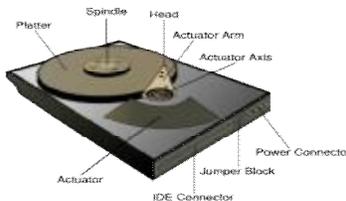




COURSE SYLLABUS

CompTIA A+ Complete
(Exam 220-601, 220-602, 220-603, 220-604)



50 Cragwood Rd, Suite 350
South Plainfield, NJ 07080

Victoria Commons, 613 Hope Rd Building #5,
Eatontown, NJ 07724

130 Clinton Rd,
Fairfield, NJ 07004

Avtech Institute of Technology Course

Instructor:

Course Duration:

Date/Time:

Training Location:

Course: Hardware (Exam 220-601)

Course Description

In this course students will learn the process and procedures needed to troubleshoot repair and maintain personal computers (PCs). Students will have the opportunity to apply and enhance their skills through hands-on projects that simulate real-life scenarios. This course aids in the preparation for the A+ Essential Exam (640-201).

Learning Objectives

1.0 A+ Hardware Service Technician Exam

- 1.1. Identify then names, purpose and components that make up a PC including the case and different range of towers used widely today, the desktop, slimline PC and proprietary case designs. Recognize the components such as the power supply, system boards, Processor/CPU, memory and various types of storage devices such as the hard disk, floppy, CR ROM, CD-R, CD-RW, DVD-ROM drives and burners including the components and connectors associated with it. Understand the use of various adapter cards such as the video card and the network interface card (NIC) and various devices like the modem, sound card and display devices. Distinguish between different types of ports and cables for peripherals and connectors as well as common peripheral interfaces and cables.
- 1.2. Identify common types of motherboards and how they operate. Outline the characteristics of chipsets, memory, communication ports, cache memory and BIOS. Define the use of the CPU and its architectural differences in addition to the different types of memory.
- 1.3. Differentiate among the various types of storage. Identify the common procedures for installing different types of storage devices and recognize the cables associated with it. Recognize various mediums such as the floppy disk, IDE/ATA technologies, Small Computer System Interface (SCSI) and the different methods of disk system fault tolerance, including disk mirroring, disk duplexing, disk stripping and Redundant Array of Inexpensive Disks (RAID).
- 1.4. Identify and understand how different types of printers work such as the impact printer, bubble jet printer, laser printers and other printers used widely in the computer industry. Learn about the various types of consumable supplies and how they are applied to printers. Learn the components and the mechanisms used for common printers and learn

how to identify and apply basic troubleshooting for common problems associated with the dot-matrix, bubble jet and laser printers.

- 1.5. Identify basic networking concepts and define what a network is, how it works and understand the components that make up a network. Identify and compare the characteristics of a Local Area Network (LAN) and a Wide Area Network (WAN) as well as their strengths and weaknesses. Identify network resources and the range of network topologies and communications available for establishing internet connectivity. Understand the architecture of a network and the components associated with a network, including common types of network cables and their characteristics, the use of the network interface card, media access methods and various connectivity devices used such as the use of repeaters, hubs/switches, bridges, routers, brouters, gateways and diverse types of connectors related with networking and the Internet.
- 1.6. Identify the requirements and procedures for building a PC and understand the procedures involved in PC service and repair. Gain knowledge of preparing \, adding and removing the motherboard from where it is stored. Gather and use necessary tools for PC device configuration and installation of the motherboard, power supply, and storage devices such as the floppy, hard disk and CD drives. Take part in stalling expansion cards or devices such as the video card, NIC and sound cards. Learn how and where to connect external peripherals and power to establish a full working PC. Identify the purpose of CMOS (Complimentary Metal Oxide Semiconductor) and assist in the configuration of CMOS by identifying how and when to change it parameters.
- 1.7. Identify the basics of the laptop architecture and understand how to differentiate between laptops and desktops. Identify and recognize the components that make up a laptop such as the memory, storage devices, power systems, displays, input devices, expansion bus, ports and wireless networking components.
- 1.8. Determine issues to be considered when replacing or upgrading a PC. Identify when and why an upgrade is required for specific PC components. Learn about the various types of upgrades available for computers used today and how and what options to consider when upgrading a motherboard, CPU, memory, hard disk storage, BIOS or expansion cards. Learn the various methods used to install PC peripherals such as the installation of modems and transceivers, external storage devices, scanners, digital cameras, PDAs, wireless access points and infrared devices.
- 1.9. Identify procedures to optimize PC performance, prevent and maintain the PC. Identify the different components used to enhance the performance of a PC. Examine hardware components like the cooling system, disk subsystem enhancers, NIC performance, specialized video cards and memory performance. Learn important safety measures and techniques used for keeping yourself and computer safe. Safety measures and techniques used for keeping yourself and computer safe. Safety measures include prevention methods of antistatic discharge, using antistatic wrist straps, bags, mats and other protection methods. Identify safety measures of the computer, power supply, printer, monitor, keyboard and mouse. Identify environmental protection measures and procedures.
- 1.10. Identify and recognize common problems associated with the PC and identify steps on how to isolate and resolve the issue. Identify the top 10 troubleshoot steps as well as

defining and identifying how to elicit problem symptoms associated with the problem a customer may be experiencing.

Course: Operating System (Exam 220-602, 220-603, 220-604)

Course Description

The A+ 2003 Operating System Technologies course is a comprehensive course covering the objectives for successful completion for the A+ software exam. This course covers the basic understandings of the Windows operating systems and file structure. Upon completion of the course you are able to select the appropriate technologies for your organization, optimize the computer environment and troubleshoot various operating system problems. This course aids in the preparation for one of the following Exam: CompTIA A+220-602 (IT Technician), CompTIA A+220-603 (Remote Support Technician), CompTIA+ 220-604 (Depot Technician).

Learning Objectives

1.0 Operating System Fundamentals.

- 1.1. Identify the major desktop components and interfaces, and their functions. Differentiate the characteristics of Windows 9x/Me, Windows NT 4.0 Workstation, Windows 2000 Professional, and Windows XP.
- 1.2. Identify the purpose of the Microsoft Windows Operating Systems GUI and understand the windows interface and how it operates and its characteristics such as the desktop, taskbar, start menu and icons associated as well as the elements and state of the window. Understand how command prompts are used and how to run a utility or program from the command prompt. Understand the features of the windows operating system such as file management, system tools, Control Panel, Task Manager Etc.
- 1.3. Identify the names, locations, purposes and contents of major system files of the Operating System for Windows9x and Windows NT/2000/XP. Recognize the sequence of the boot process and the advanced startup options offered. Gain knowledge of how to create a Startup disk or emergency repair disk to recover utilities installed for windows.
- 1.4. Identify and participate in applying procedures for the installation of Windows 9x, Windows NT, Windows Workstation, Windows 2000 and Windows XP. Demonstrate the methods used to upgrade one Operating System to another and explain the steps necessary to upgrade one Operating System to another and explain the steps necessary to upgrade each different type of Operating System. Identify how an upgrade differs from a standard installation.
- 1.5. Identify procedures for installing/adding a device, including loading and configuring device drivers and its required software. Identify the most common methods of connecting peripherals to host computers and the proper methods of setting up Windows printing for both local and network connected printers as well as how to add basic peripheral drivers and configure properties for each type of /Windows Operating System.

- 1.6. Identify the networking capabilities of Windows and the basic issues one may come across when connecting to a network including how to set up a windows machine to use a protocol and client software. Understand the purpose and use of file sharing and shared resources and identify how a Windows client can access file or print resources on a network and configure services to other machines on a network. Identify the basic network protocols and configure Internet Access Software.
- 1.7. Identify procedures necessary to optimize system performance of the operating system and major system subsystems. Understand the methods used to manage virtual memory and swap files on various platforms. Resolve performance issues using disk defragmenter and identify settings used for backward compatibility with MS-DOS applications. Identify disk caches and how to manage temporary files for Windows and Internet Explorer and demonstrate how to delete them when they become a problem.
- 1.8. Determine how to recognize and resolve common operational and usability problems. Interpret the meaning of common error codes and startup messages form the boot sequence and identify how to correct the problem. Determine when and how to apply troubleshooting steps to a problem and how to use common diagnostic utilities and tools to assist in the resolution of a problem. Identify how to troubleshoot file and printer-related issues associated with drivers. Recognize symptoms of common errors and how to use the build in windows troubleshooting utility and other resources for troubleshooting.

Prerequisite

None

Contact Hours

_____ Contact Hours (Lecture ____ Hours / Lab ____ Hours)

Semester Credit Hours

_____ Semester credit hours

Text / Lab Books

CompTIA A+ Complete – Deluxe Edition – Study Guide – Second Edition / SYBEX

Doctor Dulaney Skandier

ISBN 0-470-04831-x

Teaching Strategies

A variety of teaching strategies may be utilized in this course, including but not limited to, lecture, discussion, written classroom exercises, written lab exercises, performance based lab exercises, demonstrations, quizzes and examinations. Some quizzes may be entirely or contain lab based components. A mid-course and end course examination will be given.

Method of Evaluating Students

Grade Distribution

Class Attendance	10
Mid Term	30
Finals	50
Special Projects Makeup projects	10
Total	100%

Grading Policy

At the end of each course, each student is assigned a final grade as follows:

Point Range	Interpretation	Grade	Quality Points
90 – 100	Excellent	A	4.0
80 – 89	Very Good	B	3.0 – 3.9
70 – 79	Average	C	2.0 – 2.9
60 – 69	Poor	D	1.0 – 1.9
Below 60	Failure	F	0
N/A	Withdrawal	W	0
N/A	Pass	P	0
N/A	Incomplete	I	0

A student earning a grade of D or above is considered to have passed the course and is eligible to pursue further studies. A student receiving a grade of F has failed the course. A failed course must be repeated and passed to meet Avtech Institute's graduation requirements, in addition to an overall program GPA of 2.0.

Requirements for Successful Completion of the Course

At a minimum, students must achieve the following:

- A passing grade of **D** or above
- Completion of all required examinations
- Submission of all required lab exercises and projects and;
- Adherence to the school attendance policy.

Equipment Needed

Industry standard desktop computer for lab exercises.

Equipment Breakdown Lab room

Videos and Projector

Library Assignments

To be determined by the instructor.

Portfolio Assignment

Student program outcome portfolios are required to demonstrate student competencies. In conjunction with your course structure, please select a project/paper that best demonstrates what you have learned in this course and add it to your program portfolio.

Course Policies

Disruptive Behavior

Disruptive behavior is an activity that interferes with learning and teaching. Inappropriate talking during class, surfing inappropriate website, tardiness, cheating, alcohol or drug use, use of cell phone, playing loud music during class, etc. all disrupt the learning process.

Copyright Infringement

Specific exemptions to copyright infringement are made for student use in the context of learning activities. Graphic design students often download images from the Internet, or scan images from publications. As long as this work is for educational purpose, and subject to faculty permission, this is not a problem.

Plagiarism

Faculty cannot tolerate the *misrepresentation of work as the student's own*. This often involves the use by one student or another student's design, whether voluntarily or involuntarily. In the event that plagiarism is evident and documented, all students involved in the conscious decision to misrepresent work must receive an F as the grade for the project. A second occurrence may result in suspension for the rest of the quarter, and return to the school only after a review by the Academic Standards Committee.

Attendance

Attendance and Lateness

In education and the workplace, regular attendance is necessary if individuals are to excel. There is a direct correlation between attendance and academic success. Attendance is mandatory. All students must arrive on time and prepared to learn at each class session. At the faculty member's discretion, students may be marked absent if they arrive more than 15 minutes late to any class. More than five absences in a class that meets twice per week or more than two absences in a class that meets once per week may result in a failure.

Make-Up Work

Late Projects and Homework

All projects and homework must be handed in on time. Homework should be emailed to your instructor if you are going to miss a class. Work that is submitted one week late will result in the loss of one full grade; and work that is submitted two weeks late will result in the loss of two full grades; more than two weeks late you will receive a failing grade on the project.