

## Switching and Routing in Industrial Networks with RUGGEDCOM (IK-SWIROR)

### Short Description

Ethernet has found its way into the industrial and the industry-related environment. A high degree of reliability and throughput rates are demanded from industrial networks. At the same time, a reliable connection of these networks to an existing network infrastructure as well as the seamless integration into a corporate network is highly required. The course includes ample time for practical exercises, diagnostics, and troubleshooting.

### Objectives

Switching:-

- In the Switching part of the course participants will gain the theoretical and practical knowledge required for real world implementation of industrial networks and the methods applied to operate and maintain such networks.

Routing:-

- After completion of this section of the course participants will have theoretical and practical knowledge of what IP communications, routing protocols, redundancy, LAN/WAN concepts that help facilitate communications between multiple network locations.

At the end of the course, participants will be familiar with the special requirements of industrial network solutions and will have the knowledge to plan, implement, and provide support for plain networks in an industrial or industry-related environment.

### Target Group

Technical sales personnel

Industry: COOs, commissioning engineers, project engineers, maintenance and service technicians

IT: CIOs, network architects, administrators, service personnel

### Content

Switching:-

- Layer 2 Technology Overview
- Switching in Industrial Ethernet Networks
- Commissioning with RUGGEDCOM Operating System (ROS)
- Port Configuration
- Redundancy in Switched Networks (Rapid Spanning Tree Protocol)
- Network segmentation with Virtual Local Area Networks (VLAN)
- Increasing bandwidth availability (Link Aggregation)
- Integrating Serial Protocols
- Monitoring (ROS)
- Diagnostics and Troubleshooting (ROS)

Routing:-

- Layer 3 Technology Overview
- Commissioning with ROX Operating System
- LAN and IP interfaces
- WAN interfaces
- Internet Protocol Services
- Router redundancy (VRRP)
- Static Routing
- Dynamic Routing (OSPF)
- Link failover
- Monitoring (ROX)
- Maintenance and Troubleshooting (ROX)

### Prerequisites

Knowledge according to course "Ethernet Fundamentals in Industrial Networks": Participants shall be familiar with network topologies, Media Access Control (MAC), Internet protocol, data transport and associated technical vocabulary. It is also helpful if you are familiar with the principles of operation of switches and routers, as well as the OSI reference model.

### Note

Certification

This training prepares for the certification "Siemens Certified Professional for Industrial Networks - Switching & Routing". A voluntary certification examination which consists of two sections will take place at the end of the training. As an option, the examination may be taken at a later time.

Please note that before the examination you have to identify yourself by showing a valid photo identification

### Type

Face-to-face training

### Duration

5 days

**Language**

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**Fee**

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