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## Understanding Networking Fundamentals

**Duration: 5 Days**    **Course Code: GK3150**    **Delivery Method: Virtual Learning**

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### Overview:

A strong foundation of basic networking concepts is fundamental to a successful career in information technology. Networking technologies underlie all IT activities and a strong comprehension of the hardware and protocols used to create networks is essential to future success. In this course, you will learn how to configure a workstation to connect to a network, analyze network traffic using a protocol analyzer, examine switch and router configurations, perform basic IPv4 addressing and subnetting, and research network security solutions. You will gain an understanding of basic network functions, standards, and protocols, to prepare you to tackle advanced networking skills.

### Virtual Learning

This interactive training can be taken from any location, your office or home and is delivered by a trainer. This training does not have any delegates in the class with the instructor, since all delegates are virtually connected. Virtual delegates do not travel to this course, Global Knowledge will send you all the information needed before the start of the course and you can test the logins.

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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:

- After completing this course, you will be able to:
- Basics of layered network protocols and compare the two primary reference models: OSI and TCP/IP
- Inspect a structured cabling system, including the proper use and installation of UTP and fiber optic cables
- 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
- Spanning Tree operation as a method of eliminating broadcast storms on a switched network
- Configure a Wi-Fi router for operation on a SOHO network, including security, SSID, and Wi-Fi channel
- 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
- 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
- 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
- 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
- Use a protocol analyzer to capture and view network traffic, including e-mail, instant message exchanges, and web transactions
- 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 is no prerequisite for attending this course.

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## Content:

### Course Content

- Introduction to Networking
- Network Standards
- Physical Network Connections
- Ethernet LANs
- Ethernet Switching
- Wireless LANs
- IP Addressing
- IPv4 Subnetting
- TCP and UDP
- Support and Management Protocols
- Routing
- Wide Area Networks
- Communications Protocols
- Web Protocols
- Network Security
- Emerging Networking Technologies

### Labs

- Lab 1: Connect and Configure a Workstation
- Lab 2: Protocol Analysis with Wireshark
- Lab 3: Examine Current Switch Configurations
- Lab:4 Examine Spanning Tree
- Lab 5: Configure a Wi-Fi Router
- Lab 6: IPv4 Addressing Considerations
- Lab 7: Create a Subnet Plan for a Small Network
- Lab 8: Examine Support Protocols
- Lab 9: Examine Router Configurations
- Lab 10: Recognize Application of Different WAN Technologies
- Lab 11: Examine an E-Mail Message with Wireshark
- Lab 12: Examine an Instant Message Exchange with Wireshark
- Lab 13: Examine a Web Transaction with Wireshark
- Lab 14: Test Firewall
- Lab 15: Research Anti-Malware

### Lab 16: Research MDM Software

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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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