Fit for Totally Integrated Automation
SIMATIC S7 service and programming training
Skills development with perspective at SITRAIN

Rely on practical knowledge that comes straight from the manufacturer

Well-trained employees are a key success factor for any company. Skills development and expert knowledge make companies competitive and innovative. With our globally available training courses for industry, we help you achieve these goals – with a practical orientation, innovative learning methods and a concept that’s tailored to the customer’s specific needs.

Our training courses are led by certified experts with practical experience. Practical exercises on specially developed training equipment as well as high-quality course materials ensure learning success.

Our successful portfolio includes in total more than 300 courses as well as special advanced training modules in individual sectors – available at over 170 locations worldwide. We can also customize courses and conduct the sessions on your premises.

Sustainable skills development in three phases

Conducted in three phases, our integrated skills development program ensures that all participants are able to fill specific gaps in their knowledge and expand their competencies.

1. Phase: Requirements analysis

A requirements analysis establishes clarity in advance. The comprehensive, task-specific assessment of the services to be provided and the participants’ current level of knowledge lay the foundation for individual recommendations for further training. Building on this assessment, a course curriculum for building skills is created – adapted to individual customer requirements, of course.

Phase 2: Our trainings

Participation in our training courses forms the core of the skills development program. In the courses we discuss the capabilities and functions of our products, making transparent the workflows and relationships of different product components. The training courses are optimally coordinated with each other and purposefully build skills and knowledge for the long term.

Phase 3: Follow-up

At the end of the training course, follow-up measures provide a way to monitor success as well as reinforce and refresh the knowledge acquired. Appropriate courses, e-learning activities, and online support forums keep the knowledge up to date over the long term.

Three good reasons for Siemens training:

1. Manufacturer’s expertise

As the manufacturer of the products, Siemens starts developing the appropriate training during the product development stage – a real advantage in time and knowledge.

2. Practical experience

The courses are distinguished by their wide range of practical exercises – usually comprising half of the course time. This means that the knowledge can be applied immediately in your employees’ everyday work.

3. Flexibility in implementation

Flexibility is the top priority. The content as well as the location of the training can be customized to meet each customer’s needs.
Sustainable skills development in training courses for Siemens industrial customers: comprehensive training solutions for all requirements

Phase 1
In Advance: Analysis of requirements

Phase 2
Trainings

Phase 3
Follow-up: Reinforcement and refreshing of knowledge
Target-group-oriented training ...

The SIMATIC S7 service and programming courses provide comprehensive further qualifications for all components that are required for the construction of a production plant. For that reason, a training course does not simply explain a single product, it also covers the product’s integration in Totally Integrated Automation (TIA for short), in other words in the entire production chain.

... for SIMATIC S7-1500 or SIMATIC S7-300/-400

Newcomer training course

Content  SIMATIC S7-1500 in the TIA Portal or SIMATIC S7-300 based on SIMATIC STEP 7 V5.x

Goal  Safely and efficiently plan, implement, and operate the solution to be created from the very beginning

Deepening training course

Content  Special topics regarding TIA topic areas

Goal  Implement cost-effective, optimal solutions

... for users switching from SIMATIC S7-300 to SIMATIC S7-1500

Migration training course

Content  New hardware and software functions as well as migration options based on knowledge of the classic SIMATIC world

Goal  Fast, efficient migration from the classic SIMATIC world to SIMATIC S7-1500 in the TIA Portal

The path to the “right” training

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<th>Course description</th>
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<td>The course description contains important information about the content, requirements, learning objectives and target groups of each specific course.</td>
<td>The online entrance tests help to determine whether the selected course corresponds to the participants level of knowledge.</td>
<td>The preparation modules are provided so participants can gain an overview of the subject matter before the beginning of the course.</td>
<td>Practice makes perfect: At least half of the course is spent on hands-on exercises.</td>
<td>All participants are asked to complete an online survey so we can continually monitor customer satisfaction.</td>
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Certified qualifications with the SITRAIN Certification Program

Qualification is becoming increasingly important – for employers as well as for employees. For that reason, with the SITRAIN Certification Program we offer qualified training courses for the Siemens product and solution spectrum for industry as well as certification to serve as proof of the acquired knowledge.

Worldwide certification – tailored to the current industry requirements

The SITRAIN Certification Program corresponds to the new advanced training guideline of the German Electrical and Electronic Manufacturers' Association (ZVEI). This has been adapted and optimized for today’s applications corresponding to the continuous further development of automation technology for Totally Integrated Automation. The qualification guidelines defined therein have been implemented in the SITRAIN Certification Program.

Your Qualification with the SITRAIN Certification Program

The qualifications offered within the SITRAIN Certification Program cover the complete Totally Integrated Automation portfolio and require a 3-level advanced training course as well as a final exam in each case.

• Siemens Certified Service Technician Level 1 and 2
• Automation Service Technician according to ZVEI

The Siemens Certification Program according to ZVEI

Automation Technician specializing in
- Project planning
- Service

- LEVEL 3
- LEVEL 2
- LEVEL 1

SPS technology
Industrial communication
Human machine interface
Motion control
Connection of drives
Functional safety systems
Totally Integrated system graphics – the foundation

Management level

Operations Level

Control Level

Field Level

Totally Integrated Automation

ERP – Enterprise Resource Planning

PLM – Product Lifecycle Management

- Product design
- Production planning and simulation
- Data management

MES – Manufacturing Execution Systems

TIA Portal

SIMATIC IT

Simulation of Totally Integrated system graphics – the foundation

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for the SITRAIN automation trainings
SIMATIC S7 courses based on SIMATIC S7-1500 in the TIA Portal

Contents of the SIMATIC S7 service training course in the TIA Portal

SIMATIC Service 1 in the TIA Portal (TIA-SERV1)
- Basic knowledge of the SIMATIC S7 automation system's structure, configuration and parameterization
- Operation of the TIA Portal components SIMATIC STEP 7, SIMATIC WinCC, and SIMATIC NET
- Structure and assembly of an automation system
- Familiarization with service options for SIMATIC S7

SIMATIC Service 2 in the TIA Portal (TIA-SERV2)
- Hardware and software diagnostic functions of the TIA Portal in the SIMATIC S7 automation system
- Commissioning of distributed I/O on PROFINET IO
- Integrating drives

SIMATIC Service 3 in the TIA Portal (TIA-SERV3)
- Commissioning of a TIA system with software debugging and troubleshooting
- Diagnostics, error evaluation and handling with SIMATIC STEP 7
- Diagnosis of errors in a PROFINET IO system with an HMI device

Examinations within the scope of the SITRAIN Certification Program:

Siemens Certified SIMATIC Technician (CPT-FAST1)
- Review of skills and knowledge from TIA-SERV1 and TIA-SERV2
- Practical examination
- Qualification: Siemens Certified SIMATIC Technician

Automation Service Technician acc. to ZVEI (CPT-FAST2)
- Review of skills and knowledge from TIA-SERV1 to TIA-SERV3
- Practical examination
- Qualification: Automation Service Technician according to ZVEI

SIMATIC S7 in the TIA Portal for users switching from STEP 7 Version 5

SIMATIC system retraining course for SIMATIC S7-1500 in the TIA Portal (TIA-SYSUP)
- TIA Portal components: SIMATIC STEP 7 and SIMATIC WinCC
- Configuration of devices and networks of the SIMATIC S7 system family
- Migration of a SIMATIC STEP 7 V. 5.x project and a SIMATIC WinCC flexible project to SIMATIC STEP 7 or SIMATIC WinCC in the TIA Portal
Contents of the SIMATIC S7 programming training course in the TIA Portal

**SIMATIC programming 1 in the TIA Portal (TIA-PRO1)**
- Overview and key features of the SIMATIC S7 system family
- Handling of the TIA Portal components SIMATIC STEP 7, SIMATIC WinCC and SIMATIC NET
- Familiarization with programming options for SIMATIC S7

**SIMATIC programming 2 in the TIA Portal (TIA-PRO2)**
- Advanced programming options for SIMATIC STEP 7
- Classic software error handling/analysis with error organization modules (OMs)
- Introduction to the Structured Control Language (SCL) and S7-GRAPH

**SIMATIC programming 3 in the TIA Portal (TIA-PRO3)**
- Functions, function modules and multi-instances
- Advanced programming options for SIMATIC STEP 7
- Managing a formula database in the HMI system
- Overview of engineering tools for the TIA Portal

Examinations within the scope of the SITRAIN Certification Program:

**Automation Project Planning Technician according to ZVEI (CPT-FAP)**
- Refreshment of skills and knowledge from TIA-PRO1 to TIA-PRO3
- Practical examination
- Qualification: Automation Project Planning Technician according to ZVEI

**SIMATIC S7 in the TIA Portal for users switching from STEP 7 Version 5**

**SIMATIC system retraining course for SIMATIC S7-1500 in the TIA Portal (TIA-SYSUP)**
- Components of the TIA Portal: SIMATIC STEP 7 and SIMATIC WinCC
- Configuring devices and networks in the SIMATIC S7 system family
- Migration of a SIMATIC STEP 7 V. 5.x project and a SIMATIC WinCC flexible project to SIMATIC STEP 7 or SIMATIC WinCC in the TIA Portal

For more information on this topic, see: siemens.com/sitrain-tiaportal
SIMATIC S7 courses based on SIMATIC S7-300 / -400 with STEP 7 Version 5

Training content of SIMATIC S7 service training based on STEP 7 Version 5

SIMATIC S7 service training 1 (ST-SERV1)
• Basic knowledge of the SIMATIC S7 automation system’s structure, configuration and parameterization
• Operation of the SIMATIC STEP 7 software and programming basics
• Overview of operator control and monitoring, PROFIBUS DP and drives
• Familiarization with service options regarding SIMATIC S7

SIMATIC S7 service training 2 (ST-SERV2)
• Commissioning of the distributed I/O
• Integrating drives
• Troubleshooting options for clearing faults with the aid of SIMATIC S7 hardware and software

SIMATIC S7 service training 3 (ST-SERV3)
• Use of STEP 7 system functions
• Commissioning of distributed I/O with PROFINET IO
• Troubleshooting with STARTER, the configurations software for drives and with the visualization software SIMATIC WinCC flexible

Examinations within the scope of the SITRAIN Certification Program:

Siemens Certified Service Technician Level 1 (CP-FAST1)
• Review of skills and knowledge from ST-SERV1 and ST-SERV2
• Practical examination
• Qualification: Siemens Certified SIMATIC Technician

Automation Project Planning Technician according to ZVEI (CP-FAST2)
• Review of skills and knowledge from ST-SERV1 to ST-SERV3
• Practical examination
• Qualification: Automation Service Technician according to ZVEI
Training content of SIMATIC S7 programming training based on STEP 7 Version 5

SIMATIC S7 programming 1 (ST-PRO1)
- Basic knowledge about the structure, configuration, and parameterization of the SIMATIC S7 automation system
- Operation of the SIMATIC STEP 7 software and programming basics
- Overview of operator control and monitoring, PROFIBUS DP and drives
- Familiarization with programming options regarding SIMATIC S7

SIMATIC S7 programming 2 (ST-PRO2)
- Expanded programming options of SIMATIC STEP 7
- Commissioning of distributed I/O
- Integrating drives

SIMATIC S7 programming 3 (ST-PRO3)
- Complex programming options with SIMATIC STEP 7
- Commissioning of distributed I/O with PROFINET IO
- Recipe administration with SIMATIC WinCC flexible

Examination within the scope of the SITRAIN Certification Program:
Automation Project Planning Technician according to ZVEI (CP-FAP)
- Review of skills and knowledge from ST-PRO1 to ST-PRO3
- Practical examination
- Qualification: Automation Project Planning Technician according to ZVEI

For more information on this topic, see: siemens.com/sitrain-tia
Learn more about SITRAIN Industry Training and find out how you can derive the maximum benefit from the actual products and systems — with courses direct from the manufacturer.

Learn more:
siemens.com/sitrain

Would you like additional information about SIMATIC S7 training and other services from Industry Training? We would be happy to meet with you for a personal consultation.

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