

SITRAIN Certification Programme

Certified Competence – Worldwide



sitrain

Siemens Certified Automation Technician
Siemens Certified S7 Programmer

SIEMENS

Certified employees ensure a high quality and productivity

Having the relevant expertise is an essential prerequisite for self-confident and effective action. Cycles of innovation are becoming shorter and shorter combined with the pressure of the market to keep up to date with the latest developments, make ongoing training an absolute necessity.

The training offered by SITRAIN enables the efficient use of Siemens automation products, their correct installation and also effective rectification of problems or faults which occur.

Life-long learning always pays off, both in the short and the long term. This is evident, for example in

- Shorter commissioning time
- Lower maintenance expenditure
- Minimised downtime
- Flexible adaptation of equipment to changing requirement
- Improved quality standards in production
- Shorter familiarisation times when there are changes in technology or personnel
- Motivated, committed employees

SITRAIN makes it possible to meet the requirements of DIN EN ISO 9001 as employees can obtain specialist knowledge and skills through certification.

These are globally supported certification schemes from SITRAIN that are renewable every 3 years.



Globally standardised expertise facilitates the selection of personnel

What is the advantage of globally standardised certification?

Just imagine you are the project manager of an international wind power station builder and are planning the construction of a wind park in Denmark. You need competent specialist personnel who will plan, commission and maintain the facility. You are looking for technicians who already have experience in the construction of such wind power facilities and are familiar with Siemens automation components.

On the Danish labour market, you are unable to find enough specialists who meet these requirements. You are therefore faced with a real problem, especially given the fact that time is now pressing. The best idea seems to be to use English-speaking people from abroad. But how can you judge their competence in the specialist fields you need them for? Every country has its own qualification standards.

Our international certification programme provides you with the solution in the form of internationally moderated certification as a "Siemens Certified Automation Technician" or as a "Siemens Certified S7 Programmer" which delivers a firmly defined level of knowledge in the field of automation technology. This enables you to advertise for experienced people with this qualification in Belgium, Germany, Great Britain, Netherlands or Sweden, for example.

Thanks to this comparable expertise, you can plan your project with a feeling of competence and rule out delays arising from differences on knowledge or a lack of comparable training.

With the SITRAIN Certification Programme bottlenecks in terms of personnel shortages or lack of skills become challenges you master with ease.



SITRAIN

Certificate

Siemens Automation

Timo Mustermann

has passed the test for the

**Siemens Certified
Automation Technician**
– Service and maintenance skills –

in accordance with the requirements profile of the
SITRAIN Certification Programme.

The participant has successfully demonstrated the commissioning of a
SIMATIC S7 automation system, eliminating errors and expanding PLC
programme. The practical tasks were carried out on a SIMATIC S7 automation
system. By integrating an HMI system, distributed peripherals and a drive,
the concept of Totally Integrated Automation was implemented.

Nuremberg, 06.09.2006

SITRAIN – Training for Automation and Industrial Solutions

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Certificate

Siemens Automation

Fimo Mustermann

has passed the test for the

**Siemens Certified
S7 Programmer**
programming skills –

in accordance with the requirements profile of the
SITRAIN Certification Programme.

The participant has successfully demonstrated the commissioning of a
SIMATIC S7 automation system as well as the creating & commissioning of a
SIMATIC S7 PLC programme. The practical tasks were carried out on a SIMATIC S7
automation system. By integrating an HMI system, distributed peripherals
and I/O modules, the concept of Totally Integrated Automation was implemented.

06.09.2006

Siemens Training for Automation and Industrial Solutions



The globally recognised certificates “Siemens Certified Automation Technician” and “Siemens Certified S7 Programmer” make personnel selection easier all over the world. Skills and experience become comparable between different countries because this standardised form of training results in a uniform level of knowledge.

The SITRAIN Certification Programme enables rapid selection of personnel and takes the uncertainty out of your project planning – all over the world.

New perspectives for employees

For you personally, certification direct from the manufacturer offers enormous advantages for your professional future. You improve your opportunities on the labour market by being able to verify your skills and, as a result, you can also enhance your own career development.

Industry today expects specialist staff to be up-to-date on the latest technology. But how do you want to actually prove that? Especially if you want to take a new direction in your career or are being compelled to do so? The last time you completed a qualification exam was possibly some time ago.

With the SITRAIN Certification Programme, you can acquire up-to-date verification of your skills in the field of automation. After you have successfully finished the SITRAIN Certification Programme, you enhance your professional market value at home and abroad. For different areas of work, different training successes can be achieved:

Operators, users:

- Handling routine tasks faster and with more self confidence
- Implementing practical solutions more effectively
- Using products effectively and understanding interrelationships better
- Minimise the risk of malfunctions
- Being able to work self sufficiently more quickly as a new employee

Commissioning engineers, project planners:

- Smoothly integrating new Siemens A&D products in existing installations
- Mastering new technology and systems effectively
- Implementing programme changes and additions
- Carrying out software updates faster and more effectively
- Reacting flexibly to changing product requirements
- Optimising the interaction of the individual products and using the advantages of Totally Integrated Automation (TIA)





Servicing and maintenance personnel:

- Diagnosing and rectifying faults effectively
- Eliminating possible sources of faults from the outset
- Reducing the susceptibility of an installation to faults
- Ensuring lower maintenance expenditure
- Coming up with ideas for improving production

Programmers:

- Creating programmes efficiently
- Precisely implementing customer-specific requirements
- Finding the best solution for the customer on the basis of different possibilities that have been tried out in practice
- Detecting potential for optimization and applying it to the installation

Decision makers, sales personnel:

- Getting to know the technologies of tomorrow
- Being aware of perspectives and making soundly based decisions
- Stimulating employees' enthusiasm for new technologies and systems
- Ensuring that personnel have the best possible qualifications with an optimised ongoing training plan
- Making savings in costs due to new learning methods (blended learning)

Siemens Certified Automation Technician

The training course to become a Siemens Certified Automation Technician was developed by Siemens and is offered worldwide. This completes the series of courses in SIMATIC S7 TIA service training.

Verification of practical skills includes the commissioning of PLC hardware and the components of Totally Integrated Automation. Creation and commissioning of a simple PLC programme are also part of the final test.

Once you have passed the test, you receive a certificate which verifies the skills you have acquired.

Tasks of an automation technician:

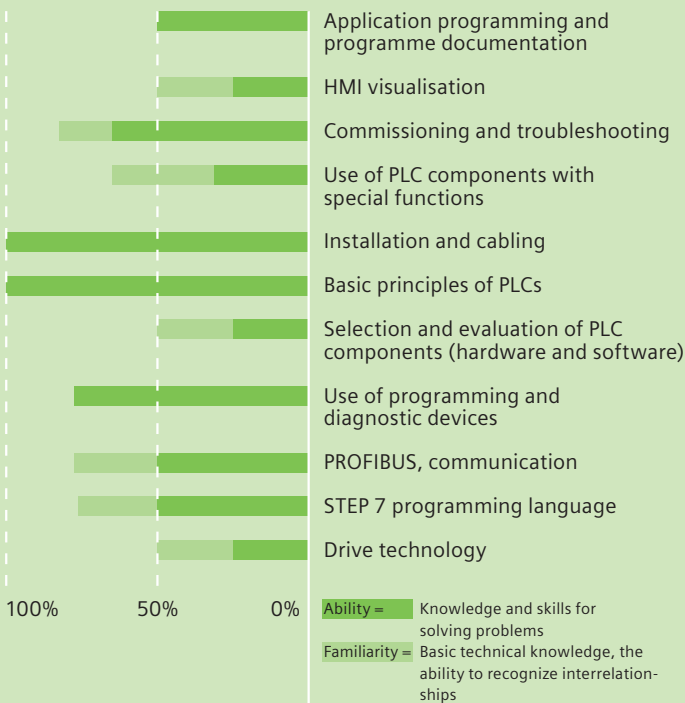
Expert installation and connection of programmable logic controllers, programme changes, troubleshooting, commissioning of distributed I/Os, commissioning of a drive, commissioning of operator control and visualisation equipment.

Prerequisites for taking the test:

Attendance of the SIMATIC S7 TIA Service Training 3



Skills and abilities of a Siemens Certified Automation Technician



Course contents:

Basic PLC concepts

- Signal transmitter
- Process image
- Actuator
- Tasks of programming device and automation system
- Operating system of the PLC
- Cyclical programme execution

PLC hardware

- CPU
- I/O modules (digital and analog)
- Assigning addresses to the inputs and outputs
- Connecting the transmitters and actuators
- Special modules: communications processors, control modules, positioning modules



Installation

- Installation guidelines for automation systems
- Wiring

Creating a simple PLC programme

- Investigating the task
- Structuring a programme
- Designing the programme

Programming of a PLC with ladder logic (LAD) and function block diagram (FBD)

- Logical links between the input signals
- Flags
- Storage elements
- Counters, timers
- Output of the results to outputs
- Organisation blocks, function blocks, data blocks, functions

Programming with a list of instructions

- Basic operations in the list of instructions (IL)

Commissioning steps

- Transferring the programme to the automation system
- "Status" test function
- Detecting hardware faults and software errors
- Hardware troubleshooting: wiring check
- Software troubleshooting: diagnostic methods (diagnostics buffer, USTACK, BSTACK, LSTACK, list of cross-references)

Hardware configuration of a system, based on Totally Integrated Automation

- Configuring hardware and parameterising an S7 station
- Parameterising a CPU
- Parameterising digital and analog I/O modules
- Configuring a drive
- Configuring an operator control and visualisation device

Exercises: All lessons learned are dealt with in detail by means of practical exercises on an automation system with a plant model.

PLC software

- Operating system of the PLC
- Cyclical programme execution
- Using function blocks and functions
- Integrating system functions in an S7 programme
- Using organisation blocks

Commissioning and expanding a PLC programme

- Software troubleshooting – Rectifying STOP errors (errors detected by the system)
- Rectifying logical errors
- Using a touch panel via PROFIBUS
- Parameterising a drive via BOP and STARTER
- Controlling a drive by means of the S7 programme
- Integrating a drive via PROFIBUS
- PROFIBUS fault diagnostics



Siemens Certified S7 Programmer

The training course to become a Siemens SIMATIC S7 Programmer was developed by Siemens and is on offer internationally. This completes the series of courses in SIMATIC S7 TIA programmer training.

In a practical test, your ability to create and commission a complex PLC programme with components of Totally Integrated Automation is tested.

After you have passed the test, you are awarded a certificate that testifies to the skills you have acquired.

Tasks of a SIMATIC S7 programmer:

Engineering tasks which require the complex programming possibilities of SIMATIC S7, the use of distributed I/Os, the use of drives, the use of operator control and visualisation devices.

Prerequisites for taking the test:

Attendance of the course: SIMATIC S7 TIA Programming 3

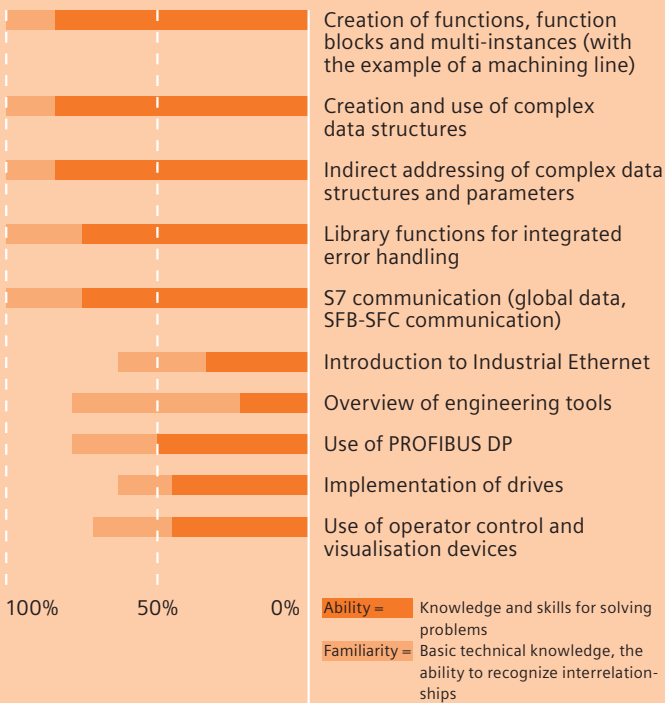
Contents of the course:

Commissioning of the PLC hardware and the components of Totally Integrated Automation

- Parameterising the CPU
- Configuring the distributed I/Os
- Configuring the Industrial Ethernet
- Configuring a drive
- Configuring an operator control and visualisation device



Abilities and skills of a Siemens Certified S7 Programmer



Creation and commissioning of a complex PLC program

- Investigating tasks
- Structuring a programme with the help of structograms
- Creating programmes while taking into account the aspect of reusability through the use of:
 - functions, function blocks and multi-instances
 - complex data structures
 - indirect addressing of the complex data structures
 - library functions for integrated error handling
 - system functions and function blocks that conform with ICE
- Using PROFIBUS DP
- Using Industrial Ethernet
- Using an operator control and visualisation device
- Implementing a drive

Your pathway to success

Siemens Certified Automation Technician

Previous knowledge:

Prior attendance on the courses
"SIMATIC S7 TIA Service Training 1" and
"SIMATIC S7 TIA Service Training 2"
or equivalent knowledge and practical experience.

Training and testing:

Attendance of the course "SIMATIC S7 TIA Service Training 3" (duration: 5 days) plus completion of the separate half-day test to become a Siemens Automation Technician.

The certificate will be valid for 3 years after completion and then have to be renewed by taking test again.

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Siemens Certified S7 Programmer

Previous knowledge:

Prior attendance on the courses
"SIMATIC S7 TIA Programming 1" and
"SIMATIC S7 TIA Programming 2"

or equivalent knowledge and practical experience.

Training and testing:

Attendance of the course "SIMATIC S7 TIA Programming 3"
(duration: 5 days) plus completion of the separate half-day
test to become a Siemens SIMATIC S7 Programmer.

The certificate will be valid for 3 years after completion and
then have to be renewed by taking test again.



[com/sitrain-certification-programme](https://www.siemens.com/sitrain-certification-programme)

Made it – With your certificate in your hand

It's a great feeling to have achieved something special, particularly when new career opportunities open up as a result. Take a big leap towards your professional success. With the certified competence of the SITRAIN Certification Programme, you will enhance your market value!

These international certificates are an excellent recommendation for furthering your career at home and abroad!



Information on all the opportunities for certification offered by the SITRAIN Certification Programme.

www.siemens.com/sitrain-certification-programme



Would you like more information on certification and the SITRAIN range of training courses?

We look forward to hearing from you!

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