



## ***NETWORKING PRINCIPLES***

4 day course: 9.30am – 5pm

This comprehensive networking course is designed to provide learners with the fundamental knowledge of networking concepts. It also acts as a stepping stone towards the Microsoft Technology Associate (MTA) certificate, a new industry standard which underpins your career as an IT professional.

### **INTRODUCTION TO NETWORKING**

- Logical and Physical Networks
- Local Area Networks
- Wide Area Networks
- Workgroups and Domains

### **NETWORKING COMPONENTS**

- Unicast, Broadcast, Multicast traffic
- Network Hardware
  - Hubs, Switches, Bridges
  - Routers, Firewalls
  - Cables
- Protocols and Services
  - Understanding basic topologies

### **THE OSI MODEL**

- Understanding the OSI model

### **TCP/IP PROTOCOLS**

- Understanding TCP and UDP
- Common Protocols, including:
  - Address Resolution Protocol (ARP)
  - Hypertext Transfer Protocol (HTTP)
  - File Transfer Protocol (FTP)
  - Secure Sockets Layer (SSL)
  - Simple Mail Transfer Protocol (SMTP)
  - Post Office Protocol (POP)
- Understanding Ports
  - Controlling Port Traffic with a Firewall

### **UNDERSTANDING IP ADDRESSING**

- IPv4 Components
  - The Network ID and Host ID of an IP Address
  - Default Gateway
  - Local and Remote Addresses
  - Reserved IP ranges
- IPv4 Addresses in Binary
  - Understanding the Bits of an IP address
  - Masking the Address
- Subnetting an IPv4 Address
- Manual and Automatic Assignment
  - Manually Configuring IPv4
  - Using DHCP
- Understanding IPv6

### **CONNECTING COMPUTERS TO A NETWORK**

- Cable types
- Comparing Hubs and Switches
- Transmission Speeds
- Understanding Routers
- Connecting Multiple Networks
- Network Address Translation (NAT)

### **NAME RESOLUTION**

- Host Names
- NetBIOS Names
- Domain Name System (DNS)
- The Steps in Name Resolution

### **NETWORK SECURITY ZONES**

- Proxy Servers
- Firewalls

### **WIRELESS NETWORKING**

- Wireless Components
- Wireless Access Points
- Comparing Networking Standards
- Network Security Methods
  - Wired Equivalent Privacy (WEP)
  - Wi-Fi Protected Access (WPA)
  - WPA2

### **WIDE AREA NETWORKS**

- Dial-up Connections
- DSL and Broadband
- Satellite
- ISDN
- T1 and T3

### **TROUBLESHOOTING TCP/IP**

- Checking TCP/IP Configuration with **ipconfig**
- Using **ping**
- Using **tracert**
- Using **netstat**
- Using **Telnet**



## ***ASSUMED KNOWLEDGE:***

Delegates attending this course should be familiar with providing basic PC support to others. They should be familiar with managing a computer by installing software, connecting a printer and peripheral devices, using the Control Panel in Windows, and have at least intermediate level knowledge of Microsoft Office.

## ***THIS COURSE PREPARES YOU FOR:***

- *Microsoft MTA: Networking Fundamentals exam 98-366*
- *ICT Professional Competence (PROCOM) Diploma: Networking Principles (Level 3)*
- *Certificate in ICT Systems and Principles: Networking Principles (Level 3)*