

# WDM & OTN

## Optical Transmission Technology in Practical Application

In practice, DWDM networks operate in the terabit range, but petabit/s are already being transmitted and optically switched in the laboratory. This is revolutionizing the world of the cloud and networks.

This course provides comprehensive practical knowledge on all aspects of optical technology, including current developments in research: from photonic basics to fiber optic types, connectors, optical amplifiers, OTDR measurements, DWDM, OTN and Fibre Channel to optical switching with ROADM, optical networks and their protection mechanisms.

### Course Contents

- Optical Transmission and Interfaces
- Optical Fibers: MMF, SMF, DSF, NZ-DSF, DCF
- Connectors and their Designs
- Attenuation, Dispersion, and Dispersion Correction
- Application of Optical Repeaters, such as EDFA, RAMAN
- Laser: Protection Classes and Operational Safety
- Optical Technologies: 10G/40G/100G-Ethernet, 8G/16/32G Fibre Channel/li>
- CWDM, DWDM, WWDM, and Application Scenarios
- OADMs, Optical Switches
- Optical Networks: Setup, Operation, Network Protection Mechanisms
- Vendor Overview: Who is responsible for which task?
- OTNs, Optical Transport Networks, for Protected Optical Transmission
- Exercises on network design, acceptance measurement, and troubleshooting

**E-Book** The detailed digital documentation package, consisting of an e-book and PDF, is included in the price of the course.

### Target Group

The **field service** learns about transceivers, connector types and differences between PC, UPC, APC, EDFAs, fiber optic types, OTDR measurements and spectrum assessments and a troubleshooting guide.

For **network operation** there are detailed explanations of optical windows (O, E, S, C, L, U), fiber types G.652, G.652D, G.694, G.655, Ultra Low Loss Fiber, DCF as well as SFP, QSFP, OSFP. Signal modulation from NRZ to QAM is explained and signal propagation times as well as attenuation (dB) and level (dBm) are calculated.

For **network management**, alarms and their causes are highlighted, the OTN error cascade and working with AIS, BDI are explained and a strategy for error containment is given.

For **network planners** there are calculations on optical budget, attenuation, span loss, dispersion and dispersion correction, optimization with fibre optics as well as network design and network protection.

### Prerequisites

A good knowledge of the Synchronous Digital Hierarchy - Networks, Alarms, Protection facilitates understanding. Basic knowledge of optical signal transmission is also helpful.

### This Course in the Web



You can find the up-to-date information and options for ordering under the following link:

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