Nokia Dense Wavelength Division Multiplexing (DWDM)

Amsterdam (Netherlands)

27 - 31 July 2026

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Code: GC32 From: 27 - 31 July 2026 City: Amsterdam (Netherlands) Fees: 5900 Pound

Introduction

Dense Wavelength Division Multiplexing DWDM remains a core technology in modern optical transport networks, enabling service providers and large enterprises to transmit massive volumes of data over a single optical fiber. As DWDM networks continue to expand in scale and operational complexity, maintaining service continuity, optical performance, and infrastructure reliability becomes a critical operational priority.

Nokia s Optical Transport portfolio led by the 1830 Photonic Service Switch PSS platform offers a robust, flexible, and programmable architecture that supports metro, regional, and long-haul networks. However, sustaining high availability in live production environments requires specialized expertise in fault isolation, preventive maintenance, optical performance management, and rapid service restoration.

This course delivers a maintenance-focused, hands-on approach to operating Nokia DWDM solutions. It emphasizes real operational workflows, common failure scenarios, hardware servicing, optical diagnostics, alarm handling, protection mechanisms, and performance optimization in active networks.

By the end of the program, participants will be able to confidently maintain, monitor, troubleshoot, and restore Nokia DWDM infrastructures, ensuring maximum uptime, service-level agreement compliance, and operational efficiency.

Course Objectives

Upon completion of this course, participants will be able to:

- Understand DWDM operational architecture and photonic layer behavior in live networks.
- Identify Nokia optical hardware components that require preventive and corrective maintenance.
- Perform routine health checks and optical performance validation.
- Administer wavelengths, transponders, and live optical services.
- Maintain optical amplification systems and power balancing.
- Implement and test protection and restoration mechanisms.
- Monitor optical key performance indicators and degradation trends.
- Troubleshoot optical-layer and hardware-related faults.
- Execute service restoration and emergency maintenance procedures.

Course Outlines

Day 1: DWDM Operational Fundamentals and Photonic Layer Maintenance

- Optical fiber transmission from an operational perspective.
- CWDM versus DWDM maintenance considerations.
- ITU wavelength grids and channel traceability.
- Optical spectrum analysis in live systems.

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- Overview of Nokia Optical Transport platforms.
- Identification of 1830 PSS hardware components.
- Photonic layer operational architecture.
- ROADM maintenance and routing diagnostics.
- Preventive inspection of optical shelves.

Day 2: Fault Management and Link Health Diagnostics

- DWDM network fault domains.
- Root causes of optical link failures.
- Operational validation of optical power budgets.
- Fiber bends and connector contamination issues.
- Use of optical time-domain reflectometers and power meters.
- Channel loss troubleshooting techniques.
- Span health verification.
- Maintenance differences between metro and long-haul networks.
- Escalation procedures and field intervention workflows.

Day 3: Hardware Maintenance and Service Handling

- Maintenance view of the 1830 PSS platform.
- Line card and control card servicing.
- Hot-swap versus cold-swap procedures.
- Fiber patching best practices.
- Optical power rebalancing.
- Transponder diagnostics.
- Impact on client services at different capacities.
- Data center interconnect maintenance procedures.
- Fault handling across integrated packet and optical networks.

Day 4: Amplification, Protection, and Performance Maintenance

- Optical amplifier maintenance and alarms.
- Raman amplification operations.
- Handling optical signal-to-noise ratio degradation.
- Power equalization techniques.
- Impact of dispersion on traffic performance.
- Protection schemes and redundancy models.
- Ring and mesh restoration mechanisms.
- Survivability testing.
- Capacity and spectral optimization.

Day 5: Monitoring, Troubleshooting, and Restoration Operations

- Nokia network management workflows.
- Alarm correlation and analysis.
- Optical performance indicator monitoring.
- Signal degradation detection.
- Fiber cut response procedures.

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- Wavelength conflict resolution.
- Power imbalance correction.
- Service outage restoration sequencing.
- Spare parts planning and readiness.
- Capstone troubleshooting exercise.

Why Attend This Course: Wins & Losses!

- Gain advanced expertise in maintaining Nokia DWDM networks.
- Reduce fault isolation and repair time.
- Improve network uptime and service-level agreement compliance.
- Build real-world troubleshooting capabilities.
- Develop strong optical performance degradation analysis skills.
- Enhance readiness for protection switching and restoration.
- Optimize optical amplification performance.
- Prevent outages through proactive maintenance practices.

Conclusion

The Nokia DWDM Maintenance and Operations course provides a comprehensive pathway to mastering the operational lifecycle of optical transport networks. Participants acquire the practical expertise needed to maintain, monitor, troubleshoot, and restore Nokia DWDM infrastructures in real production environments.

Mastering DWDM maintenance is no longer just a technical requirement it is a strategic necessity for ensuring resilient, high-capacity optical backbones that support today s digital services. This program equips professionals with the operational confidence and technical depth required to sustain reliable, scalable, and future-ready optical networks.

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