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## Understanding Networking Fundamentals

**Duration: 5 Days**    **Course Code: GK3150**

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### Overview:

Build a foundation of networking knowledge in a real-world, multi-vendor environment!

A strong foundation of basic networking concepts is fundamental to a successful career in information technology. Networking technologies underly all IT activities and a strong comprehension of the hardware and protocols used to create networks is essential to future success.

In this broad-based foundational course, you will move step-by-step through the basics of data networking, practicing with leading-edge technologies from Cisco, Microsoft and other vendors. You will gain practical skills in IP address configuration of a workstation, identifying and calculating appropriate subnet masks, examining and manipulating address resolution protocol (ARP) and domain name system (DNS) caches on a workstation, using ping to verify connectivity, basic wireless router configuration, and the simple use of a protocol analyzer to examine local area network (LAN) communications.

With a strong foundation and an understanding of basic network functions, standards, and protocols, you will be prepared to tackle advanced networking skills, including Transmission Control Protocol/Internet Protocol (TCP/IP), security, wireless integration, and Voice over Internet Protocol (VoIP).

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### Target Audience:

New IT professionals who want to learn the basics of a structured, layered approach to networking, including the fundamentals of network hardware and components, network protocols, IP addressing and subnetting, and various tools used in network monitoring and troubleshooting. Ideal candidates include: Entry-level and newly hired technical professionals, including PC support, help desk, and networking professionals Sales and marketing professionals looking to increase their ability to communicate with technical professionals and increase sales Technical professionals looking to strengthen core skill before pursuing advanced topics and certifications

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### Objectives:

■ **During this course you will learn:**

- The basics of layered network protocols and compare the two primary reference models: OSI and TCP/IP
- How to inspect a structured cabling system, including the proper use and installation of UTP and fiber optic cables
- How to configure a workstation to connect to a network
- Ethernet operations and the use of VLANs by examining the configuration and operation of switches on a network
- The operation of various TCP/IP protocols on a network, including connectionless and connection-oriented communications using UDP and TCP, translation between private and public addresses using NAT, and support protocols such as ARP, DNS, and DHCP
- How to configure a Wi-Fi router for operation on a SOHO network, including security, SSID, and Wi-Fi channel
- The Various IP addressing considerations, including binary to decimal conversion, dotted decimal notation, classful vs. classless addressing, private vs. public addresses, and the use of network masking
- Spanning Tree operation as a method of eliminating broadcast storms on a switched network
- How to create a subnet for a small network, selecting the correct masks for various situations to accommodate the current number of hosts in each subnet and to also allow for future growth
- Router configurations to determine the function of various routing protocols, including RIP, IGRP, and OSPF, within and between networks
- Various WAN technologies, including circuit switched solutions such as leased lines and packet switched solutions such as Carrier Ethernet, and determine the best WAN connectivity solution for a given corporate network
- How to use a protocol analyzer to capture and view network traffic, including e-mail, instant message exchanges, and web transactions
- The basic network security implementations by testing the impact a router that has been configured as a firewall has on the flow of traffic through a network
- Research the suitability of popular anti-malware suites for mitigating network security threats
- Research Mobile Device Management (MDM) solutions to support BYOD deployments

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## Prerequisites:

There are no prerequisites for this course.

## Testing and Certification

This course prepares delegates for the CompTIA Network+ exam.

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## Follow-on-Courses:

- Mastering TCP/IP (GK-9055)
  - Interconnecting Cisco Network Devices (ICND1) or CCNA Fast Track Programme (CCNABC)
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## Content:

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|---|------------------------|-----------------------|
| ■ Networking Basics                     | ■ IP Addressing Issues | ■ Wireless Networking |
| ■ Networking Standards                  | ■ TCP/IP Protocols     | ■ WAN Overview        |
| ■ Microsoft, Unix, and Linux Networking | ■ Switching            | ■ WAN Services        |
| ■ Network Cabling Systems               | ■ Routing              | ■ The Internet        |
| ■ Ethernet Overview                     | ■ Network Security     |                       |
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## Further Information:

For More information, or to book your course, please call us on Head Office 01189 123456 / Northern Office 0113 242 5931

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