

MOXA

TECHNICAL COLLEGE (E-Learning)

Self-paced online courses that cover foundational topics for Industrial Ethernet and IP Networking.



Why participate?

- ✓ Gain knowledge at your own pace
- ✓ Bring value quickly to your customers
- ✓ Become ready before face 2 face Moxa IES Trainings



Who can enroll?

Technical representatives eager to increase their knowledge of networking



How to sign up?

Sign up by sending a request following link:

https://pages.moxa.com/MTC_Contact-Form.html



SCAN
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MTC-NET-100 Series: Ethernet and Networking Foundations (7 modules / 1h 57min.)

This course covers the essential concepts of Ethernet and IP networking, including the OSI Model, copper and fiber media, Power over Ethernet, IP addressing, managed and unmanaged switches, and Wi-Fi fundamentals. You learn the foundational building blocks of Ethernet communication and networking devices, gaining a solid foundation in industrial networking technologies.

MTC-NET-100: Introduction to the OSI Model (12 min.)	This module covers the essential concepts of the OSI Model, explaining how this conceptual framework facilitates interoperability between devices from different manufacturers.
MTC-NET-102: Ethernet Media Copper & Fiber (15 min.)	This module covers the essential concepts of Ethernet media, comparing the benefits of optical fiber over copper Ethernet and introducing the different types of fiber cables and connectors.
MTC-NET-105 : Essentials of Ethernet Networking (18 min.)	This module covers the essential concepts of Ethernet networking, introducing a brief history of Ethernet and the key elements that facilitate communication between Ethernet devices.
MTC-NET-107: Power over Ethernet Fundamentals (18 min.)	This module covers the essential concepts of Power over Ethernet (PoE), including its benefits, basic terminology, and key characteristics, helping you identify and select the right PoE devices from the Moxa product portfolio.
MTC-NET-110: Introduction to Internet Protocol (16 min.)	This module covers the essential concepts of Internet Protocol (IP), including IP addressing, and explains the key differences between IP addresses, Transport Protocol port numbers, and MAC addresses.
MTC-NET-120: Ethernet Switch Basics (21min.)	This module covers the essential concepts of Ethernet switching, breaking down the key operational differences between unmanaged and managed Ethernet switches.
MTC-NET-125: Introduction to WiFi (17 min.)	This module covers the essential concepts of wireless networking, introducing its fundamental elements and advantages, and reviewing the most common 802.11 standards used today.



MTC-NET-150 Series: IP Networking with Switches and Routers (9 modules / 2h 26min.)

This course covers advanced IP networking concepts, including the TCP/IP protocol stack, Ethernet redundancy fundamentals, Turbo Ring, Turbo Chain, and multiple ring topologies, VLANs, IP Multicast and multicast routing, advanced IP addressing and subnetting, and NAT and router basics. You learn how to design and manage resilient, segmented industrial networks using switches and routers.

MTC-NET-112: TCP/IP Protocol Stack (16 min.)	This module covers the essential concepts of the TCP/IP protocol suite, introducing its client/server model and explaining how a TCP/IP packet encapsulates into an Ethernet frame.
MTC-NET-130: Ethernet Redundancy: Foundation (17 min.)	This module covers the essential concepts of Ethernet redundancy, introducing its importance and breaking down the two most commonly used redundancy standards
MTC-NET-135 : Ethernet Redundancy: Turbo Ring & Turbo Chain (18 min.)	This module continues the conversation of Ethernet Redundancy and introduces the fundamental concepts of Moxa's Turbo Ring and Turbo Chain redundancy protocols.
MTC-NET-138: Multiple Ring (15 min.)	This module continues the exploration of Ethernet redundancy, introducing the essential concepts of Moxa's Turbo Ring and Turbo Chain redundancy protocols.
MTC-NET-140: Introduction to Virtual Local Area Networks (15 min.)	This module covers the essential concepts of Virtual Local Area Networks (VLAN), reviewing its fundamental concepts and existing standards.
MTC-NET-150: IP Multicast and IGMP (17 min.)	This module covers the essential concepts of IP Multicast, reviewing the different types of IP communication before introducing the fundamentals of IGMP.
MTC-NET-151: Multicast Routing Fundamentals (15 min.)	This module covers the essential concepts of multicast routing, explaining the purpose and benefits of multicast traffic and the best practices for implementing multicast in industrial networks.
MTC-NET-160: Advanced IP Addressing and Subnetting (15 min.)	This module covers the essential concepts of advanced IP addressing, reviewing the theory of IP addressing before diving into key concepts of IP subnetting.
MTC-NET-170: Network Address Translation and Router Basics (18 min.)	This module covers the essential concepts of network routers, introducing key routing concepts before diving into Network Address Translation (NAT).



MTC-SNF-100 Series: Secure Networking Foundations (6 modules / 2h 2min.)

This course covers the essential concepts of securing and managing OT networks, including network visibility with MXview One, backup and recovery, configuration management, uptime and redundancy, device and network hardening, and network segmentation with zones and conduits. You learn how to monitor, protect, and maintain resilient industrial networks in line with IEC 62443 best practices.

MTC-SNF-101: Visibility for Network Management (22 min.)

This module introduces OT network visibility with MXview One, covering asset discovery, topology mapping, traffic monitoring, alerts, SNMP best practices, operational health checks, and SOC integration.

MTC-SNF-102: Backup & Restore (23 min.)

This module covers backup and recovery with MXview One, including system and device backups, log archiving, restore workflows, and audit-ready recovery documentation.

MTC-SNF-103: Configuration Management & Integration (21 min.)

This module reviews configuration management, change detection, backup automation, rollback workflows, REST API integration, and external system connectivity.

MTC-SNF-104: Uptime & Redundancy (18 min.)

This module explains industrial network availability, compares Layer 2 redundancy protocols, and introduces VRRP for Layer 3 gateway redundancy.

MTC-SNF-105: Device & Network Hardening (19 min.)

This module introduces continuous OT network hardening, Moxa security best practices, and MXview One Security View for IEC 62443 compliance.

MTC-SNF-106: Network Segmentation, Zones & Conduits (18 min.)

This module explores industrial network segmentation using IEC 62443 zones and conduits, VLANs, firewalls, routing, micro-segmentation, and Moxa firewall solutions.



MTC-CON-100 Series: Industrial Connectivity Foundations (7 modules / 2h 10min.)

This course covers the essential concepts of industrial connectivity, including Ethernet I/O, serial communication, Serial Device Servers, industrial automation protocols, Modbus, and protocol gateways. You learn how devices connect and communicate across OT networks, gaining a solid foundation in industrial connectivity technologies.

MTC-CON-100: Overview of Industrial Connectivity (18 min.)

This module covers the essential concepts of industrial connectivity, introducing the main technologies used in Industrial Connectivity and their role in Industrial Automation.

MTC-CON-105: Ethernet Based I/O Basics (15 min.)

This module covers the essential concepts of remote I/O monitoring and control, explaining how to connect I/O devices to industrial Ethernet networks for data collection.

MTC-CON-110: Serial Communication Fundamentals (20 min.)

This module focuses on understanding the core principles of serial communication, exploring the two most widely used serial interfaces in today's industrial environments.

MTC-CON-115: Basics of Serial to Ethernet Technology (25 min.)

This module covers the essential operational concepts of Serial Device Servers, their deployment in industrial applications, and their effective implementation in modern industrial networks.

MTC-CON-120: Introduction to Industrial Automation Protocols (15 min.)

This module covers the importance of communication protocols used in the Industrial Automation Ecosystem. Introduces commonly used protocols in industrial automation and explains how connectivity is established between devices using different protocols.

MTC-CON-125: Protocol Translation with Gateways (22 min.)

This module covers the importance of protocol gateways in industrial applications, exploring how devices facilitate communication between each other. You will understand how to choose the right protocol gateway for your specific application.

MTC-CON-130: Modbus Overview (15 min.)

This module covers the essential concepts of the Modbus communication protocol in industrial applications, explaining Modbus RTU and how Modbus TCP facilitates the transmission of different data types.

