# Advanced Networking with CISCO Technologies Training Course



14 - 18 Dec 2026

Cape town

4600 € (Per Person)

Ref: #NO6460_264288

## Course Introduction / Overview:

This comprehensive training course is designed to provide IT professionals with the advanced networking skills required for modern enterprise environments using Cisco technologies. While many courses cover basic networking, this program is for those who are ready to take their expertise to the next level. We focus on advanced routing and switching concepts, network security implementation, and the emerging field of software-defined networking (SDN). Participants will learn how to configure and troubleshoot complex network infrastructures, ensuring high performance, security, and scalability. This curriculum is designed to prepare you for specialized networking roles and to serve as a strong foundation for various advanced Cisco certifications. Drawing on the foundational principles from renowned academic sources, such as the work of Professor James F. Kurose and his widely used textbook "Computer Networking: A Top-Down Approach," this program provides both theoretical depth and practical application. This specialized training at BIG BEN Training Center will equip you with the knowledge and hands-on experience to tackle the most demanding networking challenges.

## Target Audience / This training course is suitable for:

- Network engineers.
- Senior network administrators.
- IT infrastructure architects.
- System engineers.
- Network security specialists.
- DevOps and cloud engineers.
- Technical professionals preparing for advanced networking roles.

## Target Sectors and Industries:

- Telecommunications.
- Financial services.
- Enterprise IT departments.
- Managed service providers.
- Data centers.
- Government agencies and equivalents.
- Cloud computing.

## Target Organizations Departments:

- Network Operations Center (NOC).
- Network Engineering.
- Information Technology (IT).
- Cybersecurity.
- Infrastructure and Cloud Services.
- Technical Support.
- Systems Integration.

## Course Offerings:

By the end of this course, the participants will have able to:

- Implement and manage advanced routing protocols.
- Configure and troubleshoot complex switching environments.
- Secure network infrastructure using access control lists and firewalls.
- Utilize network automation tools for efficient management.
- Diagnose and resolve performance and availability issues.
- Explain the concepts of Software-Defined Networking (SDN).
- Master advanced configuration and maintenance of Cisco devices.

## Course Methodology:

This training course at BIG BEN Training Center uses a hands-on and immersive methodology. The program combines expert-led lectures with extensive lab exercises that simulate real-world enterprise network configurations. Participants will work with Cisco Packet Tracer and virtual labs to configure routers, switches, and firewalls. The course is structured around problem-solving scenarios that challenge you to apply advanced concepts to diagnose and resolve complex network issues. The instructor provides personalized feedback and guidance throughout the labs, ensuring that you not only understand the commands but also the underlying logic behind each configuration. This practical approach is essential for building the muscle memory and critical thinking skills required to excel in advanced networking roles.

# Course Agenda (Course Units):

## Unit One: Advanced IP Routing

- Advanced routing protocols (OSPF, EIGRP).
- Route summarization and redistribution.
- IPv6 routing and migration strategies.
- BGP fundamentals and design.
- Path control and route manipulation.
- Troubleshooting complex routing issues.
- Practical lab: BGP configuration.

## Unit Two: Enterprise Switching

- Advanced Spanning Tree Protocol (STP) features.
- EtherChannel and link aggregation.
- VLAN Trunking Protocol (VTP) best practices.
- Implementing and troubleshooting high availability.
- Switch security features.
- Quality of Service (QoS) implementation.
- Practical lab: configuring EtherChannel and VLANs.

## Unit Three: Network Security and Access Control

- Advanced firewall concepts and configuration.
- Implementing access control lists (ACLs).
- Virtual Private Networks (VPNs).
- Cisco IOS firewall features.
- Securing management plane access.
- Network security hardening.
- Case study: a network security audit.

## Unit Four: Network Automation and Programmability

- Introduction to network automation.
- Python scripting for network engineers.
- Using APIs to manage network devices.
- Understanding network programmability.
- Software-Defined Networking (SDN) concepts.
- Cisco DNA Center overview.
- Practical lab: automating device configuration.

## Unit Five: Troubleshooting and Final Project

- A systematic approach to network troubleshooting.
- Advanced diagnostic tools and commands.
- Analyzing network performance issues.
- Troubleshooting complex WAN and security problems.
- Developing a network maintenance plan.
- Final project: a comprehensive network design and troubleshooting scenario.
- The future of networking.
- Frequently Asked Questions:

# FAQ:

### Qualifications required for registering to this course?

There are no requirements.

### How long is each daily session, and what is the total number of training hours for the course?

This training course spans five days, with daily sessions ranging between 4 to 5 hours, including breaks and interactive activities, bringing the total duration to 20 - 25 training hours.

## Something to think about:

With the rapid evolution of network automation and AI-driven platforms, how can a network engineer ensure their specialized, hands-on skills remain a valuable and indispensable asset in the industry?

## What unique qualities does this course offer compared to other courses?

This course stands out by providing a high-level, specialized focus on Cisco networking technologies that are essential for career advancement. Unlike foundational courses, this program assumes a baseline of knowledge and dives deep into complex topics that are critical for enterprise-level networks. The curriculum is meticulously designed to provide not only theoretical knowledge but also the hands-on practice needed to configure and troubleshoot multi-layered network issues. The use of practical labs and real-world case studies ensures that participants can immediately apply what they have learned. This course is for professionals who are serious about their career in networking. It offers specialized knowledge and skills to become an expert, not just a practitioner, in a competitive field.