COMPTIA IT FUNDAMENTALS & PREPARATION

GENTEX®
TRAINING CENTER

GENTEX Training Center LLC | Orlando - FL, USA
Info@gentextraining.com

Introduction

CompTIA IT Fundamentals & Preparation Training Course gives participants the networking foundation that modern IT roles assume. Learners work through network models, addressing, infrastructure devices, operations, and security across a structured three-week sequence. The program combines concept teaching with hands-on configuration, monitoring, and troubleshooting practice. As a result, participants gain the working knowledge that supports CompTIA-aligned study and day-to-day IT support. Furthermore, the course strengthens diagnostic reasoning, security awareness, and confidence with the technologies that connect systems.

CompTIA IT Fundamentals & Preparation Course Objectives

- Explain the OSI and TCP/IP models and how data moves between layers.
- Configure IPv4 and IPv6 addressing, subnetting, NAT, and public versus private ranges.
- Identify network devices including routers, switches, firewalls, and access points.
- Describe cabling types, wireless standards, and physical connectivity requirements.
- Use monitoring tools including SNMP and Syslog for network visibility.
- Apply configuration management and backup practice to network equipment.
- Implement network security with firewalls, VPNs, IDS/IPS, and access control.
- Troubleshoot common connectivity, wireless, and performance problems systematically.
- Explain VLANs, cloud networking, and software-defined networking (SDN) concepts.
- Describe virtualization, cloud models, and emerging trends such as IoT and SD-WAN.

Course Methodology

- Instructor-led sessions with structured concept demonstrations.

GENTEX®
TRAINING CENTER

- Hands-on labs on addressing, subnetting, and device configuration.
- Group exercises on troubleshooting scenarios and root cause reasoning.
- Practice with monitoring tools, backup routines, and security configuration.
- Simulation of connectivity failures and wireless performance issues.
- Facilitator feedback and peer review on lab work and exam preparation.

Who Should Take This Course

- IT support technicians and help desk staff.
- Network administrators beginning their technical path.
- Professionals preparing for CompTIA-aligned certification study.
- Systems administrators expanding into networking duties.
- Technical staff supporting small and medium networks.
- Career changers entering IT infrastructure roles.

CompTIA IT Fundamentals & Preparation Course Outlines

Week 1: Networking Concepts, Addressing, and Infrastructure

- The OSI model: seven layers and their functions.
- The TCP/IP model and how it maps to OSI.
- Encapsulation and how data travels across a network.
- Common ports and protocols including HTTP, HTTPS, DNS, DHCP, and SMTP.
- Network types: LAN, WAN, and MAN characteristics.

- Network devices: routers, switches, hubs, and firewalls.
- Access points, wireless controllers, and network topologies.
- Cabling types: twisted pair, fibre, and coaxial.
- Wireless standards including Wi-Fi generations and frequency bands.
- IPv4 addressing, classes, and public versus private ranges.
- Subnetting fundamentals and subnet mask calculation.
- NAT, IPv6 addressing, and transition considerations.
- Lab: planning an IPv4 addressing scheme for a small network.

Week 2: Network Operations, Security, and Access Control

- Monitoring with SNMP and log collection with Syslog.
- Performance baselines and alerting thresholds.
- Configuration management and change documentation.
- Backup and restore practice for network device configurations.
- Firmware updates and device lifecycle management.
- Documentation standards, diagrams, and asset registers.
- Firewalls: packet filtering, stateful inspection, and next-generation features.
- Virtual private networks (VPNs) and secure remote access.
- Intrusion detection and prevention systems (IDS/IPS).
- Wireless security: WPA2 and WPA3, authentication, and rogue access points.
- Access control models, authentication, and least privilege.
- Network segmentation with VLANs and DMZs.
- Lab: hardening a wireless network configuration and setting up SNMP monitoring.

Week 3: Troubleshooting, Cloud, Virtualization, and Emerging Trends

- Structured troubleshooting methodology and root cause reasoning.
- Common connectivity problems and their typical causes.
- Wireless interference, coverage, and performance issues.
- Network performance diagnosis with ping, traceroute, and packet capture basics.
- Virtualization concepts and virtual network design.
- Cloud service models: IaaS, PaaS, and SaaS.
- Cloud networking, VPN integration, and hybrid connectivity.
- Software-defined networking (SDN) and network programmability.
- Emerging trends: IoT connectivity, SD-WAN, and network automation.
- Network management tools and centralised administration.
- Exam preparation strategy and practice questions.
- Capstone: presenting a troubleshooting and improvement plan.

Conclusion

By successfully completing CompTIA IT Fundamentals & Preparation Training, participants will gain a practical command of networking concepts, addressing, infrastructure, operations, and security. They will acquire skills in subnetting, device configuration, monitoring, troubleshooting, and access control that support CompTIA-aligned study and real IT work. Gentex Training Center designs the program to help participants build a solid networking foundation and prepare confidently for further certification.

GENTEX Training Center LLC | Orlando - FL, USA
Info@gentextraining.com

FAQs

Q1 What is the "CompTIA IT Fundamentals & Preparation Training" course about?

It builds the networking foundation that IT roles require, following the CompTIA-aligned scope. The course covers OSI and TCP/IP models, IP addressing and subnetting, network devices and cabling, monitoring and operations, security controls, and structured troubleshooting.

Q2 What are the key benefits of the "CompTIA IT Fundamentals & Preparation Training" course?

You gain working knowledge that supports both certification study and daily IT support. The course improves addressing and subnetting confidence, strengthens troubleshooting reasoning, raises security awareness, and builds familiarity with monitoring and configuration management practice.

Q3 What skills will I gain from the "CompTIA IT Fundamentals & Preparation Training" course?

You will develop four core skills: networking concepts and protocol understanding, IP addressing and subnetting, network operations and monitoring, and network security with structured troubleshooting.

Q4 What tools, methods, or standards are covered in the "CompTIA IT Fundamentals & Preparation Training" course?

The course covers the OSI and TCP/IP models, IPv4 and IPv6 addressing, subnetting and NAT, routers, switches, firewalls, and access points, twisted pair and fibre cabling, Wi-Fi standards including WPA2 and WPA3, SNMP and Syslog monitoring, configuration management and backups, VPNs, IDS/IPS, VLANs and DMZs, virtualization and cloud service models, software-defined networking (SDN), IoT connectivity, and SD-WAN.

Q5 How is the "CompTIA IT Fundamentals & Preparation Training" course applied in real-world practice?

Participants apply it to real work such as planning a subnet scheme for an office, configuring a wireless network securely, setting up SNMP monitoring, and diagnosing a connectivity failure layer by layer. The same methods support device backup routines, documentation standards, and network improvement planning.