Computer Networking Fundamentals Training Course



07 - 11 Dec 2026

Cape town

4600 € (Per Person)

Ref: #NO1639_255240

Course Introduction / Overview:

This comprehensive training course is designed to provide individuals with a foundational understanding of computer networking. It is the perfect starting point for those new to the IT field or for professionals in other disciplines who need to grasp the core concepts of how networks function. The course covers everything from the physical components that make up a network, like cables and routers, to the logical protocols that govern how data travels, such as TCP/IP. We will demystify complex topics like IP addressing, subnetting, and the OSI model using clear, practical examples. The curriculum is built to be accessible to beginners while providing a solid base for future specialized study in fields like network administration or cybersecurity. Drawing from foundational academic texts like "Computer Networks: A Systems Approach" by Larry L. Peterson and Bruce S. Davie, this program provides a solid mix of theory and hands-on practice. This course at BIG BEN Training Center will prepare you to manage and troubleshoot networks effectively.

Target Audience / This training course is suitable for:

- Individuals new to information technology.
- Entry-level IT technicians.
- Help desk support staff.
- Aspiring network administrators.
- Professionals in non-IT roles who work with networks.
- Students pursuing a career in technology.
- Anyone seeking a foundational understanding of networking.

Target Sectors and Industries:

- Information Technology.
- Telecommunications.
- Managed IT services.
- Retail and e-commerce.
- Small and medium-sized businesses.
- Government agencies and equivalents.
- Education.

Target Organizations Departments:

- Information Technology (IT).
- Help Desk Support.
- Technical Support.
- Systems Administration.
- Operations.
- Customer Service.
- IT Infrastructure.

Course Offerings:

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

- Explain fundamental networking concepts and terminology.
- Understand the OSI and TCP/IP models.
- Configure basic network devices like routers and switches.
- Identify and troubleshoot common network problems.
- Apply IP addressing schemes and subnetting.
- Recognize different network topologies and their uses.
- Explain network security principles for beginners.

Course Methodology:

This training course at BIG BEN Training Center uses a hands-on, interactive, and beginner-friendly methodology. The program combines instructor-led presentations with practical lab exercises designed to build confidence and reinforce concepts. You will work with network simulation software to build and test your own small-scale networks, gaining practical experience without needing physical equipment. The course encourages teamwork and group problem-solving through case studies and troubleshooting scenarios. The instructor provides personalized feedback and is available to answer questions, ensuring that every participant, regardless of their background, can master the material. This approach ensures that you will not only learn the theory of networking but also develop the practical skills to apply your knowledge in a real-world environment.

Course Agenda (Course Units):

Unit One: Introduction to Networking Concepts

- What is a network?
- Network types and topologies.
- Network devices and their functions.
- The OSI and TCP/IP models.
- Data transmission and encapsulation.
- Network media and cabling.
- Career paths in networking.

Unit Two: The Basics of IP Addressing

- Introduction to IP addresses.
- IPv4 addressing and classes.
- Subnetting for network segmentation.
- Private vs. public IP addresses.
- Understanding network addresses and broadcast addresses.
- Introduction to IPv6.
- Practical lab: IP addressing and subnetting.

Unit Three: Network Protocols and Services

- The role of protocols in a network.
- TCP vs. UDP.
- Key application layer protocols (HTTP, DNS, DHCP).
- Understanding DNS and its importance.
- How DHCP assigns IP addresses.
- Network address translation (NAT).
- How the network services work together.

Unit Four: Network Devices and Configuration

- Introduction to command-line interface (CLI).
- Basic router and switch configuration.
- Connecting devices to a network.
- Understanding the boot process of a device.
- Saving and managing device configuration files.
- Troubleshooting physical layer issues.
- Practical lab: configuring a simple network.

Unit Five: Troubleshooting and Network Security Fundamentals

- A systematic approach to troubleshooting.
- Using basic network commands (ping, tracert, ipconfig).
- Common network problems and their solutions.
- Fundamentals of network security.
- Introduction to firewalls and access control lists.
- Why network security is important.
- Final project: a troubleshooting scenario.

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:

Given that the Internet is a vast, decentralized network, how do the foundational principles of a small, local area network scale to manage data and communication on a global scale?

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

This course stands out by providing a uniquely comprehensive and accessible entry point into the world of computer networking. Unlike many beginner courses that can feel overly theoretical, this program focuses on building a practical and intuitive understanding of how networks actually work. The curriculum is specifically designed for a wide range of learners, from students to career-changers, and it uses simple language and analogies to demystify complex concepts. Our hands-on lab exercises and simulated environments allow participants to apply their knowledge immediately, cementing their understanding in a way that is not possible with lecture-only formats. This course is for anyone who wants a solid foundation in networking, whether their goal is to start a career in IT or to simply gain a deeper understanding of the technology that powers their daily life.