SIEMENS

Online Instructor-led Training
Switching & Routing in Industrial Networks - Virtual

General Information

Course Code: IEN-IKOILSWROU1A
Length: 5 Days

Audience

This virtual course is for users who are involved with developing or sustaining automation networks in an industrial environment. This includes, but is not limited to the following:

- Plant Engineers
- Control Engineers
- System Engineers
- Commission Engineers
- Application Engineers
- Operations or IT Network Engineers
- Facility Managers
- Project Engineers

Prerequisites

- Basic knowledge of the topic "Ethernet".
- Familiar with network topologies, transfer processes, addressing, data transport, and understand the associated technical vocabulary.
- Familiar with the principles of router operations, switches and an OSI reference model.
- Recommended: Completion of the web-based Initial Training for Industrial Networks (ITIN) course.

Profile

This course is one of three certification courses offered under the Siemens Certified Professional for Industrial Networks (CPIN) program. The curriculum covers Network solutions and how they connect to real-time systems in theory and in practice. It also addresses the requirements and fundamental principles of industrial routing solutions.

Throughout the course, students will have ample time for practical exercises, diagnostics, and troubleshooting. The course uses a digitized model for realistic demonstrations.

At the end of the course, students are equipped with the knowledge to plan, configure, operate and provide support for industrial networks.

Objectives

Upon completion of this course, the student will learn:

- 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

Topics

1. Switching
   a. Ethernet Basics
   b. On-site networking in automation
   c. Increased availability in automation
   d. Coupling automation segments
   e. Networking with IT standards
   f. Coupling automation and IT system
   g. Seamless redundancy in the ring
   h. Seamless redundancy
   i. Separating different communication types
   j. Useful Features

2. Routing
   a. Internet Protocol in Automation
   b. Connecting to the IT Network
   c. Redundant Connection to the IT Network
   d. Extending an Existing Network
   e. Dynamic Routing Protocols
   f. Best Practices - Routing