

# Course 101: A+ Certification

## Objectives

The concepts covered in the A+ Certification course are broken down into two sections:

1. Core Hardware
  - Installation, Configuration and Upgrades
  - Diagnosis and Repair
  - Motherboards, Processors, Memory, etc.
  - Printers and Networking
2. OS Systems Technology
  - OS Fundamentals
  - OS Installation, Configuration and Upgrades
  - Diagnosis and Troubleshooting
  - Basic Logical Networking

## Prerequisites

There are no prerequisites for taking this course. This course is suitable for novice, intermediate and expert computer users.

## Books and Materials

- All-In-One A+ Certification Exam Guide  
by Michael Myers  
2002, McGraw Hill  
ISBN: 0-07-222274-3
- Additional materials and handouts will be provided by the instructor

## Course Policies

Class attendance is mandatory for all students and will be enforced in accordance with the guidelines described in the school's Student Information Publication catalog. Students who miss a class with a valid excuse must arrange personal time with the instructor to make up any missed work and assignments. No software used in the course may be removed from the school premises and installed on personal computers at a student's home. Evaluation software will be provided for student's to use during the course if they wish to do additional work at home.



## Course Description

CompTIA A+ Certification is the single most fundamental credential any Information Technology personnel can achieve. This certification is the key to all other computer related knowledge and technology. Even an individual who will only use a computer and never open the case cover can benefit from the basic concepts of how the computer operates and functions. This is the most beneficial body of knowledge that a person can have today's world of computers. This course prepares students for taking the Core Hardware and Operating System Technologies exams needed to achieve the A+ Certification.

## Course Syllabus Breakdown

### Part I: Fundamental Concepts

- Familiarization with computer's outside and inside anatomy
- Exploring the buttons, switches, ports, monitor and keyboard
- Basic tools necessary to work within a typical computer
- Accessories – available accessories for the computer and limitations, decisions necessary for making those choices, and typical misconceptions of PCs

### Part II: Nuts and Bolts of the Computer

- Microprocessor – history of the microprocessor, manufacturers, packages, families and characteristics
- Memory – RAM, DRAM, SRAM, ROM, PROM, EPROM, EEPROM, EDO, SDRAM, DDR, RIMMs
- Motherboard – history, expansion bus, local bus, EISA, PCI, AGP, CNR, IRQs, DMA, I/O addresses, chipsets

### Part III: More Nuts and Bolts

- Power Supplies and Protection – power supply safety, AC/DC current, test equipment, power switches, fans, static charges, surge suppressors, UPS, BPS
- Floppy and Hard Drives – Floppy disks, installing drives, cables and connectors, hard drives, IDE, EIDE, jumpers, ATA and SCSI, partitioning and formatting, FDISK, removable hard drives, SMART technology

### Part IV: Operating System Fundamentals

- DOS – user interface, files, drives and directories, DOS components, commands, file attributes, batch files, autoexec.bat, config.sys, viruses
- Windows 9x – Windows 3.1, disk caching, swap files, INI files, system.ini, win.ini, the registry, plug and play
- Windows 9x Advanced – drivers, file system and association, boot process, safe mode, Windows 98 and ME, control panel, IRQ steering, troubleshooting, installation methods

### Part V: Microsoft Windows 2000

- Windows 2000 Part I – Windows NT history, NTFS File System, NT/2000 boot process, Windows NT/2000 versions, service package, registry components

- Windows 2000 Part II – Windows NT/98, best of both worlds, new tools, administration, MMC, installation of Windows, HCL
- Windows 2000 Part III – disk maintenance, file systems, maintenance, patches, troubleshooting Windows NT and 2000

### Part VI: Advanced Concepts

- Memory Management – hexadecimal math, DOS memory map, conventional memory, reserved area, expanded memory, extended memory, himen.sys, UMBs, EMM386.exe, the MEM command
- SCSI – the SCSI bus, SCSI IDs, LUNs, termination, SCSI versions, strengths and weaknesses, ASPI drivers, performance, SCSI vs. IDE
- Compact Discs – media, drives, CD-R, CD-RW, music, drivers, color books, DVDs

### Part VII: More Advanced Concepts

- Sound – types of sound, sound cards, drivers, Direct X, applications, troubleshooting
- Modems – asynchronous vs. synchronous communication, UART, flow control, compression, CRC, RS-232, troubleshooting
- Video – monitors, resolution, LCD displays, size, video cards, modes, color depth, AGP, drivers

### Part VIII: Portables, Printers & Networks

- Portables – first portable PCs “luggables”, lower power and better batteries, laptops, batteries, PCMCIA, USB, power management, APM, ACPI, hardware profiles
- Printers – impact printers, inkjet printers, laser printers, parallel communication, printing problems and troubleshooting
- Networking – hardware, protocols, topology, segments/packets/frames, operating systems, resource sharing, TCP/IP, dial-up, ICS

### Part IX: Course Review

- Open Review
- Practice testing using simulated test engines and exams