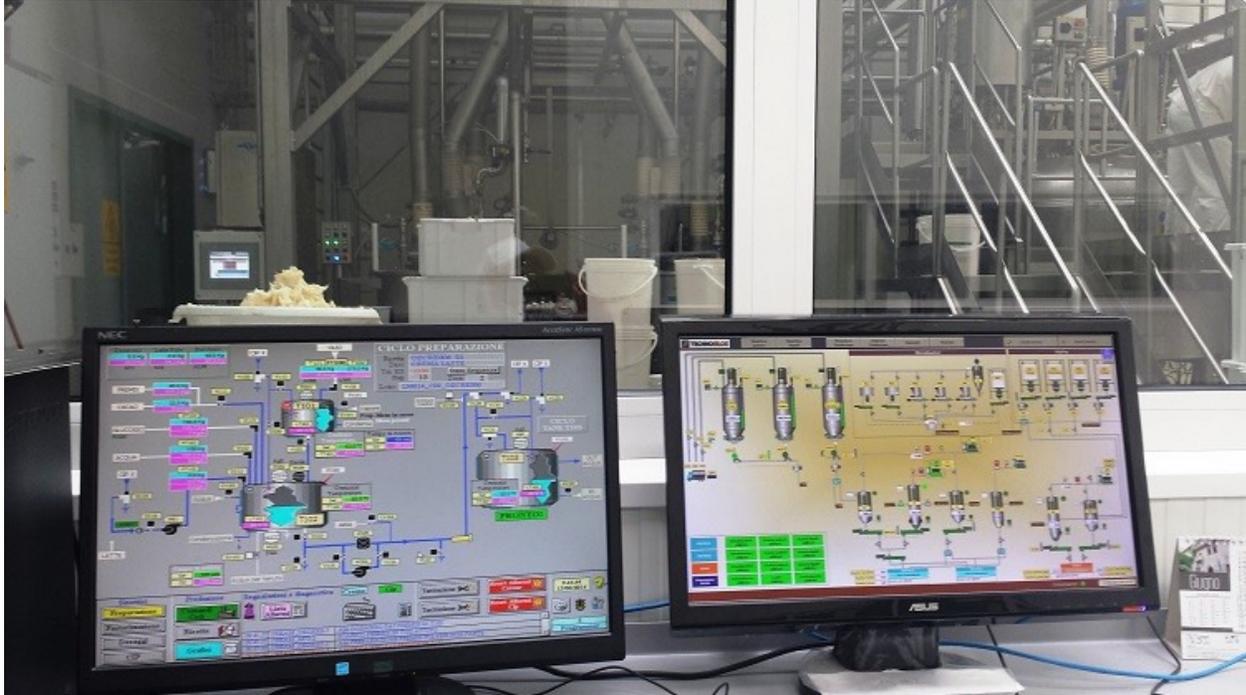


PLC SCADA Training:

How to Learn SCADA Systems, The Best Way.



Working with SCADA systems when not properly trained and qualified can almost be as dangerous as working with PLCs without proper PLC training. Some times it can be even more costly to a company. Of course, while explaining the best way to learn SCADA systems below, I will reference our own company's approach. As our goal was to develop the best and remain very cost-effective.

“Before purchasing a SCADA System training course, see if it meets or exceeds the criteria below.”

To learn SCADA systems the best way: *Consist of three phases.*

1. A strong foundation in PLC SCADA basics
2. Vendor-specific SCADA training
3. More advanced SCADA topics and related courses

Like with most technical subjects, how well you do with continuing education, adaptation of that knowledge and how well you succeed in the workplace, is proportional to the quality of your foundational training like SCADA basics. So, I will expand on the criteria for the first phase, foundational SCADA basics.

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REF: <https://bin95.com/PLC-SCADA-System.htm>

SCADA System Basics:

- Prerequisites
 - PLC Basics
 - Above average [computer literacy](#)
 - [Problem Solving](#) (including [troubleshooting](#))
 - [Critical Thinking](#)
 - Attention to details
 - Ability to work and learn independently
- Introduction to SCADA Systems
- Introduction to editing at least one brand of SCADA software
- Introduction to SCADA communicating with PLC, PAC, etc.
- Introduction to Configuring and displaying alarms
- Introduction to Industrial Network Security
- Written test along the way to reinforce above introductions
- Experience installing and modifying a real SCADA software product
- **Instructor evaluation** that student meets prerequisites and has successfully modify real SCADA software

You will see one of the recommended minimum prerequisites is PLC basics. This is because SCADA systems are primarily SCADA software communicating with, and displaying data from the full control systems like PLC, PAC, RTU, etc. In our [PLC SCADA basics course](#), we addressed this need by bundling both our PLC basics course and our SCADA course, as one. If you scroll to the bottom of our course description pages, you will also see a recommended learning path. (See a copy below for our SCADA course recommended learning path.) You will first notice, it has a lot more than just learning PLCs before taking on SCADA. Even if you are just an industrial IT person and not maintenance, you will learn it is best to also take a basic HMI course before SCADA. That is because it lists the best **full** learning path, the above bullet list is just the recommended **minimum** learning path.

Learning Path:

We recommend ...

- 1st [Industrial Electrical Training Video Course](#) (10 DVD Set w/ workbook)
- 2nd [Electrical Motor and Controls Course](#)
- 3rd [PLC Basics](#) (included in the bundle on this page)
- 4th [HMI Basics](#)
- 5th [PAC - Controllogix and RSLogix 5000](#)
- 6th [PLC Training scholastic Video Course](#) (10 DVD Set w/ workbook)
- 7th [Online PLC Structured Text Programming Basics Course](#)
- 8th [PLC & SCADA Basics](#) (page you are on now)

If you hop on over to PLC-Training.org you will see depending on one's occupation, there are certain learning paths that can be skipped. Like an IT person does not necessarily need industrial electrical training before working with SCADA. They would just consult the plant's maintenance/electrician when needed.

In our PLC SCADA course bundle mentioned above, in order to keep it highly cost-effective, we worked into the teaching, training and testing process itself, ways to indirectly test for the required prerequisites attributes like attention to detail, problem-solving, computer literacy, etc. Users will even have to google how to write a counter line of code in Python programming language. Some maintenance and electricians can find that to be quite challenging, whereas some IT people find PLC ladder logic to be challenging. 😊 The CEUs with our course are well earned.

To wrap up the discussion on learning SCADA System basics, most of the SCADA courses on the market today will cover the **basic introductions** mentioned in the above bullet. Note also, they are just scholastic educational courses, not an actual training course. (Most don't have an instructor evaluating, other than seeing if you have written question answered correctly.) The one exception that most educational SCADA courses leave out, and one of the most important in this time of cyber warfare, is the "Introduction to Industrial Network Security".

Short of SCADA vendor training, I have not seen other SCADA courses give students hands-on experience installing and modifying a real SCADA software product like we do with our SCADA basics course. (Plus, our students can keep the free SCADA software to continuously improve their knowledge and experience. Something we strive for on many of our courses.)

SCADA Vendor Training:

The second phase of learning SCADA systems is to get some SCADA vendor training. Getting the foundational SCADA basics outlined above first, is a must if you are getting the most out of the SCADA vendor training. Often a large part of vendor training is sales on their product and/or biased towards their product. So, you want to be able to soak up as much of the 20% new knowledge, as you can. Having the basics first, allow you to, even if it the typical vendor teaching approach ... 'high speed, if you get it, you get it. If you don't you don't.' So, then the next obvious question when it comes to SCADA vendor 'training', ...

What brand of SCADA software should I get training for?

My recommendation would differ depending on each person's situation. If you are currently working for a company, seek out the vendor of the SCADA software your company is using. If you are planning on working in a particular industry, see the SCADA brand most commonly used in that industry. You will find the most popular brands vary by industry, be it production, building industry, city municipalities, etc. Even within those industry segments, it is segmented further. For example, the most popular brand for the power industry, may not be the same as for the wastewater industry. If you have no idea what industry you may wind up in, seek the most popular SCADA brand for the country you are in. For example, depending on the US industry, you may pick one of Emerson, Schneider (Wonderware), Honeywell, ABB, FactoryTalk. In the UK, you may pick Siemens Win-CC or Wonderware. Asia – Yokogawa, Omron

As a side note, realize just because a SCADA brand may be popular in a particular country, doesn't mean that brand comes from that country. (The US is a melting pot.) I give you the major brands as an example ... Schneider Electric (France), ABB (Switzerland), Siemens (Germany), Emerson Electric (US), Rockwell Automation (US), while other major players in this market include General Electric (US), Honeywell International (US), Yokogawa Electric (Japan), and OMRON (Japan). If none of the above SCADA software selection criteria helps, consider going with the easiest to use and learn. Win-CC or FactoryTalk.

More Advanced SCADA Courses:

A great source for advice on what more advanced topics related to SCADA would be good to take, see [PLC-Training.org](https://www.plc-training.org) again. At the bottom of the page for each of their 10 learning phases, you will find related course recommendations. For more advanced than just SCADA basics, I would start your considerations at the last 4 learning phases leading up to learning phase 10 which is SCADA.

Those courses might be, but not limited to ...

1. [Process Automation Controllers](#) (PAC)
2. Standard Ethernet networking course
3. An industrial network protocol like [DeviceNet](#) and/or [Fieldbus](#)
4. [Proportional Integral Derivative](#) loops (PID)
5. Introduction to Python programming language
6. Introduction to SQL database queries
7. [Object Linking and Embedding \[OLE\] for Process Control](#) (OPC)