Training Center

Digital Factory and Process Industries & Drives

SITRAIN™ THAILAND

Training Course Catalog 2019

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1. Introduction

SITRAIN™ THAILAND

Siemens Industry is committed to quality and excellence. Responding to needs in the local market, The Training Center in Thailand was established in 1998. With assistance from our “parent” training center in Nuremberg, Germany, SITRAIN™ Thailand offers training programs with a wide range of industrial automation and drive technology courses including SIMATIC PLC : SIMATIC S7, TIA Portal, PCS7, WinCC, Sinamic, Simotion, Switching and Routing in Industrial Networks with SCALANCE & RUGGEDCOM and Security in Industrial Networks with SCALANCE & RUGGEDCOM.

Training Center in Bangkok:

Charn Issara Tower II, room No. 1&2 on 31st floor, 2922/333 New Petchburi Road, Bangkapi, Huaykwang, Bangkok 10310
2. Course Content

Simatic S7-Programming Courses

1. ST-S7PRO1
SIMATIC S7 Programming 1

**Description**
This course is directed at users with engineering experience in the fields of configuring, design and commissioning of SIMATIC S7 programmable controllers. The course provides an optimal entry level to the product-specific and in depth supplementary courses.

**Objectives/Content**
- System overview
- Ability to structure, generate, document and put into operation extensive PLC programs with SIMATIC S7
- Being acquainted with the structure and execution of programs in SIMATIC S7 programmable controllers and the structure of the IEC 1131 automation standard.
- Ability to use the STEP 7 tools for generating, documenting and testing of programs and for troubleshooting, module configuration and parameter assignment.
- Ability to use absolute and symbolic addressing
- Being in a position to evaluate system information of the programmable controller
- Being able to handle data types, data storage and archiving
- Configuring and implementing homogeneous communication links via the MPI interface
- Being acquainted with the basics of the integrated DP-interface.

The knowledge gained on all these aspects is consolidated by practical exercises using the S7-300 programmable controller and a plant model

**Prerequisites requirements:** Automation background

**Duration:** 5 days
2. ST-S7STOE
SIMATIC S7 Troubleshooting

*Description*
This course is directed at users working in the fields of operation, maintenance and assembly who have already acquired
a knowledge of SIMATIC S7 in their particular field of activity. The course focuses mainly on the detection and correction
of faults in both hardware and software.

*Objectives/Content*
- Gaining familiarity with the system and program documentation and learning how to use it
- Becoming acquainted with the STEP 7 software for detecting and correcting faults and learning how to use it
- Checking the hardware and software of a system
- Recognizing and eliminating software faults resulting in stop
- Recognizing and eliminating logical software errors, e.g. multiple assignment
- Saving and documenting the program changes made
- Diagnosing program errors using I STACK and B STACK
- Extended test functions
- Troubleshooting in networked programmable controllers
- Program corrections using optional packages

*Prerequisites requirements:* ST-S7PRO1

*Duration:* 4 days
TIA Portal SIMATIC Programming 1 (Basic) Course

TIA-PRO1

Course Description / Objective
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. You also receive an overview of HMI and PROFINET IO.

After attending the course, you can do the following:
- Understand the fundamentals of interaction of the TIA components
- Solve simple programming tasks using elementary STEP 7 instructions
- Reliably operate the "TIA Portal" engineering platform
- Program simple plant functions with basic STEP 7 instructions in the ladder diagram (LAD) or function block diagram (FBD)
- Perform simple commissioning of TIA components

Course Content
- Overview and significant performance characteristics of the SIMATIC S7 system family
- The components of the TIA Portal: STEP 7, WinCC, communication
- Program execution in automation systems
- STEP 7 block types and program structuring
- Binary and digital operations in the function block diagram (FBD)
- 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 modules, a PROFINET IO system (ET-200), a Touch Panel
- Program documentation and saving
- Deeper understanding of contents through practical exercises on the SIMATIC S7-1500 system model

Prerequisites / requirements: Automation background

Duration: 5 days
Simatic WinCC Course

ST-BWINCCS
SIMATIC WinCC

Description
The course is directed at configuring engineers, commissioning engineers, decision-makers and service personnel. Simple examples help the trainees to obtain the necessary basic knowledge allowing them to use the system quickly and easily for their own applications.

Objectives/Content
- Overview of the WinCC system
- Starting a project, connection of the PLC, var. simulation
- Graphics
- Alarm display, alarm logging
- Curve display, tag logging
- User archives
- Report Designer (demonstration)
- Background processing (demonstration of Global Scripts)
- Openness of the API (demonstration of its structure and uses)
- Practical exercises

Prerequisites requirements: ST-S7PRO1

Duration 5 days
Simatic PCS7 Course

ST-PCS7_P1
SIMATIC PCS7

Description
This course is directed at users with engineering experience in the fields of configuring, design and commissioning of Simatic PCS7. The course provides programming basic PCS7 and understands architecture of the system. The training unit is stand alone system. (One AS one OS/ES)

Objectives/Content
- 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
- Syntax rules for SIMATIC PCS 7 engineering

Prerequisites requirements: ST-S7PRO1 & WINCC

Duration 5 days
SINAMICS S120  Service And Startup Course

DR-SNS-SI

Who Should Attend: Electrical Maintenance Personnel, Commissioning Engineers, Project and Configuration Engineers. This course is for start-up engineering and service personnel. It provides the technical knowledge and skills necessary for start-up and troubleshooting. An overview of the drive system (hardware and documentation) is presented at the beginning of the course, followed by in-depth discussion of software functions, parameter structure and function diagrams. Hand-on exercises on the training units and the STARTER PC tool allow the course participants to develop job-related skills at a practical level.

Aims & Objectives

The course is designed to give a fundamental introduction to the Sinamics S120

Content

- SINAMICS - System Overview
- Objects, Components and Topology / Configuration “Drive Objekt Servo”
- Control Components
- Power Components / Principle of Operation
- Commissioning with STARTER / Control words / BiCo-technology
- Diagnosis
- Speed Setpoint Channel / Configuration “Drive Objekt Vector”
- Types of Control / Speed Control Loop
- Optimization / Position Control
- Basic Positioner (EPs)
- Drive Control Chart (DCC)
- Communication via PROFIBUS
- drive based Safety Integrated (dbSI)
- Additional Functions: Restart on the Fly, Bypass, Brake Control, Motor Changeover

Prerequisites

A general knowledge of electrical engineering and good PC skills is sufficient for taking part in this course.

Duration 5 Days
SIMOTION System and Programming Course

MC-SMO-SYS

Description/Objective

You will learn how to configure and start up the SIMOTION Motion Control system with the associated drives and visualization devices. The course also includes the programming of movement sequences with the help of Motion Control Chart and ladder diagram/function block diagram.

The technologies positioning, synchronous operation, probe, and cam plates are explained and reinforced by means of practice-oriented examples.

The course enables you to use SIMOTION optimally in the automation of production machinery. The programming course (MC-SMO-PRG) builds on this to deal in depth with the creation of parameterizable blocks.

Content

- System overview of SIMOTION
- Components of SIMOTION
- SCOUT engineering system and option packages
- Hardware platforms
- Motion control technology packages
- Creating a project with SCOUT
- Starting up and optimizing axes
- Programming user programs with MCC (Motion Control Chart) and LAD/FBD
- Runtime system (task system) configuring
- Learning to use tools for fault diagnostics
- Performing practical exercises on training devices

Prerequisites requirements: DR-SNS-SI

Duration 5 Days
SIMOTION Programming

MC-SMO-PRG

Description/Objective
Building on the knowledge gained in the SIMOTION system and programming course, you will learn the advanced programming facilities with Structured Text and Motion Control Chart. The applications for the technologies are reinforced using selected examples on our exercise equipment. On completion of the course, you will be able to create parameterizable blocks such as FCs and FBs with the help of the Structured Text language. With knowledge of the cam plate function, you will be able to parameterize and program cam plate synchronization. This extends your scope for creating programs for your production machine.

Content
- Introduction to creating user programs with Structured Text
- Creating variables and data structures in ST-Units
- Creating re-usable blocks (FCs and FBs)
- Programming commands for motion control
- Creating cam plates with CAM EDIT and using system functions
- Parameterizing and programming cam plate synchronization
- Overview of communication with OPC and UDP
- Practical exercises using application examples

Requirements
SIMOTION knowledge according to the course MC-SMO-SYS

Duration 5 Days
Switching and Routing in Industrial Networks with SCALANCE

IK-SWIROS

Description/Objective
An industrial or industry-related environment without Ethernet is no longer conceivable. A high degree of reliability and sufficient capacities are demanded from hard-wired industrial networks. At the same time, a secure connection of these Ethernet networks to an existing network structure as well as the seamless integration into a corporate network is highly required.
At the end of the course, you are familiar with the special requirements of industrial network solutions and will have the knowledge to plan, implement, and provide support for plain networks in an industrial or industry-related environment.

Content

Switching:
- Comparison of Ethernet and Industrial Ethernet
- Typical topologies
- Redundancy mechanisms (MRP, HRP, Standby Redundancy, Protocol, RSTP, Passive Listening, HSR, PRP)
- Network segmentation with VLANs
- Special industrial functions
- Diagnostics and troubleshooting

Routing:
- IPv4 basics (addressing, data exchange, important protocols)
- Static routing
- Router redundancy (VRRP)
- Dynamic routing (RIP, OSPF)
- Diagnostics and troubleshooting

Duration 5 Days
Switching and Routing in Industrial Networks with RUGGEDCOM

IK-SWIOR

Description/Objective

Ethernet has found its way into the industrial environment. A high degree of reliability and throughput rates are demanded from industrial networks. At the same time a reliable integration into a corporate network is highly required. At the end of the course, participants will be familiar with the special requirements of industrial network solutions and will have the knowledge to plan, implement, and provide support for plain networks in an industrial or industry-related environment.

Content

Switching:

- Layer 2 Technology Overview
- Switching in Industrial Ethernet Networks
- Commissioning with RUGGEDCOM Operating System (ROS)
- Port Configuration
- Redundancy in Switched Networks (Rapid Spanning Tree Protocol)
- Network segmentation with Virtual Local Area Networks (VLAN)
- Increasing bandwidth availability (Link Aggregation)
- Integrating Serial Protocols
- Monitoring (ROS)
- Diagnostics and Troubleshooting (ROS)

Routing:

- Layer 3 Technology Overview
- Commissioning with ROX Operating System
- LAN and IP interfaces
- WAN interfaces
- Internet Protocol Services
- Router redundancy (VRRP)
- Static Routing
- Dynamic Routing (OSPF)

Duration 5 Days

Cut down your costs, increase your productions efficiently with the knowledge of PLC's Siemens technology
Security in Industrial Networks with SCALANCE

IK-SECIN-S

Description/Objective
It is difficult to imagine day-to-day industrial operations without Ethernet connections. From large-scale production systems to the smallest Industrial Ethernet communication networks, nearly everything has come to depend on their reliability and security. The opportunities on the one hand are countered by risks on the other hand. Access by outsiders or manipulation in the network always has catastrophic consequences for production or in-house expertise. Therefore, functioning security systems are an absolute must.
At the end of this course, you will know the requirements and fundamentals needed to plan, implement, and provide support for industrial security measures.

Content
- Current trends and security risks
- Defense-in-depth with Siemens - a holistic security concept
- Update and replacement of security components
- Potential threats in a network
- Basic security measures (ports, passwords, protocols, etc.)
- Cell protection concept
- Access restriction
- Connection of standard machines to networks
- Remote access via VPN
- Comprehensive exercises using the SIMATIC NET product portfolio

Duration 3 Days
Security in Industrial Networks with RUGGEDCOM

IK-SECIN-R

Description/Objective
It is difficult to imagine day-to-day industrial operations without Ethernet connections. From large-scale environment to the smallest Industrial Ethernet communication network, nearly everything has come to dependency on the overall systems reliability and security. The opportunities on the one hand are countered by risks on the other hand. Access by outsiders or manipulations in the network always has catastrophic consequences on application or on in-house expertise. Therefore, functioning security systems are an absolute must.

At the end of this course, participants will understand the requirements and fundamentals needed to plan, implement, and provide support for industrial security measures.

Content
- Understanding what threats lurk Industrial Ethernet networks
- Defense-in-depth approach
- Security measures and guidelines (best practices, industry driven)
- Hardening the RUGGEDCOM product line
- Protecting Control Networks (firewall, address translation (NAT))
- Site to Site and Remote access via VPN (IPsec)
- Comprehensive exercises using the SIMATIC NET product portfolio

Duration 3 Days
3. Course Schedule

Please see the attached file for Training Course Schedule.

Training programs are scheduled at fixed dates during the year. To register, please let us know at least two weeks before course schedule in advance. The minimum participants for per class is 6/8 paxs. If the course registration participants do not meet the minimum no. of paxs, the class will be re-scheduled. - Course registration is on first-come-first-served basis.

On-Site Training
We also provide training on-site at your company premises with Extra Charged. On-site training arrangements should be made at least one month before the starting date of the course. Please contact the training coordinator.

Contact Person
Training Coordination : K. Pattaranan Varisanont
Tel : (662) 715-4866
Fax : (662) 715-4841, 4861
Email : Industrymarketing.th@siemens.com

4. Terms and Condition

1. Registration closes when the course is full.
2. Course fees are payable in advance at least one week before course start. Payment can be made by cheque payable to SIEMENS LTD.
3. 100% cancellation fee, if participant cancels the course after receiving the official course confirmation.
4. Course Price includes Coffee Breaks and Lunch.
5. Price is not included Hotel accommodation.

General Condition for Trainee

Certificates will only be issued to participants with 75% attendance and course fee fully paid to Siemens.
5. Registration Channel

SITRAIN only accept training reservation by e-Pass system, therefore it is mandatory for trainees to register e-Pass in advanced.

Registration at : https://siemens.asia/e-Pass