SIEMENS

Switching & Routing in Industrial Networks con SCALANCE X (IK-SWIROS)

Short Description

An industrial or industry-related environment without Ethernet is no longer conceivable. A high degree of reliability and sufficient capacities are demanded from hard-wired industrial networks. At the same time, a secure connection of these Ethernet networks to an existing network structure as well as the seamless integration into a corporate network is highly required. In the Switching part of the course you will learn switched network solutions and how they connect to real-time-capable systems in theory and in practice. The Routing section will teach you the fundamentals and knowledge required for planning, configuring, and operating network solutions in industrial environments, which are structured by routing, and their connection to company networks. You will become familiar with the special requirements of routing solutions in industry and the required fundamentals of IP communication, static routing, routing protocols, and redundancy mechanisms. The course includes ample time for practical exercises, diagnostics, and troubleshooting.

Objectives

After attending the course, you can:
- Identify the differences between Ethernet and Industrial Ethernet topologies
- Use IPv4 and IPv6 (addressing, data exchange, important protocols)
- Implement Redundancy Protocols (MRP, HRP, Standby Redundancy Protocol, RSTP, Passive Listening, HSR, and PRP)
- Create e Network Segmentation with VLANs
- Configuring static routing outer redundancy (VRRP) and dynamic routing (RIP, OSPF)
- Diagnostics and troubleshooting typical errors

Target Group

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

Content

Switching:
- Comparison of Ethernet and Industrial Ethernet
- Typical topologies
- Redundancy mechanisms (MRP, HRP, Standby Redundancy, Protocol, RSTP, Passive Listening, HSR, PRP)
- Network segmentation with VLANs
- Special industrial functions
- Diagnostics and troubleshooting

Routing:
- IPv4 basics (addressing, data exchange, important protocols)
- Static routing
- Router redundancy (VRRP)
- Dynamic routing (RIP, OSPF)
- Diagnostics and troubleshooting

Theoretical knowledge will be deepened with numerous practical exercises on SCALANCE devices.

Prerequisites

Basic knowledge of the operating principles of the ISO/OSI model.

Note

You can prepare for this activity through the **SIE-learning 4.0** SIE-ETHBA preparatory courses.
At the end of the course you can deepen the topics covered through our **SIE-learning 4.0** : SIE-CYBSEC, SIE-SECROU.

Type

Face-to-face training

Duration

5 days

Language

it