Managing Industrial Networking for Manufacturing with Cisco Technologies

Duration: *5 Day(s)*

Course Overview

Managing Industrial Networks for Manufacturing with Cisco Technologies (IMINS2024) is a lab-intensive course, which helps you with the skills required to successfully implement and troubleshoot the most common industry standard protocols while leveraging best practices needed in security and Wireless technologies for today's industrial networks. The IMINS2024 course helps plant administrators, control system engineers and traditional network engineers in the manufacturing, process control, and oil and gas industries, who will be involved with the convergence of IT and Industrial networks.

This course is job-role specific and enables you to achieve competency and skills to configure, maintain, and troubleshoot industry-standard network protocols as well as wireless and security technologies to ensure that current infrastructures are maximized while developing a converged platform for flexibility to support future business outcomes. Students will be exposed to multiple industrial network technologies as well as products from Cisco and other industrial suppliers.

The course qualifies for 30 Cisco Continuing Education credits (CE) towards recertification

Review this course online at https://www.alta3.com/courses/IMINS

Objectives

- Understand the OSI Layers and TCP/IP Model functions.
- Troubleshoot OSI Model Layers 1-3 issues effectively.
- Configure and manage Ethernet/IP and PROFINET protocols.
- Implement security and wireless strategies in industrial settings.

Who Should Attend

- IT professionals
- Operations technology engineers
- Control engineers
- Network administrators in industrial environments

Prerequisites

- Describe network fundamentals and build simple LANs
- Establish Internet connectivity
- Manage network device security
- Expand small- to medium-sized networks with WAN connectivity
- Describe IPv6 basics
- Identify Cisco industrial networking solutions
- Describe Cisco Industrial Ethernet switches and Cisco Connected Grid switches and routers
- Interpret design and drawings
- Recognize zone and cell topologies
- Install industrial network components
- Deploy industrial network components
- Perform basic maintenance tasks on the network
- Troubleshoot network and control issues

Course Outline

Module 1: Industrial Networking Concepts and Components

1. Contrasting Enterprise and Industrial Environments
2. Configuration Tools for Industrial Ethernet Switches
3. Exploring Layer 2 Considerations
4. Layer 2 Resiliency Using Spanning-tree Protocol
5. Layer 2 Resiliency Considerations
6. Layer 2 Multicast Control and QoS
7. Exploring Layer 3 Considerations

Module 2: General Troubleshooting Issues

8. Troubleshooting Methodologies
9. Troubleshooting Layer 1
10. Troubleshooting Layer 2 Issues
11. Troubleshooting Layer 3 Issues

Module 3: Ethernet/IP

12. Exploring Ethernet/IP Communications
13. Exploring Hardware Capabilities
14. Exploring CIP Sync, CIP Motion, and CIP Safety
15. Exploring Embedded Switch Technology

Module 4: Troubleshooting EtherNet/IP

16. Identifying Common EtherNet/IP Issues
17. EtherNet/IP Troubleshooting Methods and Tools

Module 5: PROFINET

18. Describe PROFINET Functionality and Connection Method
19. Describing Basic PROFINET Devices

Module 6: Configuring PROFINET

20. Enabling and Prioritizing PROFINET at L2
21. Integrating Cisco Industrial Ethernet Switches

Module 7: Troubleshooting PROFINET

22. Identifying PROFINET Troubleshooting Methods
23. Exploring PROFINET Troubleshooting Tools

Module 8: Exploring Security Concerns

24. Overview Of Defense-in-Depth Strategy
25. Controlling Access and Network Traffic

Module 9: 802.11 Industrial Ethernet Wireless Networking

26. Understanding 802.11 Networks
27. Industrial WLAN Design Considerations