Industrial Ethernet Network Training
by Industrial Networking Solutions

Training

Course Information & Curriculum

The use of Ethernet in industrial and plant floor environments has grown dramatically in the last few years. Industrial users face a wide range of options when designing and implementing plant-level Ethernet networks. Our training courses are intended to help industrial engineers and plant personnel design, implement and maintain their Ethernet networks with an emphasis on the unique needs and challenges faced by industrial networks.

Instructors

Learning about Ethernet technology is only helpful when coupled with knowledge of how the technology can fit into the unique requirements of the industrial user. Keeping this need in mind, our classes are taught by an engineer who is a CISCO-Certified Network and Security Professional (CCNP, CCSP), and has years of practical experience designing and implementing plant control systems. Don't settle for training geared for front office IT personnel!

Registration

Students can register for one or more industrial Ethernet training courses by completing the Registration Form and faxing it to us, or by completing the equivalent form in the Training section of our website.

Course List & Curriculum on Reverse

Ethernet Networking Basics - ETHERNET 101 — Day One

After attending this Industrial Ethernet basics course, the student should be familiar with the basics of Ethernet networks, including the ability to design and install a simple plant Ethernet network. An optional hands-on termination lab is offered to allow students to practice some of the skills taught.

Classroom Session

How IT Works
- Defining the terms we'll use
- Ethernet Historical Overview
- CSMA/CD – Rules for Harmonious Communication
- OSI Model: 7 Layers that simplify network communications
- Encapsulation from data to the frame
- Addressing
- MAC - The physical address and its secrets
- IP Addresses and Subnetting in brief
- Means of Delivery – Moving data across the LAN

Hardware – the Building Blocks of a Network
- Transceiver - a collision watchman
- Hub – is there an echo in here?
- Switch – a device with a little intelligence
- Router – a mover and shaker

Network Media – Tying the blocks together
- Interconnecting areas within Plant
- Twisted Pair Media, Connectors, and Termination
- Fiber Optic Media, Connectors, and Termination
- Wireless the "Virtual" Media
- Twisted Pair Tools and Terminations
- Fiber Optic Tools and Terminations

Schedule

Session 8:30 am - Noon
Lunch Noon – 1:00 pm
Session 1:00 - 4:30 pm

Advanced Ethernet & Emerging Technologies - ETHERNET 201 — Day Two

After attending this class, participants should have a clear understanding of the technology required for interconnecting LAN segments within their facility. They will also have an understanding of the various advanced features managed-network devices offer, how these features are configured, and applied. Finally, participants will have a good overview of emerging Ethernet and networking technologies applicable to industrial network environments.

Classroom Session

- Classful/Classless IP
- Subnetting (in detail)
- Variable Length Subnet Masking
- VLANs
- Multicasting
- Redundancy
- SNMP
- Port Mirroring
- Network Analysis and Testing
- *Security (if time allows)*
  - *MAC Address Filtering*
  - *Access Control Lists*
  - *Firewalls*
  - *NAT (Network Address Translation)*
  - *VPN*

Schedule

Session 8:30 am - Noon
Lunch Noon – 1:00 pm
Session 1:00 - 4:30 pm

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