

# A+ Certification Training

## Session 1

- Section A: Introduction
- A+ Certification
  - What is the A+ like?
  - Testing Locations
  - Testing Costs

### Section B: Visible PC

- Basic PC
- Monitors
- Keyboard
- Wireless Keyboard
- Mouse
- Printers
- Speakers

### Section C: System Unit

- Overview
- Common Features
- Connectors
- ESD
- Anti-Static Mat
- Basic Components

### Section D: Connectors

- Power
- PS2 Connectors
- RJ45
- USB Connectors
- Serial Ports
- Parallel Ports
- Video/Audio
- Firewire

### Section E: CPU Concepts

- External Data Bus
- Clock
- Address Bus
- Memory Controller Chip
- Cache
- Buses
- CPU Considerations
- Packaging

### Section F: CPU

- Manufacturers
- CPU Types
- XEON Processors
- 64-Bit Processing

## Session 2

### Section A: Installing/Upgrading CPUs

- Slotted CPU
- Motherboard Specs/Jumpers
- Socketed CPU
- Cooling
- Fans
- Upgrading
- Liquid Cooling

### Section B: RAM

- RAM Concept
- Bits and Bytes
- Quantities
- Units
- Visualizing RAM
- RAM Packages

### Section C: RAM Types

- DRAM
- FPM/EDO
- SDRAM
- Banking
- DDR
- RDRAM
- DDR - SDRAM

### Section D: Installing RAM

- Compatibility
- Cache Chips
- SIMMS
- DIMM
- Speed
- RAM Data
- Double-sided
- Adding RAM

### Section E: BIOS-FirmWare

- Mother
- BIOS
- BIOS Software
- Flash ROM
- CMOS
- CMOS Settings

### Section F: BIOS Troubleshooting

- Post Check
- Error Codes
- Text Codes
- Battery
- BIOS
- Flash BIOS

## Session 3

### Section A: Expansion Bus

- Expansion Slots
- Crystals/Clocking
- IBM PC Bus
- ISA

### Section B: I/O Addressing

- Device Manager
- I/O Address
- Hexadecimal
- Hex to Binary
- Address Range
- Interrupts
- IRQs

### Section C: COM & LPT Ports

- COM Ports
- LPT Ports
- Set Serial Port
- Set Parallel Port

### Section D: DMA/Memory Addressing

- Functions
- Direct Memory Access
- DRQs/DMA/Ultra DMA
- Using DMA/Ultra DMA
- Alternative Memory
- Memory Addressing

### Section E: EISA/ISA/VEESA

- ISA
- Micro Channel
- EISA
- VESA Local Bus
- Bus Speeds
- VESA VL Bus

### Section F: PCI

- PCI Model
- Characteristics
- Interrupt Channels
- IRQ Steering
- Extended IRQs
- AGP
- Modern Chipsets

### Section G: Speciality Bus

- CNR/AMR
- USB
- USB Connections
- USB Hub
- Mini-B
- Versions/Installation
- FireWire
- FireWire Connections

## Session 4

### Section A: Adapter Cards - Legacy

- Installing/Removing
- Handling Card
- Legacy Cards
- PnP Environment
- Using Device Drives
- Set Resources
- Modify Resources

### Section B: Adapter Cards - ACPI

- ACPI Compliant
- Device Resources
- Add Device/Driver
- Signed Drivers
- Installation Programs
- Autorun

### Section C: Form Factors

- Standardization
- AT Power Supply
- Connections
- ATX
- Standard Options
- ATX Power Supply
- AUX Power
- Soft Power

### Section D: Motherboards/Cases

- Motherboard
- Assemble Components
- I/O Shield
- Power Supply
- Mount Board
- Connect Power
- Connect Aux Wires
- Troubleshooting

### Section E: Floppy Drives

- Storage vs. RAM
- 3 1/2 Floppy Drive
- Floppy Drive Connection
- Ribbon Cable
- Motherboard Connection
- Power Connector
- Floppy Configuration
- Verify/Troubleshoot

### Section F: ATA Hard Drives

- Storage Device
- Drive Geometry
- Terminology
- Controller
- ATA-1 Standard
- ATA-2 (EIDE) Standard
- ATA-4, ATA-5 Standard
- ATA-6 Standard

### Section G: Basic ATA Installation

- Drive Components
- Master vs. Slave
- Configure Drive
- Connecting Drive
- Connectors
- Verify
- Hard Drive Setting

### Section H: Advanced ATA Installation

- Mounting Hardware
- Adding Second Drive
- High Speed ATA Cable
- Serial ATA
- Serial ATA Connector
- Serial ATA Characteristics
- Serial ATA Adapters/Cards
- Verify/Test

## Session 5

### Section A: CD Media

- Compact Disc
- CD-ROM
- CD-ROM Drives
- CDR/CD-R
- CD-RW
- Burning Software
- DVD
- DVD Formats

### Section B: CD Media Installation

- Connections
- Basic Install
- Guide Rails
- DVD Install
- Hardware Decoder
- Troubleshooting

### Section C: SCSI

- Concepts
- Host Adapter
- SCSI Chains
- Termination
- LUN
- SCSI Types
- Termination Types
- Cable Lengths

### Section D: SCSI Installation

- SCSI-1 Connector
- Narrow SCSI
- Wide SCSI
- Hot Swappable Drives
- External Connectors
- Setup SCSI
- Install SCSI
- Verify/Troubleshoot

### Section E: RAID

- RAID 0 (Striping)
- RAID 1 (Mirroring)
- Parity
- RAID 5
- Hardware RAID
- Software RAID

### Section F: Video & Graphics Cards

- CRT Monitors
- Function
- Refresh Rate
- Resolution

### Section G: Install Video Card

- AGP Slots
- AGP Speeds
- AGP Slot
- Upgrade
- CMOS Setting
- Dual Monitors
- Advanced Setting
- Troubleshooting

# A+ Certification Training - *continued*

## Session 6

- Section A: Sound
  - Sound Cards
  - Midi Connection
  - Sound Standards
  - Sound Connections
  - Optical Connector
  - Installation
  - AC Adapters
  - Cable Connections

### Section B: Other Peripheral Devices

- Graphics Tablets
- Touch Screens
- Digital Cameras
- Removable Media
- External Storage

### Section C: Laptops

- Portable Desktop
- Batteries/Fuel Cells
- Components
- Storage Devices
- PCMCIA
- DC Power
- Power Management
- Docking/Sync

### Section D: Understanding Printers

- Types of Printers
- Laser Printer
- Transfer Process
- Internal Components
- Other Print Technologies
- Dye Sublimation
- Printer Connectors
- Printer Options

### Section E: Printer Installation

- Print Drivers
- View Installed Printer
- Maintaining Printers
- Inkjet Problems
- Laser Problems
- Cleaning Printers
- Troubleshooting
- Toner Cartridge

### Section F: Networking Hardware

- NIC
- Topologies
- Cables
- CAT Levels
- Fiber Optics
- Fire Ratings

### Section G: Networking Technologies

- Ethernet
- AVI
- IO Base 2
- IO Base T
- Duplex/Half-Duplex
- SC/ST
- Wireless
- Configure Wireless

## Session 7

### Section A: Connecting to a Network

- Network Basics
- Sharing Resources
- Hardware Connection
- Hubs
- Protocols
- MS Protocols
- Modems
- Internet Connections

### Section B: Maintenance

- Cleaning
- Components
- Keyboards
- Monitors
- Printers
- Drive Maintenance
- Disposal

### Section C: Power

- Electrical Consideration
- Surge Suppressors
- UPS

### Section D: Troubleshooting

- Planning
- Consider Possibilities
- Documents the Problem

## Session 8

### Section A: Primitive O/S

- DOS
- Windows
- Windows 3X
- Memory Management
- Virtual Window
- Icons/Desktop/INI

### Section B: Modern O/S

- Windows 95
- Windows NT
- Windows 9X
- NT Versions
- Windows 2000/2003

### Section C: Interfaces

- 9X Desktop
- 9X Controls/Tools
- XP Desktop
- Customize Workspace
- XP Controls/Tools
- Task Manager

### Section D: 9X System Files

- File Views
- Critical Files
- Configuration Files
- Memory Management
- Customizing Files
- Sysedit
- Registry
- Registry Keys

### Section E: XP System Files

- Access System Files
- Boot
- Registry Data
- Regedit/Regedit 32

### Section F: Prompt Navigation

- Access Prompt
- DIR
- File Control
- Navigation
- Working with Directories
- Wildcards

### Section G: Manipulating Files

- Add
- Rename/Delete
- Copy File
- Move
- Attributes
- XCopy
- Launch Programs
- Server

### Section H: Batch Files

- Overview
- Edit
- Path
- Set
- Sample Batch File

## Session 9

### Section A: Partitioning with FDISK

- Partition
- Partition Types
- Partition Options
- Run FDISK
- Primary Partition
- Delete Partition
- Extended Partition
- Active Partition

### Section B: Formatting

- Boot Sector
- Graphical Format
- Command Line Format

### Section C: Drive Maintenance - Windows 98

- Scandisk
- Defrag
- Disk Cleanup
- Backup
- Chkdsk

### Section D: NT Family Drives

- Advanced Attributes
- Disk Quotas
- Disk Management
- Dynamic Disks

### Section E: Security

- Resource Board
- Server Board
- Directory Based
- NTFS Permissions
- File Permissions
- Folder Permissions
- Apply Permissions
- Inheritance

### Section F: Boot Disks

- Bootable Floppy
- Win98 Startup Disk
- Startup Disk Contents
- NT Family Startup Disks

### Section G: Installation Preparation

- Hardware Requirements
- Installation Decisions
- Partition
- Copy Install Files
- Setup Options

### Section H: Installing Windows 9X

- Hardware Setup
- Network Setup
- Windows Update
- Windows Setup
- Backup/System Restore

## Session 10

### Section A: Installing NT Family

- Hardware Requirements
- Installation Methods
- Dual Booting
- Boot.ini

### Section B: Boot Issues

- Startup Files
- Boot Menu
- Boot Menu Options
- Windows 2000 Boot
- Boot Order
- System Recovery

### Section C: Maintaining Windows

- 98 Performance Settings
- Virtual Memory
- XP Performance Setting
- Environment Variables

### Section D: Boot Errors

- Recovery Console
- Error Rules
- User Errors
- Viruses
- Virus Paths/Symptoms
- Virus Protection
- Boot Failure
- Win 9X Errors

### Section E: Recovery Tools

- Recovery Console
- Event Viewer/Service Failure
- Task Manager
- Extract.exe
- Extract/Options
- Recovery CD

### Section F: GUI & App Errors

- 9X GUI Errors
- MS Config/Sfc
- 2000/XP GUI Errors
- Protection Failures
- Application Failures
- MSD vs. Win MSD
- Third Party Tools
- Printer

### Section G: Networking

- Network Setup
- Adding Protocols
- Setup Client
- View Network Computers
- Add NetWare Protocol
- NetWare Client
- Sharing Resources
- Access Shared Resources

## Session 11

### Section A: TCP/IP

- Advantages
- TCP/IP Properties
- TCP/IP Addressing
- DNS
- DNS Servers
- WINS
- NetBios Settings
- DHCP

### Section B: Working with TCP/IP

- TCP/IP Utilities
- IP Config
- WINIpccfg
- Release/Renew
- PING
- DNS Resolution
- TRACERT
- NSLookup

### Section C: Internet Connection

- Overview
- Modem
- Modem Setup
- Internet Connect Sharing
- Internet Connection Firewall
- Internet Services
- Using Internet Service
- Internet Options

