MERCURY

OTN Optical Transport Networks Training

22 November – 3 December 2026
Dubai (UAE)



Dubai - UAE: +971 4 450 5697
Istanbul - Türkiye: +90 539 599 1206
Amman - Jordan: +962 79 712 3347

OTN Optical Transport Networks Training

Ref: 15114_324610 **Date:** 22 November – 3 December 2026 **Location:** Dubai (UAE) **Fees:** 8500 Euro

Introduction:

Optical Transport Networks OTN Training: Optical Transport Networks are composed of a set of Optical Network Elements connected by optical fiber links to provide the functionality of transport, multiplexing, routing, management, supervision, and survivability of optical channels carrying client signals. This optical transport network training will dive into the networking capabilities and the technology required to support them.

Enhance your knowledge and boost your professional qualifications with our comprehensive OTN Optical Transport Networks training course. Whether you're a seasoned optical transport network engineer or aspiring to earn an OTN certification, this training course is to provide an in-depth understanding of OTN technology.

What is an Optical Transport Network?

An optical transport network is a series of network elements connected using optical fiber links. It encompasses various optical transport network equipment roles and their functionalities, including transport, multiplexing, routing, and maintenance of optical channels.

Discover the latest developments and trends within the optical transport network market, understand what factors drive growth, and learn about new technologies on the horizon.

Dubai - UAE: +971 4 450 5697
Istanbul - Türkiye: +90 539 599 1206
Amman - Jordan: +962 79 712 3347

MERCURY

Targeted Groups:

- Network Engineers.
- Telecommunications Technicians.
- IT Professionals specializing in Networking.
- Telecommunications Service Providers.
- Systems Engineers.
- Technical Managers in Telecommunications.
- Infrastructure Engineers.
- Network Operations Center NOC Staff.
- Optical Network Planners and Designers.
- Transmission Network Engineers.
- Carrier Ethernet Engineers.
- R&D Engineers in Optical Networking.
- Field Service Technicians.
- Network Consultants.
- Technical Support Engineers.
- Solutions Architects in Telecommunications.
- Network Security Specialists.
- Fiber Optic Technicians.
- Project Managers in Network Deployment.
- Enterprise Network Administrators.

Course Objectives:

At the end of this OTN optical transport networks course, the participants will be able to:

- Understand the fundamental principles of Optical Transport Networks.
- Learn the architecture and components of OTN systems.
- Gain knowledge of OTN standards and protocols.
- Develop skills to design and implement OTN networks.
- Acquire proficiency in configuring and managing OTN equipment.
- Explore the latest advancements in OTN technology.
- Understand the principles of OTN network optimization and performance monitoring.
- Learn to troubleshoot and resolve common issues in OTN networks.
- Gain insights into the integration of OTN with other network technologies.
- Develop the ability to plan and execute OTN network upgrades and expansions.
- Understand the security considerations specific to OTN networks.
- Learn about the best practices for maintaining and operating OTN infrastructure.
- Gain practical experience through hands-on labs and simulations.
- Understand the economic and business aspects of deploying OTN networks.
- Acquire the skills to evaluate and select OTN products and solutions.

Dubai - UAE: +971 4 450 5697
Istanbul - Türkiye: +90 539 599 1206
Amman - Jordan: +962 79 712 3347

Targeted Competencies:

By the end of this OTN optical transport networks training, the participant's competencies will be able to:

- Proficiency in OTN architecture and design.
- Expertise in configuring OTN equipment.
- Skills in OTN network management.
- Ability to troubleshoot OTN networks.
- Know OTN standards and protocols.
- Understand OTN performance monitoring.
- Capability in OTN network optimization.
- Practical experience with OTN labs and simulations.
- Skills in integrating OTN with other technologies.
- Competence in planning OTN network upgrades.
- Understand OTN network security.
- Proficiency in maintaining OTN infrastructure.
- Expertise in evaluating OTN solutions.
- Know OTN deployment best practices.
- Ability to manage OTN project implementation.

Course Content:

Unit 1: Optical Transport Networks and Technologies OTNT:

- What is an Optical transport network OTN?
- Strategies for handling growth in packet-switched traffic.
- Packet-switched network based on multi-protocol label switching MPLS technology.
- Switching in the core network occurs on a packet basis at every node.
- A circuit-switched infrastructure based on an optical transport network OTN.
- Metropolitan Optical Network MON.

Dubai - UAE: +971 4 450 5697
Istanbul - Türkiye: +90 539 599 1206
Amman - Jordan: +962 79 712 3347

Unit 2: A Brief History of Optical Networking:

- Services, Transport, Framing, and Optical.
- Aggregation and Transport Technologies.
- Current Trends in Transport Networks.
- TDM Centric to Packet Centric Transport.
- Convergence of Packet and TDM Transport.
- SONET/SDH.
- DWDM and CWDM.
- First Gen DMDM Networks pre-OTN.
- Optical Ethernet.
- Resilient Packet Ring.
- A-PON, B-PON, G-PON, and E-PON.
- Optical Networking using wavelength-division multiplexing WDM.
- Interfaces for the optical transport network.
- Transport Architecture Evolution.
- Evolution of Transport Networks.
- MPLS, OTN, and DWDM.
- Optical OTN ROADM.
- Electrical OTN.
- PBB-TE.
- MPLS-TP.
- IP/MPLS.
- MPLS-TP is a transport-oriented packet aggregation technology.
- MPLS-TP Building Blocks and Network Architectures.

Unit 3: Transport Architecture Principles:

- Metro.
- Core.
- Switch Node.
- L3-services.
- L2-services.
- OTN, OC-x, and Eth.
- λ-service: Layer 0/1.
- Packet, OTN, and DWDM.

Dubai - UAE: +971 4 450 5697
Istanbul - Türkiye: +90 539 599 1206
Amman - Jordan: +962 79 712 3347

Unit 4: Basic Capabilities in OTN Networks:

- The OTN Approach.
- IP, OTN, and DWDM.
- Network View.
- Electrical: Client Mapping
- Connection Multiplexing.
- Grooming, Monitoring.
- OTN management.
- OTN protection.
- Protection/Restoration.
- Optical Layer.
- Add/Drop, Express, Protection/Restoration.
- Basic signal structure.
- OTN interface structure.
- Multiplexing/mapping principles and bit rates.
- Optical transport module.
- What is an Optical channel OCh?
- Optical channel transport unit.
- Optical channel data unit.
- Optical channel payload unit.
- OTM overhead signal OOS.
- Maintenance signals.
- Mapping of client signals.
- Concatenation.

Unit 5: Optical Transport Network OTN Basics:

- Information structure for OTN interfaces.
- Multiplexing/mapping principles and bit rates.
- Mapping.
- Wavelength division multiplex.
- Bit rates and capacity.
- ODUk time-division multiplex.
- OTN networking.
- OTN management.
- OTN protection.

Dubai - UAE: +971 4 450 5697
Istanbul - Türkiye: +90 539 599 1206
Amman - Jordan: +962 79 712 3347

Unit 6: Optical Transport Network OTN Architecture:

- Multi-Service Clients.
- SONET/SDH.
- GigE.
- Ethernet.
- SAN.
- Digital Domain.
- Interface for the optical transport network OTN.
- Optical Channel OCh.
- ITU G.694.1.
- Assoc OH.
- Optical Domain.
- Non-Assoc OH OSC.
- Optical Multiplex Section OMS.
- Optical Transport Section OTS.
- Architecture of optical transport networks.
- Network requirements and architectural framework of the Optical Transport Network Framing and Interfaces.
- Framing structure digital wrapper, overhead bytes.
- Multiplexing and payload mappings for all payload types.
- Optical transport network physical layer interfaces.
- Equipment Functions.
- Characteristics of optical transport network OTN equipment functional blocks.
- The control of jitter and wander within the
- Network Management.
- Management aspects of the optical transport network element.
- Optical transport network OTN protocol-neutral management information model for the network element view.
- Optical transport network OTN management information model.
- Generic framing procedure GFP.
- Link capacity adjustment scheme LCAS for virtual concatenated signals.
- Optical interfaces for intra-office systems.
- Standard equipment management function requirements.

Dubai - UAE: +971 4 450 5697
Istanbul - Türkiye: +90 539 599 1206
Amman - Jordan: +962 79 712 3347

- Characteristics of transport equipment - Description methodology and generic functionality.
- Automatic switched transport networks ASTN.
- Architecture for the automatically switched optical network ASON.
- SDH/SONET.
- IP-based services.
- Ethernet services.
- ATM services.
- Frame Relay services.
- Audio/Video services.

Unit 7: Convergence of Optical Transport Network OTN Layers:

- OTN Application.
- OTN.
- Switching.
- OTN Multiplexing.
- OTN DWDMTransport.
- Control and OAM&P.
- GMPLS.
- ASON.
- WSON.

Unit 8: Optical Transport Network OTN Rates:

- Signal.
- OTU1.
- OTU2.
- OTU2e.
- OTU3.
- OTU3e2.
- OTU4.

Dubai - UAE: +971 4 450 5697
Istanbul - Türkiye: +90 539 599 1206
Amman - Jordan: +962 79 712 3347

Unit 9: Optical Transport Networks Training - ODUk Rates:

- ODU0.
- ODU1.
- ODU2.
- ODU2e.
- ODU3.
- ODU3e2.
- ODU4.
- ODUflex CBR.

Dubai - UAE: +971 4 450 5697
Istanbul - Türkiye: +90 539 599 1206
Amman - Jordan: +962 79 712 3347

Unit 10: Optical transport module OTM-nm, OTM-nrm, OTM-m, OTM-mvn:

- OTM with reduced functionality OTM-m, OTM-nrm, and OTM-mvn.
- OTM with full functionality OTM-nm.
- Physical specification of the ONNI.
- OTM-m.
- OTM-nrm.
- OTM-nm.
- OTM-mvn.
- Optical channel OCh.
- OCh with full functionality OCh.
- OCh with reduced functionality OChr.
- Optical channel transport unit OTU.
- OTUk frame structure.
- Scrambling.

Unit 11: Optical channel data unit ODUk:

- ODUk frame structure.
- ODUk bit rates and bit-rate tolerances.
- Optical channel payload unit OPUk.
- OTM overhead signal OOS.

Dubai - UAE: +971 4 450 5697
Istanbul - Türkiye: +90 539 599 1206
Amman - Jordan: +962 79 712 3347

Unit 12: Optical Transport Networks Training - Overhead Description:

- Types of overhead.
- Trail trace identifier and access point identifier definition.
- OTS OH description.
- OMS OH description.
- OCh OH description.
- OTUk/ODUk frame alignment OH description.
- OTUk OH description.
- ODUk OH description.
- OPUk OH description.

Unit 13: Optical Transport Networks Training - Maintenance signals:

- OTS maintenance signals.
- OMS maintenance signals.
- OCh maintenance signals.
- OTUk maintenance signals.
- ODUk maintenance signals.
- Client maintenance signal.

Dubai - UAE: +971 4 450 5697
Istanbul - Türkiye: +90 539 599 1206
Amman - Jordan: +962 79 712 3347

Unit 14: Mapping of client signals:

- OPUk client signal fails CSF.
- Explore mapping of CBR2G, CBR10G, CBR10G3 and CBR0G signals into OPUk.
- Mapping of ATM cell stream into OPUk.
- Mapping of ATM cell stream into OPUk k=0,1,2,3.
- Know the mapping of GFP frames into OPUk k=0,1,2,3, flex.
- Mapping of a non-specific client bit stream into OPUk.
- Mapping of other constant bit-rate signals with justification into OPUk.
- Understand the mapping of a 1000BASE-X and FC-1200 signal via timing transparent transcoding into OPUk.
- Mapping a supra-2 CBR Gbit/s signal into OPUflex.
- FC-00 and FC-00.
- FC-100.
- Concatenation.
- Mapping ODUj signals into the ODTU signal and the ODTU into the HO OPUk tributary slots.
- OPUk tributary slot definition.
- ODTU definition.
- Multiplexing ODTU signals into the OPUk.
- OPUk multiplex overhead and ODTU justification overhead.
- Mapping ODUj into ODTUjk.
- Mapping of ODUj into ODTUkts.
- NE Internals.
- OTN DWDM Side.
- OTN Bandwidth Management.
- OTN Client Interfaces.

Dubai - UAE: +971 4 450 5697
Istanbul - Türkiye: +90 539 599 1206
Amman - Jordan: +962 79 712 3347

Unit 15: Optical Transport Network OTN Layers End-to-End View:

- OTS.
- OMS.
- OCh.
- OTU.
- ODU.
- Client Signal Mapping G.709.
- ODU Multiplexing Hierarchy.
- Tandem Connection Monitoring TCM.
- Segment Protection/Restoration.
- Control Plane in Optical Networks.
- New Developments.
- Auto-discovery of topology.
- Route computation.
- Point-and-click provisioning.
- Service Restoration.
- ODUflex.
- Tributary Slot Allocation.

Unit 16: MPLS/MPLS-TP OAM:

- MPLS/MPLS-TP protection switching.
- MPLS interworking.
- MPLS-TP network architecture.
- MPLS-TP equipment functional architecture.
- MPLS-TP equipment network management.
- MPLS-TP interface.