

## Cisco Optical Technology Intermediate

**Duration: 4 Days    Course Code: OPT200    Version: 3.0    Delivery Method: Company Event**

### Overview:

The Cisco Optical Technology Intermediate (OPT200) v3.0 course is designed to provide you with the skills required to deploy the Cisco® Optical Networking System (ONS), 15454 Multiservice Transport Platform (MSTP), and Cisco Network Convergence System (NCS) 2000 Series Dense Wavelength-Division Multiplexing (DWDM) networks from installation to protection. Through a combination of lecture and hands-on experience, you will learn installation, configuration, circuit protection, maintenance, and basic troubleshooting using the Cisco Transport Controller for the Cisco ONS 15454 M6 and M12 shelves, and for the Cisco NCS 2016 shelf. You will review DWDM terminology and components, explore available chassis and cards, and discuss hardware installation. Learn to use the Cisco Transport Controller server software to connect to the nodes, perform network turn-up and circuit creation, and deploy linear and single-module ROADM (SMR) DWDM multiself topologies. Using this software, you will also configure Raman amplifiers and Any Rate cards, and configure protected and unprotected circuits. The course covers a variety of card options: controllers, transponders, multiplexer-demultiplexer, add/drop, Raman amplifiers, and Cisco Any Rate muxponder cards. You will use the various cards to configure terminal, amplifier, mesh, split, Optical Service Channel (OSC) regenerator, and Reconfigurable Optical Add/Drop Multiplexing (ROADM) nodes. Finally, you will learn how to use many of the tools and features available with the Cisco Transport Controller to perform maintenance, testing, and basic troubleshooting of your optical network.

#### This course will help you:

Deploy, maintain, test, and troubleshoot your optical network  
Explain Cisco DWDM platform basics, DWDM network topologies, and the Cisco DWDM network management software  
Expand and deepen your knowledge of optical networks and their maintenance  
Identify the uses of the Cisco Transport Controller  
Describe and utilize various optical network technologies

**This course is worth 24 Continuing Education (CE) Credits**

### Target Audience:

This course is for technical professionals who are responsible for installation, deployment and maintenance of the Cisco ONS 15454 MSTP and Cisco NCS 2000 Series networks. Network operations personnel, planners and designers can also benefit.

### Objectives:

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| <ul style="list-style-type: none"> <li>■ <b>After completing this course, you should be able to:</b></li> <li>■ Describe Cisco DWDM platform basics</li> <li>■ Describe DWDM network topologies</li> <li>■ Describe the management software used for managing Cisco DWDM networks</li> <li>■ List the different hardware components of the Cisco ONS and Cisco NCS DWDM systems</li> <li>■ Provision nodes and circuits in a Cisco DWDM network</li> </ul> | <ul style="list-style-type: none"> <li>■ Perform node and multiself configurations</li> <li>■ Implement SMR-based rings</li> <li>■ Provision optical circuit protection mechanisms</li> <li>■ Configure Any Rate cards</li> <li>■ Describe the function of Raman amplifiers</li> <li>■ Perform basic maintenance and troubleshooting of a Cisco DWDM network</li> </ul> |
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### Prerequisites:

**Attendees should meet the following prerequisites:**

- Basic knowledge of optical transport and protocols
- Basic knowledge of data network principles
- SPFNDU - Understanding Cisco Service Provider Network Foundations

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## Content:

### DWDM Optical Platform Foundation

- DWDM Terminology and Components
- Exploring DWDM Network Topologies
- Exploring DWDM Nodes
- Management Software and Documentation
- Using Functional View

### Chassis and Cards

- Investigating Chassis and Common Equipment
- Exploring Controller cards and the OSC
- Exploring Add/Drop (Multiplexers/Demultiplexers) Cards
- Exploring Transponder Cards
- Exploring Muxponder and Crossponder Cards
- Exploring Client Port Modules
- Exploring Amplified Cards
- Exploring Tunable Dispersion Compensator Cards, PSM Cards, and Passive Auxiliary Modules.

### Hardware Installation

- ONS 15454 MSTP Equipment to Rack-Mount
- ONS 15454 M12 Shelf Installation
- NCS 2000 Series Equipment to Rack-Mount
- ONS 15454 M6 Shelf Installation
- NCS 2015 Shelf Installation
- Intrashelf Fiber Connection

### Node Turn-Up and Circuit Creation

- Performing Node Turn-Up in CTC
- Creating OCHNC
- Creating an OCHCC Circuit

### Node and Multishelf Configurations

- Exploring DWDM Node Configurations
- Configuring Multishelf Nodes

### SMR-Based Rings

- 40-SMR1 and 40-SMR2 Cards
- 4-degree Mesh Using SMR2
- Viewing SMR-Based Ring Power Levels

### 10Gb Circuit Protection

- Exploring 10Gb Circuit Protection Options
- Investigating Client Protection with Two Signals
- Y-Cable Protection Options
- Configuring Circuit Protection with Protected Transponders
- Configuring Circuit Protection with PSMs

### Any Rate Card Configuration

- Introduction of the Any Rate Cards
- Exploring Any Rate MXP/XP Card Features
- Investigating Card Modes
- Provisioning a CTC AR\_XP Example

### Raman Amplifiers

- Raman Amplifier Cards
- Introducing the Raman Amplifier Theory of Operation
- Cabling the RAMAN -CTP and -COP Cards
- Connecting the Raman Nodes for Communication
- Examining Installation Requirements
- Executing the Raman Day 0 Tune Wizard

### Maintenance and Basic Troubleshooting

- Exploring Network Maintenance Features
- Exploring Node Maintenance Features
- Exploring Shelf Maintenance Features
- Exploring Card Maintenance and Performance Features
- Upgrading to Release 11.1.1
- Installing and Managing Licences
- Performing Basic Troubleshooting

### Lab Outline

- Lab 1: System Setup and Login
- Lab 2: Node Turn-Up
- Lab 3: Creating Direct Circuits (OCHNC)
- Lab 4: Creating Transponder Optical Client Circuits (OCHCC)
- Lab 5: Configuring an Amplified SMR Ring with Direct Circuits
- Lab 6: Installing 10Gb Transponder Cards with Y-Cable Protection
- Lab 7: Configuring Protection Switch Module (PSM) and Optical Transport Unit-2 (OTU-2) 10Gb Protection
- Lab 8: Configuring Any Rate Cards
- Lab 9: Configuring a Linear Topology with Raman Amplifiers
- Lab 10: Maintenance and Performance Monitoring
- Lab 11: MSTP Troubleshooting

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## Further Information:

For More information, or to book your course, please call us on 00 971 4 446 4987

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