Modern Computer Networking Fundamentals & Applications Training Course



14 - 18 Dec 2026

Cairo

3700 € (Per Person)

Ref: #NO3525_264237

Course Introduction / Overview:

This comprehensive training course is designed to provide a solid foundation in modern computer networking. In an increasingly connected world, a deep understanding of networking principles is essential for IT professionals, developers, and anyone involved in technology. This course goes beyond basic concepts, exploring the core components, protocols, and architectures that underpin today's digital landscape. Participants will learn about the TCP/IP model, routing and switching, network security, and wireless technologies. We will also cover emerging trends like cloud networking, virtualization, and the Internet of Things (IoT). The curriculum is based on foundational knowledge, drawing from the work of renowned academics such as Andrew S. Tanenbaum and his classic textbook "Computer Networks." This program, offered by BIG BEN Training Center, combines theoretical knowledge with practical, hands-on application to ensure a complete understanding. By the end of this course, you will have a clear grasp of how networks function, from the physical layer up to the application layer. This will enable you to troubleshoot issues, design simple network solutions, and communicate effectively with network specialists, preparing you for a wide range of roles in the technology sector.

Target Audience / This training course is suitable for:

- IT support technicians.
- System administrators.
- Entry-level network engineers.
- Software developers.
- Cloud professionals.
- Cybersecurity analysts.
- Anyone new to the field of information technology.

Target Sectors and Industries:

- Information Technology (IT) and software development.
- Telecommunications.
- Financial services.
- E-commerce.
- Healthcare.
- Government agencies and defense.
- Education.

Target Organizations Departments:

- IT and Network Operations.
- Technical Support.
- System Administration.
- Software Development.
- Cybersecurity.
- Infrastructure and Cloud Services.
- Customer Service.

Course Offerings:

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

- Explain the core concepts and models of computer networking.
- Configure and troubleshoot basic network devices like routers and switches.
- Understand the TCP/IP model and its protocols.
- Secure a network using firewalls and access control lists.
- Implement a simple wireless network.
- Explain how IP addressing and subnetting work.
- Identify and resolve common network issues.

Course Methodology:

This training course at BIG BEN Training Center uses a balanced methodology that combines instructor-led sessions with hands-on, practical labs. The goal is to provide a comprehensive learning experience that moves from theory to application. The course includes interactive discussions and exercises to reinforce key concepts. Participants will work with network simulation tools to configure virtual routers and switches, giving them a safe environment to practice and troubleshoot. Case studies will be used to illustrate real-world networking problems and their solutions. The instructor will provide one-on-one guidance and feedback during labs to ensure every participant fully grasp the material. This approach is designed to make complex networking concepts easy to understand, providing a solid foundation that participants can build upon throughout their careers.

Course Agenda (Course Units):

Unit One: Introduction to Networking

- What is a network?
- The OSI model and the TCP/IP model.
- Network topologies and architecture.
- Types of networks (LAN, WAN, MAN).
- Network components (hubs, switches, routers).
- Network cables and connectors.
- The role of protocols.

Unit Two: IP Addressing and Subnetting

- IP addresses and their classes.
- The difference between IPv4 and IPv6.
- Understanding subnet masks and subnetting.
- Calculating network addresses and broadcast addresses.
- Introduction to DHCP and DNS.
- Configuring basic IP settings.
- Practical lab: subnetting exercises.

Unit Three: Routing and Switching

- The role of a router.
- Static vs. dynamic routing.
- Introduction to routing protocols.
- The function of a switch.
- MAC addresses and the ARP protocol.
- VLANs and their use.
- Practical lab: basic routing and switching configuration.

Unit Four: Network Security and Fundamentals

- Introduction to network security.
- The role of firewalls.
- Access control lists (ACLs).
- Virtual Private Networks (VPNs).
- Types of cyber threats.
- Securing a wireless network.
- Implementing a basic security policy.

Unit Five: Wireless, Cloud, and Future Trends

- How wireless networks work.
- Wireless standards (802.11).
- Configuring a wireless access point.
- Introduction to cloud networking.
- Network virtualization.
- The Internet of Things (IoT).
- Future trends in 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:

In an era of increasing network complexity and automation, how can foundational knowledge of networking protocols remain relevant and critical for modern IT professionals?

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

This course provides a unique balance of foundational theory and practical, hands-on application. Unlike many online tutorials that focus on a single tool or technology, this program provides a comprehensive understanding of core networking principles from the ground up. The curriculum is designed to be accessible to absolute beginners, while also providing a solid review for those with some prior knowledge. The course emphasizes the "why" behind networking concepts, not just the "how," allowing participants to develop true problem-solving skills rather than just memorizing commands. The use of a virtual lab environment ensures that every participant gets valuable practice configuring and troubleshooting networks in a safe and controlled setting. This program is an ideal starting point for anyone looking to build a career in IT, providing the essential knowledge needed to advance in a wide range of technical roles.