Industrial Networks Education

Certify your place in the **future of networking**
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SIEMENS

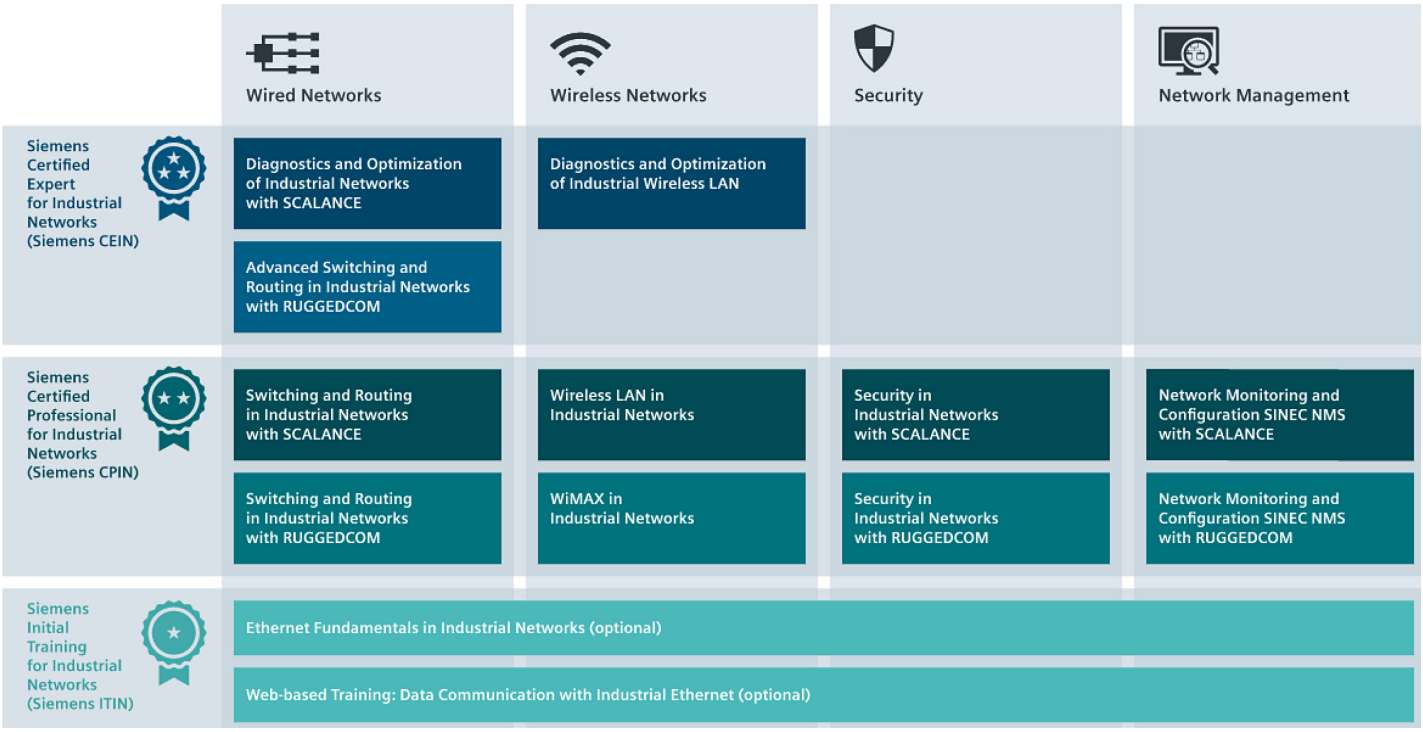
The future of industry lies in digitalization

That's exactly why powerful networks are essential in both manufacturing and mission critical applications - so are knowledge and skills for planning and implementing these networks and connecting them to business systems. Siemens offers a variety of networking certification courses to address growing trends and gives networking professionals the ability to proactively position themselves as leaders in their field of expertise.

Siemens recognizes the importance of having the network meet the needs of the application it is supporting. For that reason, we offer two certification tracks. Our industrial network track, based on our **SCALANCE** portfolio, teaches students how to design and maintain network requirements associated with industrial applications such as manufacturing, logistics and others. Our mission critical networks track, based on our **RUGGEDCOM** portfolio, teaches students how to design and maintain network requirements associated with mission critical applications commonly found in Electric Power, Rail, Transportation and Defense applications.

Training and certification for Industrial Networks

In our Industrial Networks Education program, you will learn the fundamental skills of planning, implementation monitoring and securing of wired and wireless industrial data networks and connect them to a corporate network. For those with a high degree of networking knowledge, we also offer advanced classes to take you to the next level in your skill set.



Whether you are an Application Engineer in an automotive plant or a Communication Engineer at an Electric Utility, we have a course that is right for you. All courses are instructor-led, hands-on, and allow you to acquire the in-depth industry knowledge needed to compete in today's global market.

Not sure where to begin?

We offer a couple of introductory, non-certification courses that are great starting points before you begin to invest in your professional certification portfolio. See our Initial Training for Industrial Networks (ITIN) courses. We have a two-day Ethernet Fundamentals class available; as well as a no-cost, self-paced, web-based training.

Private onsite class offerings

Any of our courses can be offered as an Onsite class, meaning we bring the class to you. This an ideal solution for teams requiring training, as there are added conveniences and cost benefits.

Benefits of onsite training

- Convenience and efficiency – no travel required.
- Reduced expense – no travel expense for employees.
- Private class allowing for team synergy and discussions around site-specific network.
- Ability to tailor the class schedule to your shift or date requirements.

Guidelines

- Minimum class size is 6 students.
- Maximum class size is 12 students (based on 2 students per lab station)
- Pricing for onsite training is custom quoted based on class size.
- Quotes are coordinated through your local sales rep or directly at: siemensci.us@siemens.com

Our Industrial Network Education Program Offerings

Certification class	Description and learning goals	Duration	Course code
SCALANCE or RUGGEDCOM			
Fundamentals of Industrial Networking	• Understanding the OSI Reference Model • Learning the Physical Layer (Copper, Fiber, Wireless) • Learning the Data Link Layer (MAC, VLAN) • Learning the Network Layer (TCP/IP, Routing Protocols) • IPv4 vs IPv6 Addressing • Understanding Upper Layer Communication	2 Days	IEN-NETOILFUND Virtual
SCALANCE			
Switching and Routing in Industrial Networks	• Differences between Ethernet and Industrial Ethernet topologies • IPv4 and IPv6 basics (addressing, data exchange, important protocols) • Redundancy Protocols (MRP, HRP, Standby Redundancy Protocol, RSTP, Passive Listening, HSR, and PRP) • Network Segmentation with VLANs • Static routing • Router redundancy (VRRP) • Dynamic routing (RIP, OSPF) • Diagnostics and troubleshooting • Practical exercises using the SCALANCE X product line	5 Days	IEN-IKOILSWROU1A Virtual
Wireless LAN in Industrial Networks	• Comparison and coexistence of different wireless technologies • Theoretical fundamentals of wireless technology • Security and high data rates in WLAN • Introduction to the different WLAN standards • Planning and configuration of different radio links • Planning and configuration of RCOAX radio networks with iPCF • Planning and configuration of free radio networks with iPCF-MC • Introduction to iREF and Inter AP Blocking • Comprehensive exercises using the SCALANCE W product line	3 Days	IEN-IKOILWLAN1A Virtual
Security in Industrial Networks	• Current trends and security risks • Defense in depth strategies • Update and replacement of security components • Potential threats in a network • Basic security measures (ports, passwords, protocols, etc.) • Network segmentation (VLAN, routing) • Cell protection concept • Access restriction • Remote access via VPN • Diagnostics / troubleshooting • Comprehensive exercises using the SIMATIC NET product portfolio	3 Days	IEN-SEOILCINS1A Virtual
Network Monitoring & Configuration SINEC NMS with SCALANCE	• Practical use of the network management system SINEC NMS to monitor, document and configure your SCALANCE network from a central location • How to plan, implement and maintain your network management solution • Requirements and solutions for monitoring and managing industrial networks with SINEC NMS	3.5 Days	IEN-IKOILMONCS Virtual
Diagnostics & Optimization of Industrial Wireless LAN	• Introduction to holistic diagnostics • Clarification and reiteration of technical terms • Preparation and survey of the physical structure • Introduction to wireless field diagnostics • Procedure for device diagnostics • Introduction to network diagnostics • Comprehensive exercises	2 Days	IEN-IKOILWLANADV Virtual
Diagnostics & Optimization of Industrial Networks and SCALANCE	• How to diagnose typical errors in industrial networks, using practical examples • Determine how to prevent these errors or minimize their impact through enhanced device functions • How to secure administrative access to components, and to restrict access to the network itself • Become familiar with the available tools and functions which can be used to ensure the required performance, availability and security of the network	3 Days	IEN-IKOILDIAOPTS Virtual
RUGGEDCOM			
Switching and Routing in Industrial Networks with RUGGEDCOM	• Switching in Industrial Ethernet Networks • Redundancy in a Switched Network (Spanning Tree Protocol) • Network segmentation with Virtual Local Area Networks (VLAN) • Increasing bandwidth availability (Link Aggregation) • Integrating Serial Protocols • Diagnostics and troubleshooting • Practical exercises using the RUGGEDCOM ROS and RUGGEDCOM ROX product line	5 Days	IEN–RCOILMSWROU Virtual
WiMAX with RUGGEDCOM	• Wireless concepts • WiMAX technology details • RUGGEDCOM WIN product line configuration • Modulation schemes, noise, interference, fading, multipath, WiMAX PHY/MAC and system provisioning	3 Days	Currently On Demand only. For class inquiries, email siemensci.us@siemens.com
Security in Industrial Networks with RUGGEDCOM	• Security in Industrial Ethernet Networks • Understanding threats to the Industrial Ethernet Networks • Security Defense in Depth approach • Security measures and guidelines (best practices, industry driven) • Protecting Control Networks (firewall, address translation (NAT) • Site to Site and Remote access via VPN (IPSec) • Hardening the RUGGEDCOM product line • Practical exercises using the RUGGEDCOM ROX products	3 Days	IEN-RCOILMSECROX Virtual
Network Monitoring and Configuration with SINEC NMS for RUGGEDCOM	• Practical use of the network management system SINEC NMS to monitor, document and configure your RUGGEDCOM network from a central location • How to plan, implement and maintain your network management solution • Requirements and solutions for monitoring and managing industrial networks with SINEC NMS	3.5 Days	IEN–IKOILMONCR Virtual
Advanced Switching and Routing in Industrial Networks with RUGGEDCOM	• Theoretical and practical knowledge for real-world implementation of high-availability Industrial Layer 2 networks and the applicable methods to operate and maintain these networks • Seamless redundancy mechanisms, time synchronization methods and technologies • Theoretical and practical knowledge of routing protocols and concepts which help facilitate communication inside and between multiple network locations using Layer 3 network, as well as service provider backbones • Redundant network architectures based on the IEC 62439-3 (PRP/HSR) standard	4.5 Days	IEN-RCOILADVSR Virtual

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