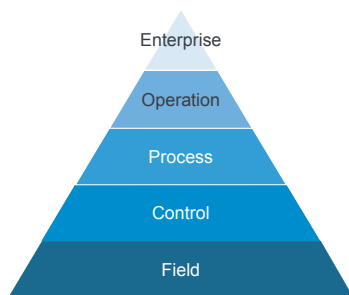
Building upon this foundation, learners can progress to the Mechatronics stream, where they gain practical experience with programmable logic controllers (PLCs) and automation systems. This stage bridges conventional industrial practices with contemporary control technologies, preparing learners for more complex systems integration.

As industries across the region embrace Industry 4.0, the demand for a digitally proficient workforce becomes increasingly urgent. Festo's advanced training offerings meet this need by focusing on smart manufacturing, digitalisation, cyber-physical systems, and data-driven production environments. These courses empower professionals to lead digital transformation initiatives and support the development of innovative, future-ready business models.

Through a structured and progressive learning pathway, Festo Training Centre Singapore enables learners to evolve from mastering core industrial technologies to becoming proficient in the latest Industry 4.0 innovations. Its role as a regional centre of excellence ensures that organisations and individuals across Asia have access to the expertise and tools required to succeed in the future of work.



from Classic Automation Pyramid to Network-Oriented Architecture



Industry 4.0

Mechatronics

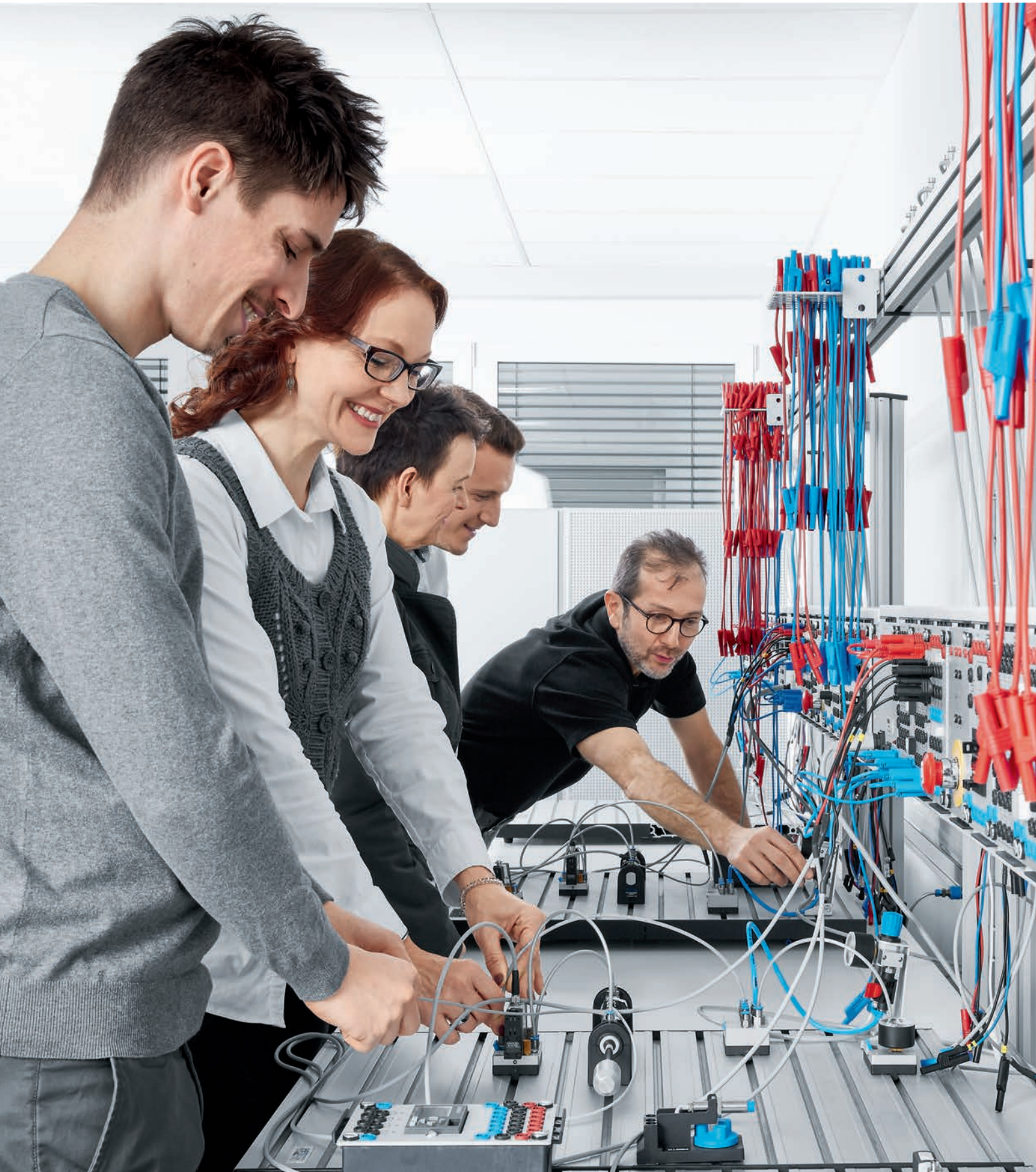
Fundamental Technology

Pneumatic System	Hydraulic System
Pneumatic Design	Hydraulic Design
Sensors	Maintenance

Basic PLC	Robotic System
Advanced PLC	HMI
Servo/Stepper Control	Industrial Networking

Horizontal Integration	Digital Transformation
OPC-UA	Augmented Reality
LEAN and Industry 4.0	Autonomous Robotic
Cyber Physical System	Node-Red Programming
Internet of Things	Smart Sensor & IO-Link
Smart Manufacturing with RFID	Manufacturing Execution System

Fundamental Technology



PN11 Industrial Pneumatics

Course Objective

This training course aims to provide the participants the knowledge of both pneumatics and electro-pneumatics control system as practiced in the industry. Familiarization of both basic pneumatics and electro-pneumatics components as well as their function and structure is learned and practiced in this course.

Target Group

Maintenance staff, technicians, engineers and trainers

Target Industry

Pneumatics related, Manufacturing Industry, Oil and Gas Industry

Course Content

- Fundamental of compressed air generation, distributions and preparation
- Role of service units
- Characteristics of pneumatics system
 - Properties compressed air
 - Advantages and disadvantages of compressed air
 - Structural and signal flow of pneumatics systems
- Pneumatics Power Section Devices (Linear and rotary actuators)
- Construction and development pneumatics valves.
- Different valve actuation method: Manual, Mechanical, Electrical and Pneumatics
- Comparison of development basic pneumatics and electro pneumatics control system
- Development and layout of simple controls:
 - Basic pneumatics circuits
 - Basic electro-pneumatics circuits
- Basic electrical logic function circuit: OR/AND/NOT/YES
- Function and construction of electrical switching devices.
- Application of proximity sensors: Magnetic, Inductive, Capacitive and Optical
- Pneumatics and Electrical Limit Switches
- Speed control circuit: Supply or Exhaust control configuration.
- Application of quick exhaust valve.
- Pressure dependent circuit.
- Timer and Counter application in pneumatics.
- Pneumatics and Electrical memory circuit
- ISO electrical and pneumatics symbols according to ISO1219

Course outcomes

- Knows the basic principles of compressed air generation, distributions and preparation
- Understand the process and signal flow of electrical control section and pneumatics power section
- Acquire knowledge of the construction and function of electrical switching devices, sensors, pneumatics valve and solenoid operated valve
- Able to read the symbolic representation of devices and standards
- Able to analyses and interpret simple pneumatics and electro-pneumatics circuits
- Able to design, assemble, test and troubleshoot basic pneumatics and electro-pneumatics circuits
- Meet the requirements for a higher-level course

Methodology

- Competency based
- State of the art teaching resources and facilities
- Individual and team skills development
- Video presentations
- Simulation and practices

Prerequisites

General technical knowledge

Duration

4 days/28 hours

MBOT CPD

20 credit hours

Certification

Certificate of Attendance will be awarded

PN12 Maintenance and Troubleshooting of Pneumatics

Course Objective

This training course provide the participant with the knowledge of understanding pneumatics systems from the maintenance perspective. A systematic troubleshooting and professional error elimination in pneumatics as well as electro-pneumatics system is learned and practiced.

Target Group

Maintenance staff, technicians, engineers and trainers

Target Industry

Pneumatics related, Manufacturing Industry, Oil and Gas Industry

Course Content

- Compressed air preparation:
 - Need for clean compressed air
 - Compressed air receiver
 - Air drying
 - Distribution of compressed air
 - Role of air service units
- Control chain of pneumatics and electro-pneumatics system
- Function and construction of pneumatics actuators
- Function and construction of electrical switching devices and electronic sensors.
 - Electrical switches and relay
 - Proximity Magnetic Sensor
 - Proximity Optical Sensor
 - Proximity Inductive Sensor
 - Proximity Capacitive Sensor
 - Pressure Sensor
- Development and construction of pneumatics and electro-pneumatics circuit.
- Typical error patterns for pneumatics systems.
- Causes of compressed air loses, lower cylinder forces and slow pressure built-up.
- Part subject to wear and tear.
- Possible causes of failure on individual components.
- Understanding circuits and discerning any non-conformities
- Performing routine maintenance and safety regulation.
- Systematic troubleshooting and fault tracing procedure.
- Symbolic representation of devices and standard accordance to ISO 1219

Course outcomes

- Knows and can identify the problem associated with poor compressed air preparation.
- Knows the preventive maintenance required for components that are subject to wear and the possible sources of faults in pneumatics system.
- Acquire a working knowledge of fundamental control of pneumatics systems.
- Can assemble and test pneumatics and electro-pneumatics system according to circuit diagram.
- Can read and interpret pneumatics and electro-pneumatics circuit.
- Understand a systematic approach of fault finding is practiced as in the reading of pneumatics and electro-pneumatics circuits.

Methodology

- Competency based
- State of the art teaching resources and facilities
- Individual and team skills development
- Video presentations
- Simulation and practices

Prerequisites

Basic knowledge of pneumatics

Duration

4 days/28 hours

MBOT CPD

20 credit hours

Certification

Certificate of Attendance will be awarded



PN13 Advanced Industrial Pneumatics

Course Objective

To provide the participant with a wider knowledge of complex pneumatics and electro-pneumatics control systems as well as to develop ability to design, assemble and operate the controls. Participants would be able to read and assemble circuits with additional conditions.

Target Group

Maintenance staff, technicians, engineers and trainers

Target Industry

Pneumatics related, Manufacturing Industry, Oil and Gas Industry

Methodology

- Competency based
- State of the art teaching resources and facilities
- Individual and team skills development
- Video presentations
- Simulation and practices

Prerequisites

Basic knowledge of pneumatics

Duration

4 days/28 hours

MBOT CPD

20 credit hours

Certification

Certificate of Attendance will be awarded

Course Content

- Fundamentals and definitions in control technology:
 - Signal flow and control chain
- Functions and characteristics of electro-pneumatics components:
 - Air supply components
 - Directional control valves
 - Switches and contacts
 - Electrical sensors
 - Actuators
- Development and construction of pneumatics and electro-pneumatics circuit.
- Sequence control system
 - Motion sequence representation
 - Displacement-Step Diagram
 - Displacement-Time Diagram
- Pneumatics sequence circuit:
 - Reversing valve
 - Time-delay valve circuit
- Systematic design for pneumatics sequence circuit:
 - Pneumatics Cascade Control method
- Electro-pneumatics sequence circuit:
 - Pneumatics memory circuit
 - Electrical memory circuit
- Systematic design for electro-pneumatics sequence circuit:
 - Electrical Cascade method
 - Electrical Shift Register method
 - Electrical Stepper Control method
- Sequence control with auxiliary conditions:
 - On/off and auto mode
 - Single/continuous cycle
 - Emergency off

Course outcomes

- Can design, assemble and test complex pneumatics and electro-pneumatics circuits
- Knows the sequential control of pneumatics and electro-pneumatics systems
- Knows and identify different method of designing complex pneumatics and electro-pneumatics circuits
- Can interpret pneumatics and electro-pneumatics sequence circuit diagram
- Can maintain and troubleshoot complex pneumatics and electro-pneumatics control systems
- Meet the requirements for a higher-level course

HN21 Industrial Hydraulics

Course Objective

This training course provide participant with the basic knowledge of the construction and function of hydraulics and electric components as well as develop the ability to read, design and construct simple hydraulics circuits.

Target Group

Maintenance staff, technicians, engineers and trainers

Target Industry

Hydraulics related, Manufacturing Industry, Oil and Gas Industry

Course Content

- Fundamental physical principles of hydraulics:
 - Physical quantities and units in hydraulics
 - Basic physical laws of hydraulics
- Hydraulics systems:
 - Basic hydraulics system
 - Advantages and disadvantages of hydraulics
- Components of hydraulics power pack
- Characteristics and function of hydraulics actuators
- Characteristics and function of hydraulics valves:
 - Pressure control valves
 - Directional control valves
 - Flow control valves
 - Non-return valves
- Construction and principle of electrical components:
 - Electrical switches and contacts
 - Basic electrical sensors
 - Solenoid operated directional control valves
- ISO electrical and hydraulics symbols according to ISO 1219
- Development and layout of simple controls:
 - Basic hydraulics circuits
 - Electro-hydraulics circuits

Course outcomes

- Acquire knowledge of physical principles of hydraulics
- Acquire a working knowledge of the construction and function of hydraulics elements that is commonly used in industries
- Understand the hydraulics fundamental controls and circuits.
- Can identify and explain symbols for hydraulics, electro-hydraulics and electrical components
- Can design, assemble and test hydraulics and electro-hydraulics circuit diagrams
- Can apply the principles of systematic troubleshooting to real applications of hydraulics system

Methodology

- Competency based
- State of the art teaching resources and facilities
- Individual and team skills development
- Video presentations
- Simulation and practices

Prerequisites

General technical knowledge

Duration

4 days/28 hours

MBOT CPD

20 credit hours

Certification

Certificate of Attendance will be awarded

HN22 Maintenance and Troubleshooting of Hydraulics

Course Objective

This course provides the participant with the knowledge of hydraulics control systems, a systematic approach to maintenance, troubleshooting and design of hydraulics circuits is practised.

Target Group

Maintenance staff, technicians, engineers and trainers

Target Industry

Hydraulics related, Manufacturing Industry, Oil and Gas Industry

Course Content

- Fundamental of hydraulics:
 - Basic principles
 - Function and construction of components used in the power supply section
- Function and maintenance requirements of hydraulics components:
 - Pressure control valves
 - Directional control valves
 - Non-return valves
 - Flow control valves
 - Hydraulics cylinders
 - Hydraulics motors
 - Hydraulics accessories
- Function and maintenance of electrical components:
 - Switches and contacts
 - Basic electrical sensors
 - Solenoid operated directional control valves
- Fault identification and location:
 - Systematic fault tracing
 - Monitoring the sequence of operation
 - Logical troubleshooting
- Maintenance requirement of hydraulics systems
- ISO electrical and hydraulics symbols according to ISO1219
- Development and layout of sequence control
 - Electrical logic function

Course outcomes

- Can design, assemble and test basic hydraulics and electro-hydraulics circuit
- Can identify and describe the design function of electro-hydraulics components
- Can read and interpret hydraulics and electro-hydraulics circuit diagrams
- Can apply the principles of systematic troubleshooting to real application
- Able to localise, analyse, rectify and document common faults in hydraulics systems

Methodology

- Competency based
- State of the art teaching resources and facilities
- Individual and team skills development
- Video presentations
- Simulation and practices

Prerequisites

We recommend a basic knowledge of hydraulics system (Our course: HN21)

Duration

4 days/28 hours

MBOT CPD

20 credit hours

Certification

Certificate of Attendance will be awarded

HN23 Advanced Industrial Hydraulics

Course Objective

This course provides the participant with a wider knowledge of complex hydraulics and electro-hydraulics control systems as well as to develop ability to design, assemble and operate the controls which enable the participants to read and assemble circuits with additional conditions.

Target Group

Maintenance staff, technicians, engineers and trainers

Target Industry

Hydraulics related, Manufacturing Industry, Oil and Gas Industry

Course Content

- Fundamentals of hydraulics: Basic principles and physical laws of hydraulics
- Characteristics and function of hydraulics actuators
- Characteristics and function of hydraulics valves
 - Pressure control valves
 - Directional control valves
 - Flow control valves
 - Non-return valves
- Construction and principles of electrical components:
 - Electrical switches and contacts
 - Electrical sensors
 - Solenoid operated directional control valves
- ISO electrical and hydraulics symbols according to ISO1219
- Basic hydraulics circuits
- Development and layout of control tasks:
 - Development steps
 - System structure
- Designing electro-hydraulics systems:
 - Logic functions
 - Memory/latching function
 - Controlling circuits remotely
- Control with auxiliary conditions:
 - On/off and auto mode
 - Pressure switch control
 - Emergency off, etc

Course outcomes

- Knows the functional relationships of complex hydraulics control systems
- Acquire a knowledge of construction and development of hydraulics components
- Can use methodological procedures and observe the relevant safety regulations and standards
- Able to read and analyse complex hydraulics and electro-hydraulics circuits
- Can design, assemble and test complex hydraulics and electro-hydraulics circuit

Methodology

- Competency based
- State of the art teaching resources and facilities
- Individual and team skills development
- Video presentations
- Simulation and practices

Prerequisites

We recommend a basic knowledge of hydraulics system (Our course: HN21)

Duration

4 days/28 hours

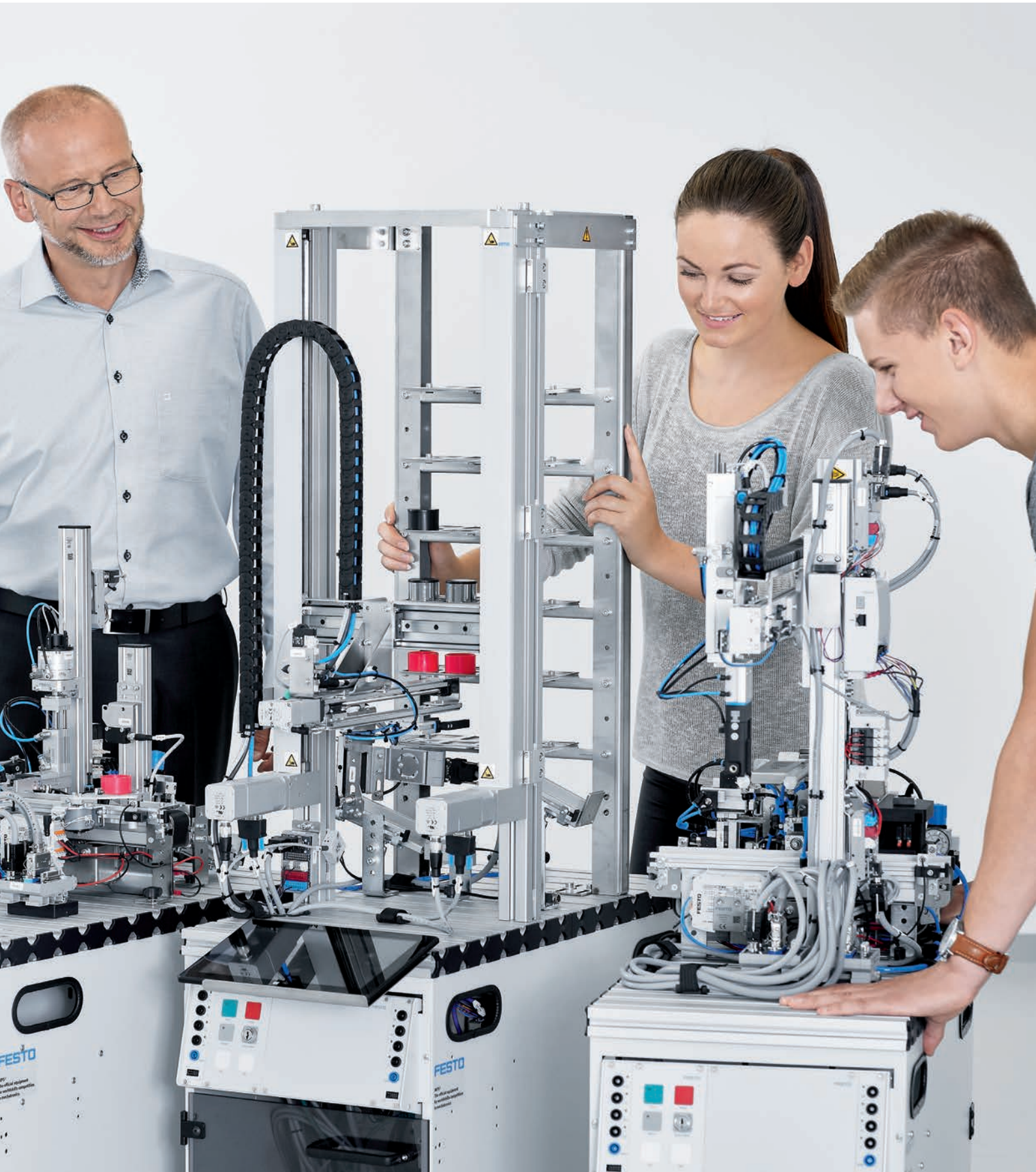
MBOT CPD

20 credit hours

Certification

Certificate of Attendance will be awarded

Mechatronics



PLC312 Programming of PLC with Pneumatics - Omron

Course Objective

The objective of the program is to provide the participants with a basic knowledge of the construction and operation of programmable logic controllers as well as to develop the ability to write simple programs using CX-Programmer according to IEC61131-1 and operate basic pneumatic controls system with PLC.

Target Group

Maintenance staff, technicians, engineers and trainers

Target Industry

Manufacturing Industry, Oil and Gas Industry

Course Content

- Function and application of PLC
- Components of a PLC:
 - Hardware and software
 - Programming device
 - General structure of PLC program
- PLC Address:
 - Input/output listing
 - Electrical and pneumatic circuit diagram
 - Input/ output devices
- Programming languages of PLC according to IEC 61131-3
 - Ladder Diagram (LD)
- Commissioning of a PLC
- Communication interface with PLCs
- Procedure for creating a PLC program
- Advantages of a PLC as compare to conventional electro pneumatic or electrical relay-based control.
- Programming of control task:
 - Logic function
 - Position dependent control
 - Timing sequence
 - Counting signal
 - Positive and Negative edge triggered
 - Signal storage
 - Internal memory

Course Outcomes

- Knows the basic pneumatic control technology with PLC
- Is familiar with the construction and operation of the PLC
- Can connect input and output elements with the PLC
- Can assemble and test simple pneumatic control system with PLC
- Can create simple programs for control and commissioning them
- Meet the requirements for a higher-level course

Methodology

- Competency based
- State of the art teaching resources and facilities
- Individual and team skills development
- Video presentations
- Simulation and practices

Duration

3 days/21 hours

MBOT CPD

15 credit hours

Certification

Certificate of Attendance will be awarded

TCP31 PLC Programming - Basic (Siemens S71500 series)

Course Objective

This course is catered to participants with no or some basic skills in handling Programmable Logic Controllers (PLC) in industrial automation plants or equipment. The participant will learn the input and output devices and the operation of the PLC. The participant would also be able to write, enter, and execute basic logic functions based on the IEC 61131-3 standard.

Target Group

Maintenance staff, technicians, engineers and trainers

Target Industry

Manufacturing Industry, Oil and Gas Industry

Course Content

- Introduction to Programmable Logic Controllers (PLC)
- Design and mode of operation of a PLC
- Input and output devices
- Mechanical, pneumatic/hydraulic and man machine interface
- Reading of electrical circuit diagrams
- ISO symbols for signal, control and working elements according to ISO 1219
- Commissioning a PLC
- Programming Languages according to IEC 61131-3
- Programming of simple logic functions
- Basic programming with signal edges, setting and resetting, timers and counters
- Basic programming with linear sequencing
- Simulation and practical exercises

Course Outcomes

- Understand the characteristics and applications of a PLC
- Know the design and mode of operation of a PLC
- Know the different input and output devices
- Can identify the input and output signals from a PLC
- Can read circuit diagrams
- Can select PLC appropriately
- Understand the IEC 61131-3 PLC programming standard and the programming languages
- Able to program the PLC
- Able to commission and operate a PLC
- Able to download the program to the Modular Production System and test the program

Methodology

- Competency based
- State of the art teaching resources and facilities
- Individual and team skills development
- Video presentations
- Simulation and practices

Duration

4 days/28 hours

MBOT CPD

20 credit hours

Certification

Certificate of Attendance will be awarded

TCP32 PLC Programming - Intermediate (Siemens S71500 series)

Course Objective

This course provides the participant with knowledge of construction and operation of a Programmable Logic Controller (PLC) and be able to translate control tasks into operational PLC programs. The participant would be able to write, enter, and execute application programs based on the IEC 61131-3 standard. The use of the Modular Production System (MPS) will give the participant practical programming and troubleshooting skills.

Target Group

Maintenance staff, technicians, engineers and trainers

Target Industry

Manufacturing Industry, Oil and Gas Industry

Course Content

- Functions and applications of PLC
- Components of a PLC and PLC addresses
- Programming Languages according to IEC 61131-3
- Procedure for creating a PLC program
- Programming of control task from logic functions to sequencing
- Programming additional tasks
- Programming of modular production systems
- Multitasking with the PLC
- Communication between PLCs
- Testing the system
- Simulation and practical exercises

Course Outcomes

- Understand the purpose, functions, and operations of a PLC
- Understand the classification of control systems
- Know the Input/output systems of PLC
- Know IEC 61131-3 and the programming languages
- Know the peripheral devices and interfacing
- Understand what is needed when selecting a PLC
- Can use the PLC programming software
- Can create a PLC project using PLC software
- Able to program basic logic functions with the PLC
- Able to program using signal edges, setting and resetting
- outputs, timers and counters with the PLC
- Can write sequencing programs with the PLC
- Can add additional requirements to the PLC program
- Can commission and operate a PLC
- Can design function blocks
- Can write programs for automation lines
- Can download the program to the Modular Production System (MPS) and test the program
- Can communicate between the stations of the MPS

Methodology

- Competency based
- State of the art teaching resources and facilities
- Individual and team skills development
- Video presentations
- Simulation and practices

Duration 4 days/28 hours

MBOT CPD 20 credit hours

Certification Certificate of Attendance will be awarded

ED811 Fundamentals of Electric Drives and Electromechanical Systems

Course Objective

To provide participant with the fundamental knowledge and skill on the different electric motors and its application. Participants will also be able to incorporate the motors to the electrical drive units.

Target Group

Maintenance staff, technicians, engineers and trainers

Target Industry

Manufacturing Industry, Semiconductor Industry, Industrial Automation

Course Content

- Introduction to Electrical Motors
- Types of Industrial Motors
- Stepper Motors
 - Introduction
 - Variable resistance (VR) stepper motors
 - Permanent magnet (PM) stepper motors
 - Hybrid stepper motors
 - Phases of stepper motors
 - Stepping angles of stepper motors
 - Advantages and disadvantages of stepper motors
 - Benefits of stepper motors
 - Applications of stepper motors
- Servo Motors
 - Introduction
 - How servo motors work?
 - Brushless servo motors.
 - Servo motor controllers.
 - Feedback systems.
 - Advantages and disadvantages of servo motors
 - Benefits of servo motors
 - Applications of servo motors
- Electric Drives
 - Introduction
 - Types of electric drives
 - Advantages and disadvantages of different drive designs
 - Applications of electric drives
- Complete systems
 - Using the different motors with the different drives
 - Applications of electric drive systems
- Simulation and Practical exercises

Course outcomes

- Knows the difference between controlling a stepper motor and a servo motor
- Knows which components are needed for an electric-drive system
- Understand how the configuration software FCT is used
- Knows how to work safely with electrical drives
- Can select the most appropriate drive system for a given application
- Can assemble, power up and configure a system
- Can find and correct possible faults including interpreting error messages
- Can work safely with an e-drive

Methodology

- Competency based
- State of the art teaching resources and facilities
- Individual and team skills development
- Video presentations
- Simulation and practices

Prerequisites

General technical knowledge

Duration

3 days/21 hours

MBOT CPD

15 credit hours

Certification

Certificate of Attendance will be awarded



Industry 4.0



IND401 Introduction to Industry 4.0 and its Core Elements

Course Objective

Learn the key concepts of industry 4.0 and the driving technologies & its core elements

Target Group

Managerial and/or technical specialist position

Target Industry

Manufacturing Industry

Course Content

- Development of the industrial revolution
- Overview of the core elements – Manufacturing Execution System (MES)
 - Product identification with radio frequency identification RFID system
 - Vertical and horizontal integration
 - Machine to machine communication
 - Fundamental of industrial network technology
 - Worker assistance with augmented reality
- Social-technological developments and the consequences
- Competence development for Industry 4.0
- Change Management for Industry 4.0

Course outcomes

- Basic introduction of Industry 4.0 and the development of industrial revolution from Industry 1.0 to 4.0
- Understanding of the core elements of Industry 4.0
- The benefits of flexibility, versatility and modularity & decentralization of production control system in manufacturing
- The inter-connectivity of people, product and machines and its impact on manufacturing process changes

Methodology

- Practical-based training
- Competency based
- Group work
- Industry 4.0 ready teaching equipment
- Individual and team skills development
- Lecturers with extensive industry experience
- Video presentation

Prerequisites

Working experience in the industrial automation/manufacturing industry

Duration

3 days/24 hours

MBOT CPD

15 credit hours

Certification

Certificate of Attendance will be awarded

IND402 Smart Manufacturing with RFID Systems

Course Objective

To learn the fundamentals of RFID technology & its benefits and applying it in manufacturing to enhance the flexibility in production configuration.

Target Group

Technical and/or engineer

Target Industry

Manufacturing Industry

Course Content

- Fundamentals of object identification system
- Selection of Radio Frequency Identification (RFID) system
- Getting familiar with reading and writing of RFID tag and the data format
- Identify the benefits of using RFID in production
- Applying RFID in manufacturing processes

Course outcomes

- Understand the fundamental and working principles of Radio Frequency Identification System
- Able to apply RFID system in manufacturing processes to enhance the flexibility in production control

Methodology

- Practical-based training with Industry 4.0 ready equipment
- Group work
- Competency based
- Lecturers with extensive industry experience
- Visual aid and power point presentation

Prerequisites

Basic industrial automation knowledge

Duration

2 days/14 hours

MBOT CPD

10 credit hours

Certification

Certificate of Attendance will be awarded

IND403 Industrial Ethernet with Profinet & OPC-UA for Automation

Course Objective

This training course provides the participants the technology of Profinet & OPC-UA for data communication in industrial automation

Target Group

Managerial and/or technical specialist position

Target Industry

Manufacturing Industry

Course Content

- The basics of industrial networking concept
- Overview of Ethernet
- The fundamentals of Profinet
- The main components of a Profinet network
- How to control field IOs via Profinet
- How to install Profinet components and configuration setup in the network
- Fundamentals of OPC-UA
- Data access via OPC-UA

Course outcomes

- Understand the trend of ethernet-based communication protocol as the basis for internet of things and able to setup and configure Profinet & OPC-UA for machine-to-machine communication

Methodology

- Competency based
- State of the art teaching resources and facilities
- Individual and team skills development
- Video presentation, simulation and practices

Prerequisites	Basic industrial automation knowledge automation/manufacturing industry
Duration	2 days/14 hours
MBOT CPD	10 credit hours
Certification	Certificate of Attendance will be awarded

IND404 Smart Sensor with IO-Link

Course Objective

Sensors are the crucial component in one of the biggest trends in technology: the digital transformation. As the IIOT (Industrial Internet of Things) is now gathering momentum globally, sensors get smarter.

Many digital transformation solutions are simple implementations of smart sensor technology. Industry 4.0 workers need to understand this technology to reap its full benefits.

This course will get your plant or factory on the fast track to digital transformation by using the enhanced sensor features instead of paying for the costly development process and long implementation.

Target Group

Technical and/or engineer

Target Industry

Manufacturing Industry

Course Content

- Smart sensor fundamentals
- Fundamentals and setup of IO-Link communication protocol
- Advantages of smart sensors over typical sensors
- Parameterisation and predictive maintenance
- Selection and easy replacement of sensors in the field
- Setup wireless monitoring and display dashboards
- Integrate smart sensors in different manufacturing processes
- Hands on simulation and practical exercises

Course outcomes

- Understand the basics of smart sensors through a project oriented exercise to integrate them in the automation processes
- Know the operating principles and characteristics of the various types of sensors used in the manufacturing industry
- Understand the benefits of smart sensors in the context of Industry 4.0 & able to setup and integrate them into different manufacturing processes to enhance operational efficiency such as predictive maintenance
- Use the practical, easy-to-implement steps to make digital transformation a reality
- Setup a sensor connection and communicate via IO-Link and Wireless connection
- Know the parameters of smart sensors for process optimisation and predictive maintenance
- Make the job of the personnel easier by automatic data collection, monitoring, and interpretation using smart sensors

Methodology

- Competency based
- State of the art teaching resources and facilities
- Individual and team skills development
- Video presentation, simulation and practices

Prerequisites	Basic industrial automation knowledge
Duration	2 days/14 hours
MBOT CPD	10 credit hours
Certification	Certificate of Attendance will be awarded

IND405 IOT Application with Node-Red Programming

Course Objective

Node-Red is a flow-based development tool for visual programming using a pallet of nodes with built-in functionality that can be connected to other nodes for design applications.

This course provides basic knowledge of Node-Red and its application and teaches you how to use dashboard nodes to visualise data retrieved from a machine and the state-of-the-art training equipment Modular Production System will be used.

Target Group

Managerial and/or technical specialist position

Target Industry

Manufacturing Industry

Course Content

- Overview of OT and IT convergence
- Introduction of Node-Red
- Configuration and setup of flow-based development tool
- Familiarisation of flow-based programming
- Flow-based programming hands-on practical experience to visualise machine data with the use of the state-of-the-art training equipment Modular Production System

Course outcomes

- Development of the industrial revolution Understand the basic knowledge of Node-Red
- Setup communication between Node-Red and Programmable Logic Controller (PLC)
- Collect real-time data collection from the PLC with Node-Red
- Design dashboard for control and data visualisation

Methodology

- Competency based
- State of the art teaching resources and facilities
- Individual and team skills development
- Video presentation, simulation and practices

Prerequisites Working experience in the industrial automation/manufacturing industry

Duration 3 days/21 hours

MBOT CPD 15 credit hours

Certification Certificate of Attendance will be awarded

IND407 Practical AI in Manufacturing

Course Objective

„Practical AI in Manufacturing“ is a hands-on short course designed to equip manufacturing professionals with the skills to apply AI directly on the production floor. Blending essential theory with real-world exercises, the course guides participants through machine connectivity, data acquisition, and the development of AI models for predictive maintenance. Over 16 hours of focused learning, participants gain practical experience in extracting machine data via OPC-UA, managing real-time production data, and deploying AI models to detect anomalies and failure patterns. By the end of the course, learners will be confident in identifying high value AI opportunities and implementing AI-enabled improvements that enhance efficiency, reliability, and cost performance in modern manufacturing environments.

Course Content

- AI fundamentals & data acquisition
- Overview of AI techniques: machine learning, deep learning
- Goals of AI in manufacturing: efficiency, reliability, cost reduction
- Predictive maintenance, quality control, energy efficiency
- Introduction to machine controllers and connectivity via OPCUA with practical implementation using Node-RED.
- Real-time data collection and management of machine data
- Training AI models
- Deploy trained models to detect failure patterns

Course outcomes

- Understand the fundamentals of AI and its relevance in manufacturing.
- Identify key AI applications such as predictive maintenance, quality control, and energy optimisation.
- Connect to production machine controllers and extract operational data.
- Collect, record, and prepare data for AI model training.
- Develop and train basic AI models using manufacturing data.
- Apply trained AI models to practical manufacturing scenarios.
- Gain confidence in implementing AI-enabled improvements on the production floor

Duration 2 days/16 hours



General Information

Human Resource Development Fund (HRDF) / Pembangunan Sumber Manusia Berhad (PSMB)

The Human Resources Development Fund (HRDF) is administered by Pembangunan Sumber Manusia Berhad (PSMB), an Agency under the Ministry of Human Resources, via the Pembangunan Sumber Manusia Berhad Act, 2001. The objective of the HRDF is to encourage employers covered under the Pembangunan Sumber Manusia Berhad Act, 2001 to retrain and upgrade the skills of their employees, apprentices and trainees in line with their business needs and the development strategy of the country. The HRDF spearheads the upskilling of Malaysian workforce by increasing the rate of financial assistance to 110% effective 1 January 2013. Employees with no formal education but have obtained the relevant knowledge, experience and expertise in the workplace will also be certified based on their competency levels (Sijil Kemahiran Malaysia - SKM, Diploma Kemahiran Malaysia - DKM or Diploma Lanjutan Kemahiran Malaysia - DLKM) under the Recognition of Prior Learning Scheme.

Eligibility for Training Grant

Employers registered and/or incorporated in Malaysia who have registered with PSMB and pay the HRD levy immediately upon registration are eligible to apply for training grants (financial assistance) to defray all or a major portion of the “allowable costs” of training their employees. Training must be in the area of direct benefit to their business operations. Financial assistance is, therefore, not given to individuals who enrol and finance their own training programmes, whether partially or fully, and subsequently requested for reimbursement from their employers. Neither is financial assistance given to employers who bear the cost of training after the successful completion of training by their employees.

Training Assistance Scheme (HRD Corp Claimable Courses Scheme)

HRD Corp Claimable Courses was formerly known as SBL Khas is a scheme to assist our registered employers, especially those with limited resources to train and upskill their employees in line with their operational and business requirements.

Under this scheme, HRD Corp will pay the course fee (subjected to 4% service fee from 1 April 2021) directly to the training providers by deducting the amount from the employers' levy account. HRD Corp will also pay other claimable allowances to the employer. The total claimable amount is subjected to the approval of each individual grant application.

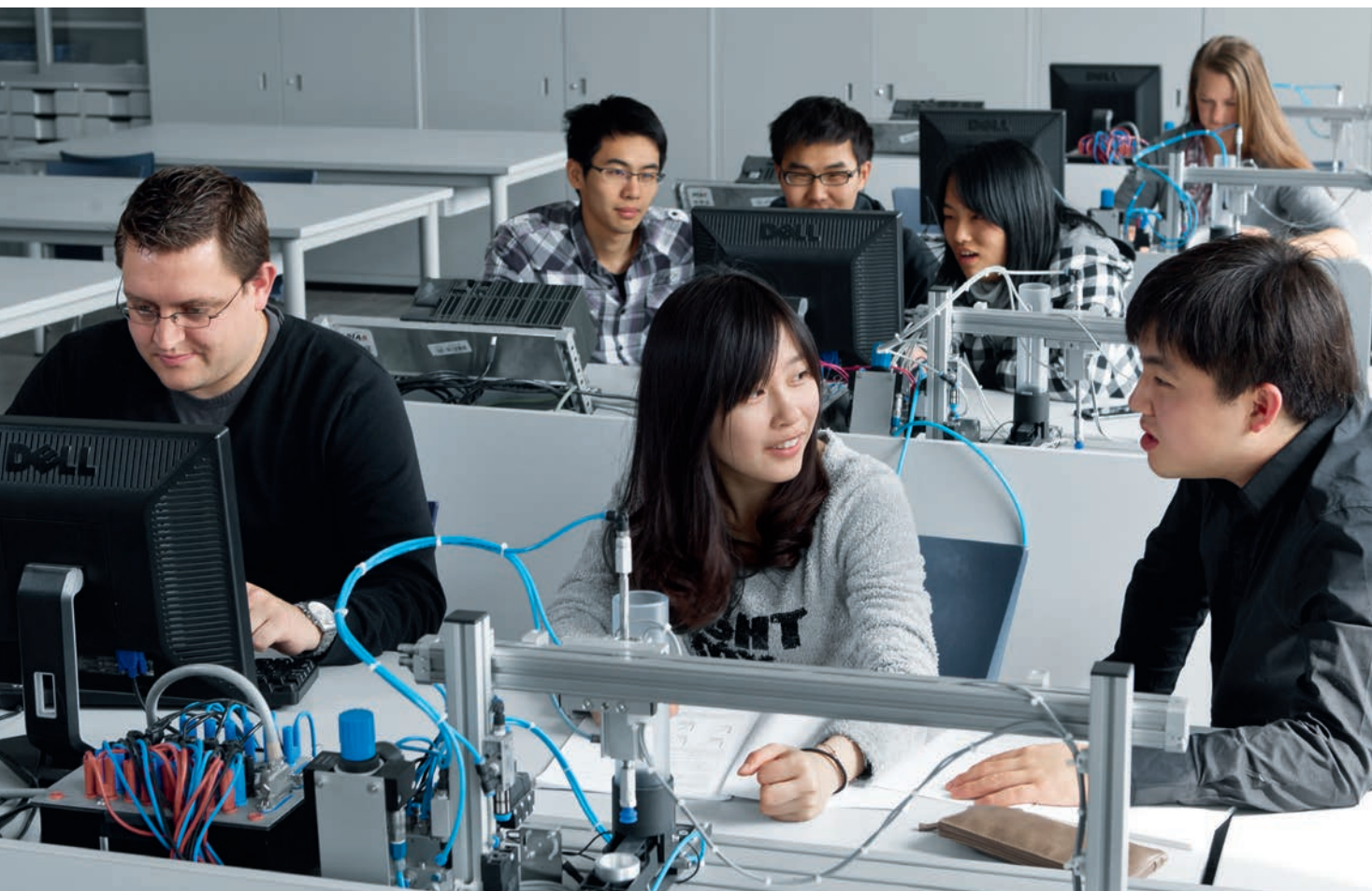
HRD Corp Claimable Courses Scheme is the main scheme under Human Resource Development Fund (HRDF). Under this scheme, employers are free to identify their own training needs and to implement their training programmes to retrain and upgrade their employees' skills in line with their operational and business requirements. HRD Corp Claimable Courses Scheme is offered based on these fundamental guidelines such as:-

- HRD Corp provide specialized training grant as an incentive for employers to retrain and upgrade workers' skills, in line with the needs of their business requirement. Training grant is not a subsidy for training;
- Under HRD Corp Claimable Courses Scheme, employers are to identify their workers' training needs and obliged to pay fully the training programme; and
- For programmes under the HRD Corp Claimable Courses Scheme prior approvals must be obtained from HRD Corp. Reimbursement of allowable training costs is based on the rate of financial assistance as determined by HRD Corp from time to time. Payment is based on employer claim.

Claim for Training Grants

Claim for training grants will be paid based upon completion of the training program. Employers and training providers claim form must be submitted via online application available from HRDF website. To avoid any delays in processing claims, employers should ensure that the form is complete and correct. Relevant receipts must also be included. All copies of receipts or supporting documents must be certified by the employer. Claims must be submitted upon completion of training and all costs have been paid. If the program could not be claimed in the current year, it shall be submitted no later than June 30 next year. Payment shall not be made if the trainees do not fully follow the training program. A trainee is considered to have been completed the training program if he has followed at least 75% of it and sits for all exams / tests, if required.

For more details, please visit
<https://hrdcorp.gov.my/hrdcorp-claimable-courses>



Festo Didactic Malaysia Policy

Withdrawal and Refund Policy

In writing:

- If notice of withdrawal is given 10 working days or more before the course starts – 100% refund
- If notice of withdrawal is given less than 10 working days or more before the course starts – 70% refund
- If notice of withdrawal is given 3 working days or less before the course starts – No refund
- If participant fail to show up for the course – No refund

Replacement

Any request for replacement of participants must be made in writing and received at least 3 working days

before course commencement date. No replacement is allowed once the course has commenced.

Deferment

Any request for deferment of course must be made in writing and received at least 7 working days before course commencement date. No deferment is allowed once the course has commenced.

In-house Training

To ensure learning success for the participants a maximum group of 18 participants is accepted at any one course.

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Festo Course - https://www.festo.com/my/en/e/solutions/training-and-consulting/our-range-of-courses-id_32832/

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