

## Cisco NCS 2000 Deploying 96-Channel Flex Spectrum

**Duration: 3 Days**    **Course Code: OPT201**    **Version: 3.0**

### Overview:

The Cisco NCS 2000 Deploying 96-Channel Flex Spectrum course covers how to plan, configure and control optical networks using the Cisco Network Convergence System (NCS) 2000 Series Flex Spectrum platform. The course teaches you how to design Flex Spectrum networks with multi-degree Reconfigurable Optical Add-Drop Multiplexer (ROADM) multi-shelf nodes using the Cisco Transport Planner (CTP) software.

#### You'll learn how to:

- Install the Cisco NCS 2000 series hardware
- Configure an optical network and circuits using the Cisco Transport Controller (CTC) software
- Learn which components and configurations take advantage of and/or are required for the Flex Spectrum 96-channel feature
- Configure optical networks with multidegree ROADM multishelf nodes
- Configure optical networks with colorless, contentionless, omnidirectional, and MPO cross-connect advanced features
- Describe and configure the NCS 2000 400-Gbps Xponder line card

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

### Target Audience:

This course is designed for technical professionals who need to know how to deploy a Cisco NCS 2000 Series DWDM network with FlexSpectrum.

### 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 the hardware and components required and used with the Flex Spectrum feature</li> <li>■ Design optical networks in the Cisco Transport Planner software</li> <li>■ Install the hardware, including multishelf nodes</li> <li>■ Perform node turn-up and create circuits using the Cisco Transport Controller software</li> <li>■ Configure optical networks with multidegree ROADM multishelf nodes</li> </ul> | <ul style="list-style-type: none"> <li>■ Configure optical networks with colorless, contentionless, omnidirectional, and MPO cross-connect advanced features</li> <li>■ Describe and configure the NCS 2000 400-Gbps Xponder line card</li> <li>■ Add a node to an existing DWDM ring</li> <li>■ Describe the NCS 2000 Troubleshooting Guide</li> <li>■ Use the features and documentation with Transport Controller to perform maintenance, testing, and basic troubleshooting</li> </ul> |
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### Prerequisites:

**Attendees should meet the following prerequisites:**

- Completion of Cisco Optical Technology Intermediate Course

### Testing and Certification

**Recommended as preparation for the following exams:**

- **500-210** - SP Optical Technology Field Engineer Representative  
*Students should also review the NCS 2000 and NCS 4000 Technical Overview e-learning as well before taking this exam*

## Content:

### DWDM and Flex Spectrum Foundation

- Examining Terminology and Technology
- Introducing Flex Spectrum Features
- Introducing Network Topologies and Nodes
- Introducing the Management Software and Documentation

### NCS 2000 Chassis and Cards

- Investigating NCS 2000 Series Chassis and Common Equipment
- Investigating NCS 2000 Series Controller Cards
- Investigating NCS 2000 Transponders, Muxponders and Crossponders Cards
- Investigating NCS 2000 Pluggable Port Modules for Transponders
- Investigating NCS 2000 Add/Drop Multiplexers and Demultiplexers Cards
- Investigating NCS 2000 Amplifiers Cards
- Investigating NCS 2000 Passive Auxiliary Modules

### Design ROADM Networks with Transport Planner

- Getting Started with Transport Planner
- Using Transport Planner for Network Design
- Generating the Installation Package
- Designing a 2-degree ROADM Network

### Hardware Installation and Multishelf

- Installing NCS 2000 Series Hardware
- Configuring Multishelf Networks

### Node Turn-Up and Circuit Creation

- Performing Node Turn-Up in CTC
- Creating OCHNC Circuits
- Creating OCHCC Circuits
- Configuring 400G Cards

### Advanced Feature Networks and Circuits

- Creating Colorless and Contentionless Add/Drop Networks
- Creating Omnidirectional and Contentionless Add/Drop
- Creating Mesh Nodes with MPO Cross-Connects
- Verifying Installed Cabling Connections

### Testing, Maintenance and Basic Troubleshooting

- Testing OTDRS
- Maintaining the Network, Shelf and Cards
- Performing Basic Troubleshooting

### Spectrum Switched Optical Network

- Examining the Terminology and Technology
- Supported SSON Circuit Types
- Provisioning GMPLS Optical Channels Using SSON

### Labs

- Discovery Lab 1: Cisco Transport Controller
- Discovery Lab 2: Cisco Transport Planner
- Discovery Lab 3: Adding a Node to Existing DWDM Ring Network
- Discovery Lab 4: Optical Channel Network Connection (OCHNC) Circuits
- Discovery Lab 5: Optical Channel Client Connection (OCHCC) Circuits
- Discovery Lab 6: Creating 400-Gbps Xponder OTN Circuits
- Discovery Lab 7: Colorless Ports and Circuits
- Discovery Lab 8: Contentionless Circuits
- Discovery Lab 9: Performing the Optical Time Domain Reflectometer (OTDR) Test
- Discovery Lab 10: Maintenance and Performance Monitoring
- Discovery Lab 11: NCS 2000 Troubleshooting
- Discovery Lab 12: Configuring SSON Circuits

## Further Information:

For More information, or to book your course, please call us on 00 20 (0) 2 2269 1982 or 16142

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