

Course Outline

A+ (Hardware/SOFTWARE)

Duration: 7 days (42 hours)



Learning Objectives:

- Install and configure PC hardware and system components
- Understand the basics of peripherals and local area networking
- Support and troubleshoot PC hardware, software and peripherals
- Have a good understanding of customer service techniques
- Partition and format hard disk drives
- Install and configure Windows 98, Me, 2000 and XP
- Create, configure and use network and Internet connections
- Support and troubleshoot operating systems and applications

Target Audience:

This is the essential foundation course for newcomers to PC support and provides students with the necessary training to ensure proficiency in PC installation, troubleshooting skills, software installation and support skills

Prerequisites:

- Are you able to use a keyboard and mouse?
- Can you recognize the main components of a PC and different data media such as floppy disks, CD-ROM, etc?
- Do you understand DOS file naming conventions and directory structures?
- Are you familiar with Windows and Windows applications?
- Can you use Windows File Manager or Explorer to create directories and sub-directories; and move, copy or rename files and directories?
- Can you use the DOS DIR, COPY, REN, DEL, MD, CD and RD commands?
- Can you use the DOS editor to create text and batch files?

Topics Covered:

- Hardware basics
- PC Functions and Components
 - Introduction to the PC
 - Key Functions of a PC
 - The System Case
 - The Motherboard
 - CPU/MCP
 - Clock

- Memory
- I/O Expansion Bus
- Speaker
- I/O Ports and Cables
- PS2 Ports
- Parallel Ports
- Serial Ports
- USB Ports
- SCSI
- Network Ports
- Audio Ports
- IrDA Ports
- Parallel Ports
- Serial Ports
- USB Ports
- SCSI
- Network Ports
- Audio Ports
- IrDA Ports
- Wireless Ports
- Joystick/MIDI Ports
- Adapter Cards
- Storage Devices
- Hard Drives
- Floppy Drives
- Optical Disk Storage
- Power Supply Unit (PSU)
- The Display Subsystem
- Modem Types
- Tools and Equipment
 - Maintenance Toolkit
- System Configuration
- BIOS
 - The Function of BIOS
 - BIOS Services
 - BIOS Components
 - BIOS Upgrades
 - Bios CMOS
 - Memory and Battery
- BIOS/CMOS Settings
 - BIOS/CMOS Setup Programs
- System Resources
 - What are System Resources ?
 - Interrupt Request Line (IRQ)

- Direct Memory Access (DMA)
- I/O Addresses (Ports)
- Memory Addresses
- Determining Resources in Use
- Resource Conflicts
- Setting System Resources
- Plug-and-Play
- Installing Driver Software
- Safety and preventative maintenance
- Cleaning and Preventative maintenance
 - Introduction
 - Computer Case Maintenance
 - Cleaning a Mouse
 - Cleaning a Monitor
 - Cleaning a Keyboard
 - Cleaning Drive Heads
 - Cleaning Power Supplies and Fans
- Environmental Issues
 - Power Problems
 - Dealing with Power Problem
 - Uninterruptible Power Supplies
 - Storage of Components for Future Use
- High Voltage Equipment
 - CRT Servicing and Handling
 - Lasers and High-Power Light Sources
 - High Voltage Equipment
- Disposal and Handling
 - Materials Handling
 - Disposal of Consumables and Computer Equipment
- ESD
 - Static Electricity and the Human Body
 - Static Electricity and Semiconductors
 - ESD
 - Packaging
 - Personal Anti-static Methods
 - Other ways of Controlling ESD
- Installing, upgrading and troubleshooting
- Field Replaceable Units
 - Disassembling a PC
 - Input Devices
 - Storage Devices
 - Reassembling the PC
 - Portable computer field replaceable units
- IDE Devices

- Bus Standards
- Printers
- Printer Types
 - Dot Matrix Printers
 - Inkjet Printers
 - Other printer types
- Printer Connections, Configurations and Troubleshooting
 - Printer Technologies
 - Printer Connections
 - Configuring Printer Drivers
 - General Troubleshooting
- Portable Computers
 - Differences Between a Laptop and a Standard PC
 - Problems with Laptops
 - Personal Digital Assistants (PDAs)
- Networking
- Network Concepts
 - Basic LAN Concepts
 - Uses and Benefits of a LAN
 - Types of LAN
 - LAN Topologies
 - LAN Communications
 - Extending the LAN
 - Wide Area Networks
 - Wireless networks
- Network Cabling
 - Networked PCs
 - Network Cards and Cables
 - Network Connectors
 - Network Adapter Cards
- Networking Standards
 - The OSI Model
 - 802 Standards
 - Frame Types
 - Protocols
 - Overview of transport protocols
- Customer service techniques
- Customer Service Techniques
 - Customer Service Skills
 - Basic Approach
 - Customer Guidance and Giving Feedback
 - Communication with a Customer
 - Other Customer Service Issues
 - Handling Customer Complaints
- Software

- Operating System basics
 - Introduction to the Operating System
 - Microsoft Operating Systems
 - DOS configuration files
 - Navigating the directory structure
 - File Management using a command prompt
 - Configuring DOS Drivers
- Windows 98
 - Introduction to Windows 98
 - Features of the Desktop
- Installing Windows 98
 - Preparing the PC
 - Partitioning a Disk
 - Disk Formatting
 - Pre-installation Checks
 - Setup Methods
 - Setup Failure and Recovery
 - Windows 98 Setup Files
 - Windows 98 Installation Walk-through
- The Windows 98 Boot Process
 - Windows 98 Boot Process
 - Hardware
 - Real Mode
 - Protected Mode
 - Operating System and Desktop Initialization
 - The Windows 98 Startup Disk
 - Startup Menu
 - MSCONFIG
 - Real Mode Components
 - Protected Mode Components
- Navigating Windows 98
 - Comparing Windows 3.1x and 98
 - Using Shortcuts
 - Object Properties
 - Hidden File Extensions
 - Searching For Files
 - User Profiles
 - The MS-DOS Prompt Window
 - Adding and Removing Programs
 - The Desktop
 - The Recycle Bin
 - The Windows Explorer
 - Getting System Information
 - The Network Neighborhood

- The Control Panel
- Windows File and Disk Management
 - Working with Folders
 - Working with Files
 - The Recycle Bin
 - Architecture and File Systems
 - File System Support
 - Exclusive Access For Disk Management Tools
 - Performance Settings
 - Disk Utilities
 - Task Scheduler
- Running Applications in Windows 98
 - Windows Applications
 - Multi-tasking
 - Virtual Machines
 - Windows 98 Memory Model
 - Support for DOS-based Applications
 - Configuring DOS Applications
 - Long Filenames
 - Running Windows Applications
 - The Task Manager
 - System Management Utilities
- Configuring Windows 98
 - The Registry
 - Adding Devices with Plug-and-Play
 - Requirements for Plug-and-Play
 - Windows 98 Plug-and-Play Components
 - The Plug-and-Play Process
 - The Add New Hardware Wizard
 - The Device Manager
 - Troubleshooting Device Problems
 - Support for Additional Hardware
 - Virtual Memory
 - System Monitor
- Windows 98 Printing
 - Managing Printing
 - Adding a Local Printer
 - Changing Printer Settings • Troubleshooting Printing
- Memory
 - Memory Types
- Memory
 - Memory Types
- Networking the Operating System
 - Peer-to-Peer Networking

- Configuring Networking Information
- Windows 98 Login
- Windows 98 as a Server
- Sharing Resources
- The Network Neighborhood
- Windows Me
- Windows Millennium Edition
 - Windows Me
 - Windows Media Player
 - Windows Movie Maker
 - Updated Help System
 - System Restore
- Windows 2000
- Overview of Windows NT and Windows 2000
 - Features of Windows NT
 - Windows NT or Windows 9x?
 - Windows NT or Windows 9x?
 - Windows NT Server versus Workstation
 - Windows 2000 versions
 - Windows 2000 Workgroups and Domains
 - Windows 2000 Key Features
- Installing Windows 2000
 - Hardware Requirements
 - Disk Partitions
 - File System Choices
 - Domain or Workgroup Selection
 - Running the Setup Program
 - Stages of Setup
 - Service Packs
 - Upgrading to Windows 2000
 - Dual Booting
 - Troubleshooting setup
- The Windows 2000 Boot Process
 - Windows 2000 Boot Files
 - Initial Startup Process
 - Windows 2000 Load Sequence
 - Core Boot Files
 - Using the Last Known Good Control Set
 - Advanced Startup Options
 - The Recovery Console
 - The BOOT.INI file
- Configuring Windows 2000
 - Microsoft Management Console
 - Control Panel

- Changing System Settings
- Installing New Hardware
- Configuring Network Properties
- Disk and Storage Management
 - Terminology
 - Comparing Basic and Dynamic Storage
 - Windows 2000 Volumes
 - Managing Disks and Volumes
 - Compressing Files and Folders
 - Quota Management
 - Encrypting Files and Folders
- Managing Users and Groups
 - User Accounts in Windows 9x and Windows 2000
 - Local and Domain User Accounts
 - Creating User Accounts
 - The Local Users And Groups Snap-in
 - Planning and Implementing Groups
 - Built-in Groups
- Windows 2000 Security
 - Security Overview
 - NTFS Folder and File Permissions
 - Assigning Permissions to Users and Groups
 - How Multiple User and Group Permissions Interact
 - Permissions Inheritance
 - Setting Permissions
 - Ownership
 - Moving and Copying Files and Folders
 - Auditing
 - Account and Password Policies
 - Logon Options
 - Viruses
- Troubleshooting and Optimizing Windows 2000
 - Error Categories
 - Event Viewer
 - Device Manager
 - System Information (WinMSD)
 - The Emergency Repair Process
 - Using a Windows 2000 Boot Disk
 - Using the Last Known Good Control Set
 - The Recovery Console
 - Optimizing Windows
- Windows XP
- Installing and Deploying Windows XP
 - System Requirements

- Choosing a File System
- Installation Process
- Using the Setup Manager
- Using Answer Files
- Upgrading to Windows XP
- Deploying Windows XP
- Configuring Windows XP
 - Control Panel
 - Changing System Settings
 - Configuring Hardware
 - Advanced System Properties
 - Performance Options
 - User Profiles
 - Startup and Recovery Options
 - Error Reporting Options
 - Environment Variables
 - System Restore
 - Automatic Updates
 - Remote Features
 - Configuring Network Settings
 - Administrative Tools
 - Managing Software
 - Configuring the Taskbar and Start Menu
 - Additional Control Panel Tools
 - Windows XP Registry
- Remote Management
 - Remote Utilities
 - Remote Desktop
 - Remote Assistance
- The Internet
- Internet Overview
 - Overview of the Internet
 - The Development of the Internet
 - Internet Services
 - Accessing the Internet
 - Domain Names
 - URLs
 - Internet E-mail Addresses
 - Configuring TCP/IP
 - Testing TCP/IP
 - Internet Security
 - Web browser security
 - Viruses