



“The industry is seeing an unprecedented skills gap being created by experienced personnel leaving the workforce, convergence trends requiring OT and IT knowledge and the accelerated deployment of new IoT technologies. Rockwell Automation and Cisco are aggressively addressing these forces with training and certification to aide in the skill gap challenge, which will result in greatly improved business performance KPIs and a very short return on training investment (ROTI).”

Craig Resnick, Vice President
ARC Advisory Group

Learning Services

Managing Industrial Networks for Manufacturing with Cisco Technologies (IMINS2)

Gain the skills you need to successfully implement and troubleshoot the most common industry standard protocols. Our lab-intensive course, Managing Industrial Networks for Manufacturing with Cisco® Technologies (IMINS2), builds on the Managing Industrial Networks with Cisco Networking Technologies (IMINS) course. It teaches students how to deploy best practices used in security and wireless technologies for today’s industrial networks.

The IMINS2 course caters to plant administrators, control system engineers, and traditional network engineers in the oil and gas, process control, and manufacturing industries who are involved with the convergence of IT and industrial networks. It prepares students for the exam, Managing Industrial Networks for Manufacturing with Cisco Technologies Certification (200-601 IMINS2) and the Cisco Certified Network Associate Industrial (CCNA Industrial) certification.

This course is job and role-specific, enabling students to achieve competency and skills to configure, maintain, and troubleshoot industry standard network protocols as well as wireless and security technologies. Learn how to make full use of current infrastructures while developing a converged platform for flexibility to support future business outcomes. IMINS2 exposes students to multiple industrial network technologies in addition to products from Cisco and other industrial suppliers, including Rockwell Automation.

Duration

Five days

Target Audience

This course is designed for IT and operations technology (OT) professionals as well as control engineers involved with the installation, configuration, and troubleshooting of networked industrial products and solutions for the following industries:

- Manufacturing
- Process control
- Oil and gas
- Other industries as applicable

Course Objectives

After you complete this course, you should be able to:

- Recognize the difference between enterprise and industrial networks
- Understand the functions of the OSI layers and TCP/IP model
- Troubleshoot common issues found in Layers 1, 2, and 3 of the OSI model
- Describe the functions and components of Ethernet and IP protocols
- Configure CIP on Cisco and Stratix managed switches
- Troubleshoot common Ethernet and IP issues
- Describe the functions and components of the PROFINET protocol
- Configure PROFINET protocols on Cisco Industrial Ethernet devices
- Troubleshoot common PROFINET issues
- Identify common network threats and resolutions
- Configure basic security components (access lists and AAA features)
- Configure a wireless network within an industrial environment

Course Prerequisites

Knowledge and skills required:

- College degree, or non-degreed qualified technician with two – three years' experience in industrial networks
- Familiarity with command-line and web-based interfaces
- Solid understanding of networking and industrial protocols

You can achieve the prerequisite understanding of networking and industrial protocols through any of the following courses:

- Cisco Electronic Learning and Training (ELT), located on the Cisco Learning Network website:
 - [Networking Fundamentals for Industrial Control Systems \(INICS\)](#)
 - [Industrial Control Systems Fundamentals for Network Engineers \(ICINS\)](#)
- Rockwell Automation, located on its Training Services website:
 - [Essentials of Industrial Networks for an OT Professional \(CCP182\)](#)
 - [Essentials of Industrial Automation for an IT Professional \(CCP810\)](#)

Additionally, skills at a “Managing Industrial Networks with Cisco Networking Technologies (IMINS)” or “Interconnecting Cisco Networking Devices Part 1 (ICND1)” level are highly recommended.

Course Outline

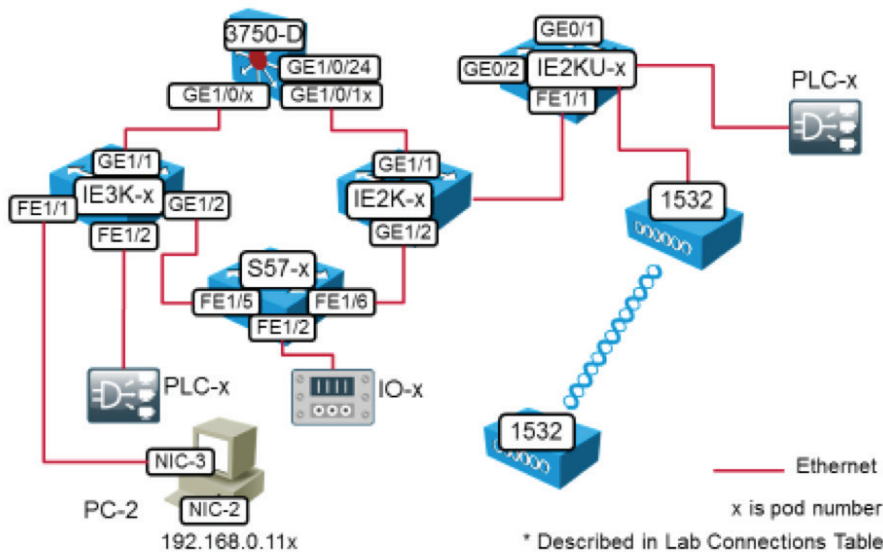
- **Module 1:** Industrial Networking Concepts and Components
- **Module 2:** General Troubleshooting Issues
- **Module 3:** EtherNet/IP
- **Module 4:** Troubleshooting EtherNet/IP
- **Module 5:** PROFINET
- **Module 6:** Configuring PROFINET
- **Module 7:** Troubleshooting PROFINET
- **Module 8:** Exploring Security Concerns
- **Module 9:** 802.11 Industrial Ethernet Wireless Networking

Lab Outline

- Lab 1-1 Configuring Inter-switch 802.1q Trunk Links
- Lab 1-2 Configuring and Applying Smartport Macros
- Lab 1-3 Configuring and Applying Custom Smartport Macros
- Lab 1-4 Configuring and Applying EtherChannels
- Lab 1-5 Configuring Resilient Ethernet Protocol (REP)
- Lab 1-6 Configuring REP Features
- Lab 1-7 Configuring and Verifying Storm Control
- Lab 1-8 Verifying IP IGMP Snooping
- Lab 1-9 Configuring QoS Settings
- Lab 2-1 Troubleshooting Methods and Approaches
- Lab 2-2 Using Cisco IOS® Software Troubleshooting Tools
- Lab 2-3 Troubleshooting Layer 2 Endpoint Device Connectivity
- Lab 2-4 Troubleshooting Layer 2 Inter-Switch Connectivity
- Lab 2-5 Troubleshooting Broken REP Segments
- Lab 2-6 Troubleshooting Layer 3 Issues
- Lab 2-7 Performing a Packet Capture
- Lab 2-8 Troubleshooting Network Issues
- Lab 3-1 Configuring PTP on a Stratix Switch
- Lab 4-1 Troubleshooting CIP Communication Issues
- Lab 6-1 Configuring PROFINET Support
- Lab 7-1 Troubleshooting PROFINET Communication Issues
- Lab 8-1 Configuring Defense-In-Depth Attributes
- Lab 8-2 Exploring Data Traffic Control
- Lab 9-1 Configuring Autonomous Access Points
- Lab 9-2 Configuring Autonomous Access Points as Workgroup Bridges

Figure 1 outlines the lab topology for this course.

Figure 1. Lab Topology



Registration

For more information about schedules and to register for this course, you can:

- Visit the [Cisco Course Locator](#)
- Visit the [Rockwell Training Center](#)
- Call 1-440-646-3434 and select option 7 to speak with an Enrollment Specialist
- [Contact your local Rockwell Automation distributor](#)
- Send an email message to: trainingservices@ra.rockwell.com

More Information

[Get more information](#) about how Cisco and Rockwell Automation are working together.

[Get more information](#) about Rockwell Automation training courses.

Cisco and Rockwell Automation

Cisco and Rockwell Automation have been working together to bridge the gap between enterprise IT and plant floor OT professionals through network and security products, converged plantwide Ethernet (CPwE) reference architectures, services, and solutions. The collaboration foundation uses standard IP-based network technology so that end users and equipment builders can design, implement, and maintain a secure network architecture. The Cisco Certified Network Associate Industrial (CCNA Industrial) certification further enhances the enterprise-wide business outcomes manufacturers can experience through the collaboration between Cisco and Rockwell Automation.

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Rockwell Automation is a leading provider of power, control and information solutions that enable customers to get products to market faster, reduce their total cost of ownership, better utilize plant assets, and minimize risks in their manufacturing environments.

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