ASM PROCESS AUTOMATION
SINCE 2007

Industrie 4.0

JEDDAH | RIYADH | KHOBAR | DUBAI

TRAINING

DEVELOPMENT

SKILLS

TRAINING
INDUSTRIAL AUTOMATION

WE CREATE SOLUTIONS

11 YEARS
Industrial Experience

PI Middle East
PROFIBUS • PROFINET

Solution Partner
Automation Drives
SIEMENS

Introduction

ASM Process Automation is the Regional **PROFIBUS & PROFINET** Association (RPA) in the Middle East and has been Siemens System Integrator & Solution Partner for more than 11 years in the automation industry.

ASM Process Automation specializes in customize courses that bridge the gap between infrastructures and knowledge, and to enhance and shape the skills to be a dynamic professional in an increasingly competitive market. We often try to customize the contents of the training that will match and develop the capabilities thus giving a better perspective into their plant.

All trainings offered are international accredited by the PI international which is the largest Automation Group in the world, www.profibus.com or www.profinet.com. The training consists of both theoretical and Practical, but we encourage more of a Hands-on approach to have an in-depth comprehension and to be able to have an insight and visualization of an actual trouble-shooting at their plant.

"Learning is key" and we genuinely believe everyone should be able to reach their full potential. Being the ONLY training center under PI international in the Middle East, we recognize the need to provide high quality standard/customized training courses all around the region (https://www.profibus.com/pi-organization/institutions-support/training-centers/

Bear in mind, to upgrade your machines, you need to upgrade your capacity, infrastructure in any plant and this will require updating your team on the latest know- how and make sure that you are always have the knowledge of the technology you are handling.

Prevent lots of downtime and losses by enhancing your skill through our training centers.

We are here to share the knowledge and skills as we create solutions

Target Groups

- Technicians
- Maintenance Technicians
- Service/Support Specialists
- Supervisors
- Fresh engineers
- Engineering students
- Instructors

Contents

PROFIBUS training
- PROFIBUS Troubleshooting & Maintenance
- Certified PROFIBUS Installer
- Certified PROFIBUS Engineer
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- PROFINET Technical Training
- PROFINET Troubleshooting & Maintenance
- Certified PROFINET Engineer

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- Free ATLAS Training
- ProfiTrace Advanced Training
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SIEMENS training
- SIMATIC S7-300/400: BASIC
- SIMATIC S7-300/400: ADVANCE
- TIA Portal: BASIC
- TIA Portal: ADVANCE
- PCS7 System Design, Engineering, & Maintenance

Training guide

	PROFIBUS Troubleshooting & Maintenance	Certified PROFIBUS Installer	Certified PROFIBUS Engineer	Certified PROFIBUS PA Module	PROFINET Technical Training	PROFINET Troubleshooting & Maintenance	Certified PROFINET Engineer	PROFIBUS Product Development	ProfiTrace Training
Application administrators	X					X			X
Commissioning engineers	X		X			X	X		X
Consultants			X				X		X
Designers			X				X		
Fault technicians	X					X			X
Hardware engineers	X		X	X		X	X	X	X
Integrators	X		X			X	X		X
Installers / electricians		X							
Maintenance technicians	X	X							X
Panel builders	X	X				X			
PCB designers								X	
Programmers			X				X		X
R&D managers								X	
Service technicians	X					X			X
Software engineers	X		X	X		X	X	X	X
Teachers			X				X		X
Writers of manuals								X	

PROFIBUS Troubleshooting & Maintenance

Fully maintaining a PROFIBUS system is a big challenge nowadays. This is because repairing PROFIBUS breakdowns takes a lot of time and may result in an unacceptable amount of downtime. During the PROFIBUS Troubleshooting & Maintenance training course, technicians learn how to identify PROFIBUS breakdowns straight away, which means that they can resolve them strategically. The whole lifecycle of your automation process is optimized!

The PROFIBUS Troubleshooting & Maintenance training course is fully tailored to the needs of installers and maintenance engineers who work with PROFIBUS systems. The course comprises a total knowledge package focusing entirely on practical situations. During this course, technicians learn how to analyze, localize and repair a PROFIBUS breakdown. This course includes theoretical information on cable techniques, shielding, grounding, PROFIBUS components and measuring equipment.

The PROFIBUS Troubleshooting & Maintenance course is a two-day training course comprising a theoretical and a practical part. After completing this course, participants will be able to carry out maintenance by themselves and strategically repair breakdowns in PROFIBUS systems.

Repairing system breakdowns yourself

Theory

- Summary of PROFIBUS DP and PA
- Features of RS 485 and MBP-IS
- Cable techniques
- Grounding and shielding
- DP/PA segment couplers, repeaters and OLMs
- Breakdown localization strategy
- Measuring equipment

Practical exercises

- Protocol and signal analysis using ProfiTrace 2
- Cable measuring using ProfiTrace 2
- Class 2 functions using ProfiTrace 2
- Remote monitoring using ComBricks

Details

- **Training methodology:** Theory and practice
- **Duration:** 2 days (10 AM - 5 PM)

Certified PROFIBUS Installer

The Certified PROFIBUS Installer training course creates a quality platform for people with a PROFIBUS certificate who are accredited by an official exam. The Certified PROFIBUS Installer status is very important as it provides contractors with a guarantee that the system is installed by qualified installers. This is why most of the projects can only be carried out by qualified PROFIBUS installers. Qualified installer guarantees that your PROFIBUS system will function as it should.

The Certified PROFIBUS Installer training course focuses entirely on technicians whose job it is to install, cable and test PROFIBUS DP/PA equipment. It offers a total knowledge package focusing entirely on practical situations. During this course, technicians learn how to install a PROFIBUS system correctly. This course includes theoretical information on assembly guidelines, grounding and shielding.

This two-day training course provides a theoretical and a practical part. The participants take an exam on the last day. When you pass this exam, you can use the title of Certified PROFIBUS Installer and will be internationally registered as such.

Make sure you're familiar with the instructions

Theory

- PROFIBUS technology
- Basic principles of transmission technology
- Cable techniques
- Assembly guidelines
- Grounding and shielding
- Measuring equipment

Practical exercises

- Analyzing cable specifications
- Assembling and testing cables
- Installing addresses
- Using the analyzer to carry out protocol analysis
- Using an oscilloscope to carry out signal analysis

Details

- **Training methodology:** Practice, theory and an exam
- **Duration:** 2 days (9 AM - 9 PM)

Certified PROFIBUS Engineer

PROFIBUS plays a major role in automation technology. This is why professional knowledge of this technology is very important. The Certified PROFIBUS Engineer training course creates a quality platform for people with a PROFIBUS certificate who are accredited by an official exam. This training is acknowledged all over the world. Certified PROFIBUS Engineer status is very important as it enables businesses to stand out on the market compared to other companies working with this innovative technology.

The Certified PROFIBUS Engineer training course offers a total knowledge package focusing on practical situations. This course is based on the needs of technicians who install PROFIBUS systems on a daily basis. Technicians learn how to install a PROFIBUS system correctly. The course includes theoretical information on RS 485 technology, PROFIBUS technology, network components, measuring and testing equipment and bus parameters.

The duration of this training course is two days. It holds a theoretical and a practical part, and participants take an exam on the last day. If they pass this exam, they can use the title of Certified PROFIBUS Engineer and will be internationally registered as such.

Show them you're the expert

Theory

- PROFIBUS technology
- RS 485 technology
- Measuring equipment
- Network components
- Bus parameters and cycle times

Practical exercises

- Using configuration tools to build up networks
- Using the ProfiTrace Analyzer
- Installing bus parameters
- Class 2 functions
- Generating and reading in diagnosis
- Identifying breakdowns

Details

- **Training methodology:** Practice, theory and an exam
- **Duration:** 3 days (9 AM - 5 PM) and 1 exam (10 AM - 4 PM)

Certified PROFIBUS PA module

Most of today's projects can only be carried out by qualified PROFIBUS engineers. The Certified PROFIBUS PA Module training course concentrates entirely on PROFIBUS PA. It offers a quality platform for people with a PROFIBUS certificate who are accredited by an official exam. This is because a qualified engineer guarantees that your PROFIBUS system will function as it should. This module can only be followed by people with a Certified PROFIBUS Engineer certificate.

The Certified PROFIBUS PA module training course focuses entirely on the needs of technicians who work with PROFIBUS PA. We train technicians how to install a PROFIBUS PA system correctly. This course includes theoretical information on MBP technology, DP/PA couplers and links, DP-V1, parameters and profiles, network components and explosion protection.

This module includes a theoretical and a practical part. It is a two-and-a-half-day training course and participants take an exam on the last day. When you pass this exam, you can use the title of Certified PROFIBUS PA Engineer and will be internationally registered as such. This module is given in English only.

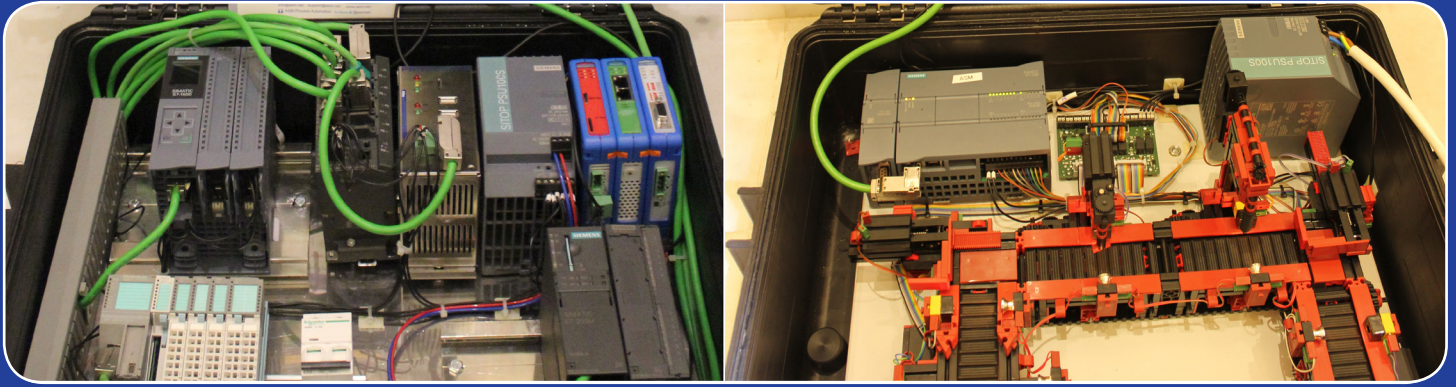## Knowledge for process automation

Theory

- DP and PA field of application
- DP/PA couplers and links
- MBP technology
- Network components
- Explosion protection
- DP-V1
- Parameters and profiles

Practical exercises

- Using configuration tools to build up networks
- Installing parameters on instruments
- Generating and reading in diagnosis
- Measuring with an oscilloscope
- ProfiTrace with PA Probe
- Calculating electric currents and voltage

Details

- **Training methodology:** Practice, theory and an exam
- **Duration:** 2 days (9 AM - 5 PM) and half-day exam (10 AM - 1 PM)

PROFINET Technical Training

PROFINET is a user-friendly technology with a lot of advantages. To benefit from these advantages you need to know how PROFIBUS works. The PROFINET Technical Training provides an in-depth summary of all the options that PROFINET automation and production processes have to offer. Continual comparisons with PROFIBUS are a recurring theme. This training gives technicians an insight into how they can benefit from PROFINET so that they can make the best possible use of this technology.

The PROFINET Technical Training is fully tailored to the needs of technicians who work with this technology. During this course, technicians learn what PROFINET is all about, and what the advantages to this innovative technology are. This course includes PROFINET background information and theoretical information on Ethernet and PROFINET technology. Each theme finishes with a demonstration in order to forge direct links between theory and practice.

This training is a one-day workshop comprising a theoretical part and demonstrations. After taking part in this training, participants will feel self-confident about taking decisions on the application of this automation system.

Discover all the advantages of PROFINET

Theory

- PROFIBUS: current situation
- PROFINET: background information
- Ethernet technology
- PROFINET technology

Demonstrations

- Configuring a PROFINET system
- Integrating a PROFIBUS segment
- Testing a PROFINET system
- Using an Analyzer to analyze messages
- Mounting a connector plug
- Exchanging devices

Details

- **Training methodology:** Theory and demonstrations
- **Duration:** 1 day (10 AM - 5 PM)

PROFINET Troubleshooting & Maintenance

Industrial Ethernet technology is difficult to understand because of all the abbreviations and IT jargon. Even the network components function in a contradictory way compared to regular fieldbus technology. This means that measuring and repairing PROFINET breakdowns takes a lot of time and may result in an unacceptable amount of downtime. During the PROFINET Troubleshooting & Maintenance training course, technicians learn how to identify PROFINET breakdowns straight away, which means that they can resolve them strategically. In return this prevents downtime and guarantees business continuity.

The PROFINET Troubleshooting & Maintenance training course is fully tailored to the needs of installers and maintenance engineers who install and maintain PROFINET systems. The course comprises a total knowledge package focusing entirely on practical situations, so that participants can use a simple methodology to familiarize themselves with the missing links in modern Ethernet networks. During this course, technicians learn how they can use the necessary tools to analyze, localize and resolve a complicated PROFINET breakdown. This course includes theoretical information on cable techniques, shielding and grounding.

The PROFINET Troubleshooting & Maintenance course is a two-day training course that includes a theoretical and a practical part. After completing this course, participants will be able to carry out maintenance by themselves and strategically resolve breakdowns in PROFINET systems.

Become a troubleshooting and maintenance expert

Theory

- Summary of PROFINET
- Basic principles of Industrial Ethernet and TCP/IP
- PROFINET cable guidelines
- Grounding and shielding
- Switches
- PROFINET protocol
- Breakdown localization strategy

Practical exercises:

- Installing cables
- Using a cable tester to measure cables
- Using a switch to make a network diagnosis
- Using Wireshark to carry out protocol analysis
- Using Netilities to carry out network management and analysis

Details

- **Training methodology:** Theory and practice
- **Duration:** 2 days (10 AM – 5 PM)

Certified PROFINET Engineer

PROFINET plays a major role in automation technology. The Certified PROFINET Engineer training course creates a quality platform for people with a PROFINET certificate who are accredited by an official exam. PROFINET plays a major role in automation technology. It is very important that PROFINET engineers are qualified. Certified PROFINET Engineer status is very important as it enables businesses to stand out in the market compared to other companies working with this technology.

The Certified PROFINET Engineer training course instructs technicians how to install a PROFINET system correctly and how PROFINET is integrated using existing PROFIBUS systems. It offers a total knowledge package focusing entirely on practical situations. This course includes theoretical information on Ethernet technology, PROFINET technology, PROFINET IO technology and PROFINET tools.

The Certified PROFINET Engineer course is a three-day training course comprising a theoretical and a practical part, and participants take an exam on the last day. If they pass this exam, they can use the title of Certified PROFINET Engineer and will be internationally registered as such.

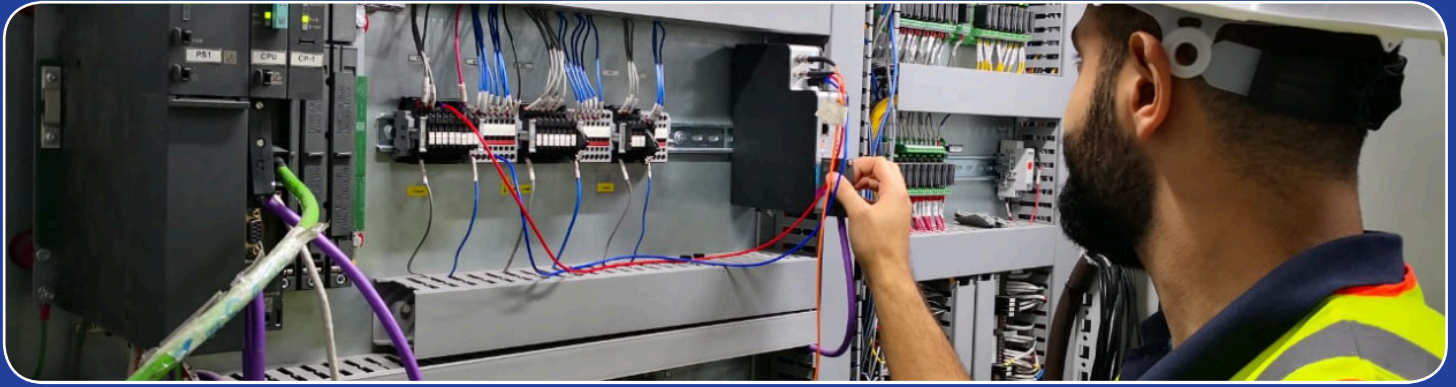# Become an Industrial Ethernet expert

Theory

- PROFIBUS: current situation
- PROFINET: background information
- Ethernet technology
- PROFINET technology
- PROFINET IO technology
- PROFINET tools

Practical exercises:

- Installing the connectors
- Testing the cable
- Configuring the switches
- Analyzing messages
- Building up a PROFINET system
- Integrating a PROFIBUS segment

Details

- **Training methodology:** Practice, theory and an exam
- **Duration:** 2.5 days (9 AM - 5 PM) and half-day exam (1 PM - 5 PM)

Free ProfiTrace Training

Fully maintaining any system is a big responsibility. It is absolutely essential to repair breakdowns in a PROFIBUS network with all speed in order to guarantee the highest possible uptime. Knowledge of ProfiTrace 2 is needed to do this. Our free ProfiTrace training focuses entirely on this innovative PROFIBUS tool. The course instructs technicians how to identify complicated PROFIBUS breakdowns quickly and efficiently in order to prevent downtime in the future.

Our free ProfiTrace training is especially interesting for installing, commissioning and maintenance engineers who use ProfiTrace 2 in their daily work. It offers a total knowledge package focusing entirely on practical situations. During the course, technicians learn how to use ProfiTrace to analyze, localize and repair PROFIBUS breakdowns. This course includes theoretical information on how to connect to a system, Live List, statistics, oscilloscopes, triggers and filters.

The free ProfiTrace Training is a one-day course comprising a theoretical and also a practical part. After completing this course, participants will be able to use ProfiTrace to carry out maintenance by themselves and strategically repair breakdowns in PROFIBUS systems.

Become an expert in the most popular PROFIBUS tool

Theory

- Connecting to the system
- Statistics
- Oscilloscopes
- Network Manager
- Live List
- Recording messages
- Installing triggers and filters
- Storing and exchanging files

Practical exercises:

- Installing software
- Installing GSD files
- Protocol analysis (messages, statistics)
- Signal analysis (oscilloscope, bar graph)
- Generating a network topology
- Generating a report
- Using ProfiCaptain to carry out tests

Details

- **Training methodology:** Theory and practice
- **Duration:** 1 day (10 AM - 5 PM)
- **Price:** Free*

*if this product is purchased

Free ATLAS Training

Driven by the need for high performance, integration between factory installations and IT-systems, there has been a growing acceptance of Industrial Ethernet within industrial automation. With this, system complexity will continue to increase. Our Atlas products are a perfect solution for diagnostics in your network, preventing you from unexpected and expensive downtime.

This free training is focused on Atlas, a powerful troubleshooting tool for Industrial Ethernet networks. You will learn how to use the powerful features to identify errors, speed up maintenance, accelerate commissioning and optimize network performance.

In just two hours the participants will learn how to use Atlas in order to analyze, localize and solve Ethernet faults. With a hands-on approach, the participants will put theory into practice.

Become a master of this powerful ethernet tool

Theory

- Structure of the user interface
- Connecting Atlas to a network
- The definition of the Q-factor
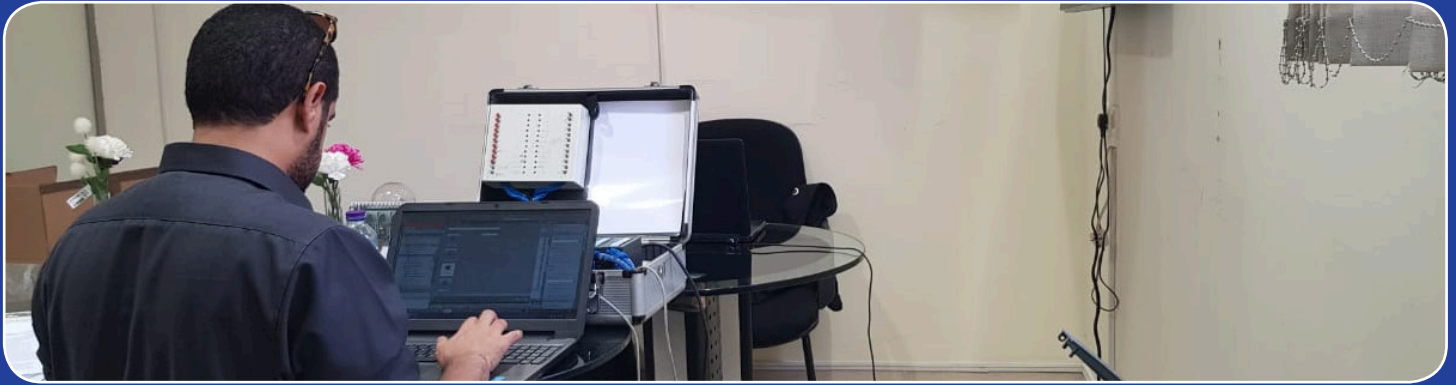- The definition of the topology

Practical exercises:

- User interface
- Topology
- Device list
- Q-Factor
- Report
- Generating a report
- Alarms

Details

- **Training methodology:** Theory and Live demonstration
- **Duration:** 2 hours
- **Price:** Free*

*if this product is purchased

SIMATIC S7-300/400 – BASIC

Description

This course gives participants a good foundation in SIMATIC STEP7 software environment and provides skills necessary to handle and maintain SIMATIC S7-300/400 PLC (Programmable Logic Controller).
This course also offers a great platform for those new to SIEMENS S7 automation systems and it forms the basis for further advanced topic courses.

Get introduced to the world of SIMATIC STEP7!

Theory

- Overview of SIMATIC S7 family
- Block architecture
- Introduction to PROFIBUS-DP
- Manipulating data blocks
- Understanding FC, FB, & OB

Practical Exercises

- Navigating SIMATIC manager
- Hardware configuration
- Symbolic addressing
- Troubleshooting & debugging functions
- Basic installation and maintenance of PLC

Details

- Training methodology: Theory and practice
- Duration: 5 days (10 AM – 5PM)

SIMATIC S7-300/400 – ADVANCE

Description

The course is directed at personnel engaged in project engineering tasks who would like to become familiar with extended programming possibilities of SIMATIC S7.

After the course, the participant will be able to structure and create advanced S7 programs, making it possible to efficiently work with STEP 7 and thus reduce the engineering phase.

The course uses a 'hands-on' practical approach to reinforce the theoretical aspects of the training.

Delve deeper and master your automation system!
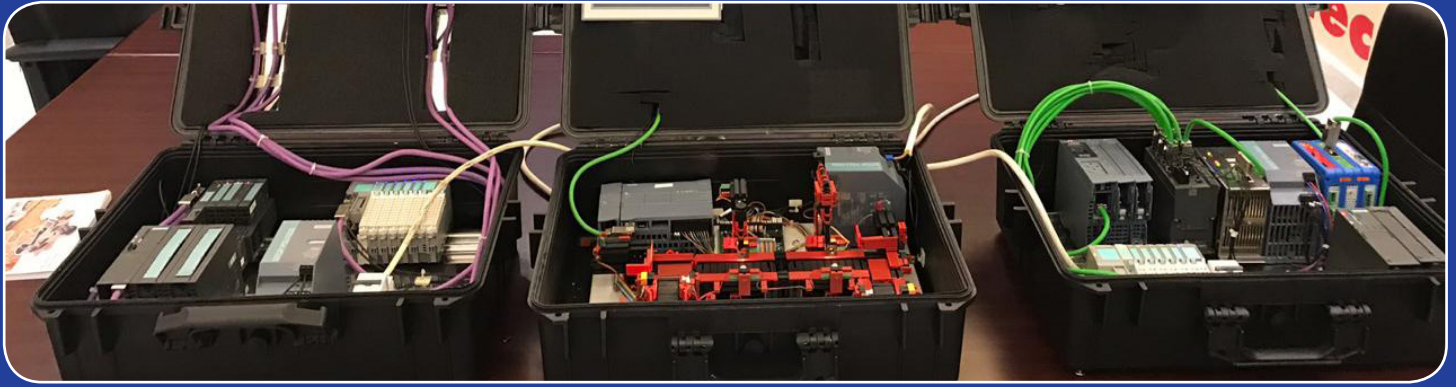
Theory

- Introduction to the S7 family of controllers and concepts of TIA
- Projection creation & operation using SIMATIC manager
- Application and use of the Symbol Editor
- Binary operations- Accumulators, timers, counters, comparators
- Tools for troubleshooting and debugging
- Introduction to PROFIBUS-DP
- The role of functions and function blocks

Practical Exercises

- Hardware configuration of S7-300/400 systems
- Programming using the LAD/STL/FBD Editor
- Configuration & application example using ET200S remote I/O
- Configuration & application example using an HMI Touch Panel
- Configuration & application example using Sinamics G120
- Storing process data in Data Blocks
- Configuration & application of organizational blocks
- Analogue value processing
- Documentation facilities including archive & retrieve options

Details

- Training methodology: Theory and practice
- Duration: 5 days (10 AM – 5PM)

TIA Portal – BASIC

Description

The Totally Integrated Automation Portal (TIA Portal) forms the work environment for integrated engineering with SIMATIC STEP 7 and SIMATIC WinCC. In this first part of the SIMATIC TIA Portal programming training, we teach you the handling of the TIA Portal, basic knowledge about the structure of the SIMATIC S7 automation system, configuration and parameterization of hardware, and the basics of standard PLC programming.

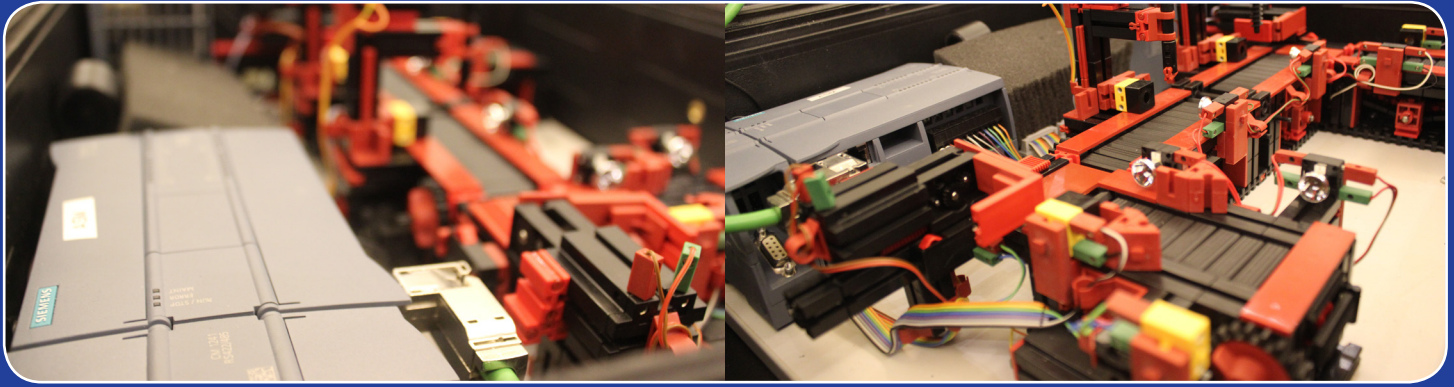## Be able to run your process smoothly!

Theory

- Overview and significant performance characteristics of the SIMATIC S7 system family
- The components of the TIA Portal: STEP 7
- Develop a better understanding of the basic interactions of the TIA components
- Overcome simple programming related tasks using acquired knowledge of STEP 7 system
- Confidently operate TIA Portal
- Able to successfully perform commissioning of TIA components

Practical Exercises

- Program execution in automation systems
- Binary and digital operations
- Setup and assembly of the automation system
- Addressing and wiring the signal modules
- Hardware and software commissioning of the SIMATIC S7 automation system with the TIA Portal
- SIMATIC S7 hardware configuration and parameterization
- Saving and documentation of the implemented program changes with the TIA Portal
- Deeper understanding of contents through practical exercises on TIA system model

Details

- Training methodology: Theory and practice
- Duration: 5 days (10 AM – 5PM)

TIA Portal – ADVANCE

Description

The Totally Integrated Automation Portal (TIA Portal) forms the work environment for integrated engineering with SIMATIC STEP 7 and SIMATIC WinCC. The second part of the SIMATIC TIA Portal service training is based on the knowledge of the TIA Portal gained in the SIMATIC TIA Portal service 1 course, including SIMATIC STEP 7, HMI, connection of drives, and PROFINET IO / PROFIBUS. You will expand your troubleshooting and error correction knowledge -using the TIA Portal diagnostic tool in the commissioning and productive phase. Alarms are displayed on an operator control and monitoring system. You will learn about the included test functions for controlling programs in Structured Control Language (SCL).

SIMATIC S7, HMI, remote I/O, and Sinamics G120 all in one place!

Theory

- Overview and significant performance characteristics of the SIMATIC S7 system family
- The components of the TIA Portal: STEP 7, WinCC, Communication
- Be able to execute program development methods
- Program indirect addressing in SCL (Structured Control Language)
- Carry out data administration tasks using SIMATIC S7 system
- Software error handling and evaluation
- Configure TIA system components consisting of HMI, remote I/O, SIMATIC S7, and a Sinamics G120

Practical Exercises

- Program execution in automation systems.
- STEP 7 block types and program structuring.
- Binary and digital operations.
- Programming of parameterizable blocks.
- Data management with data blocks.
- Programming organizational blocks.
- Test tools for system information, troubleshooting and diagnostics.
- Hardware configuration and parameterization of the SIMATIC S7-1500 modules, a PROFINET IO system (ET-200SP), a Touch Panel (TP 700) and a Sinamics G120 drive over PROFINET .
- Program documentation and saving.
- Deeper understanding of contents through practical exercises on TIA system model.

Details

- Training methodology: Theory and practice
- Duration: 5 days (10 AM – 5PM)

PCS7 System Design, Engineering, & Maintenance

Description

In this course you will learn how to implement the diversity of engineering possibilities in a structured and efficient way with SIMATIC PCS 7 process control system. By doing exercises on original SIMATIC PCS 7 training units, you will implement software for the process automation of a plant right up to the HMI level. Features of SIMATIC PCS 7 such as integration of all subsystems, plant-oriented engineering, data management and project management are supplemented by advanced functions that enable efficient and cost-effective engineering.

Utilize the benefits of Totally Integrated Automation (TIA) for yourself and learn how to get an integrated view of your plant! Because of this integration you will be able to diagnose faults quickly and correct them with safely. In addition, projects can be created in advance in such a way that you can work with multiple application. This enables time-optimized and cost-effective engineering.

Do it from A to Z!

Theory

- ES/OS-PC-Station configuration
- Project structure
- Basic settings
- Multi-Project Engineering & Handling
- SIMATIC Logon
- OS Server Redundancy
- Advanced Graphic Engineering
- openness for C- and VB-scripting
- Customized objects and faceplate creation
- Managing the project data in the SIMATIC Manager
- Station and network configuration
- Configuration of AS functions in CFC
- Configuration of monitoring and controlling in the OS
- Configuration of sequences in SFC
- User blocks - attributes and visualization
- Project setup
- Station and network configuration
- Connection to the process
- Basics control functions
- Basics Operating and Monitoring

Practical Exercises

- Create a proper PCS 7 multi project and configure the hardware of AS and PC stations
- Create user programs compliant to PCS 7 standards using the most important tools like CFC, SFC and graphical tools of the PCS 7 engineering toolset
- Bulk engineering using the Import/Export-Assistant
- OS-Engineering
- Archiving
- Tag and alarm logging
- Implementation of Automatic and Manual Mode Control
- Configuration of the control flow in the SFC
- Customizing the OS

Details

- Training methodology: Theory and practice
- Duration: 10 days (10 AM – 5PM)

About ASM Process Automation

ASM Process Automation is now on its 11th year on expertise and specialization in the industrial process automation. We are able to supply and provide services with exceptional quality to sustain along with the competitive market. Throughout the years, we have been progressing to perfection, and has made optimal use of its resources to develop, define, and deploy process automation solutions.

We have worked with dedication and perseverance to maintain to be leading provider and supplier of automation and drives throughout the gulf region. We are

ASM Process Automation is now only one of the two (2) companies in Saudi Arabia to be accredited in having a Siemens Solution Partner Licensed since year 2007 and we have managed to sustain the license through the outstanding results of our satisfied clients.

ASM PROCESS AUTOMATION

Industrie 4.0

11 YEARS IN THE INDUSTRY

WE CREATE SOLUTIONS

11 YEARS
Industrial Experience

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