



**Course:** A+ Essentials 2009 Edition

**Duration:** 45 hrs

**Course Objective:** Students will obtain the skills and knowledge necessary to install, upgrade, repair, configure, troubleshoot, and perform preventive maintenance on personal computer hardware and operating systems.

**Prerequisites:** One of the following courses or have equivalent experience:

- Windows 7: Basic
- Windows Vista: Basic
- Windows XP: Basic
- Windows 2000: Basic

**Course Outline:**

**Troubleshooting methodology**

**Topic A:** Troubleshooting models

**Topic B:** Professionalism

**Operating systems**

**Topic A:** Operating system fundamentals

**Topic B:** Directory and file management

**Topic C:** File and folder permissions

**Electricity and power supplies**

**Topic A:** Electrical safety

**Topic B:** Power supplies

**CPUs and motherboards**

**Topic A:** Central processing units

**Topic B:** Packaging, slots, and cooling techniques

**Topic C:** Motherboards

**The Basic Input/Output System**

**Topic A:** The BIOS and CMOS

**Topic B:** The POST and boot processes

**Memory systems**

**Topic A:** Memory

**Topic B:** Memory packaging

**Topic C:** Memory monitoring

**Bus structures**

**Topic A:** Buses

**Topic B:** The PCI bus

**Topic C:** Video buses

**Expansion cards**

**Topic A:** Drive adapters

**Topic B:** Video cards

**Topic C:** Sound cards

**Topic D:** Internal modems

**Peripheral connection types**

**Topic A:** Peripheral connection types

**Topic B:** PS/2 connections

**Topic C:** USB connections



**Topic D:** FireWire connections

**Topic E:** Multimedia connections

### **Data storage devices**

**Topic A:** Hard drives

**Topic B:** Optical drives

**Topic C:** Removable storage devices

**Topic D:** Drive maintenance

### **Video output and image input devices**

**Topic A:** Monitors

**Topic B:** Scanners and cameras

### **Printers**

**Topic A:** Printing technologies

**Topic B:** Printer installation and optimization

### **Connecting computers**

**Topic A:** Networking concepts

**Topic B:** Wired network connections

**Topic C:** Basic internetworking devices

### **Networking computers**

**Topic A:** Addressing

**Topic B:** Client configuration

### **Portable computers**

**Topic A:** Notebook computers

**Topic B:** Notebook issues

### **Monitoring and management**

**Topic A:** System monitoring

**Topic B:** System performance

**Topic C:** System management

### **Operating system troubleshooting**

**Topic A:** Windows startup

**Topic B:** System troubleshooting

### **Security**

**Topic A:** Operating system security

**Topic B:** Windows Encrypted File System

**Topic C:** Security hardware

**Topic D:** The human aspects of security

### **Windows installation and upgrades**

**Topic A:** Windows installation

**Topic B:** Upgrades

### **Safety and maintenance**

**Topic A:** Safety and hazards

**Topic B:** Computer maintenance

**Topic C:** Safe work practices

**Topic D:** Disposing of computer equipment

### **Troubleshooting hardware**

**Topic A:** Backups

**Topic B:** Hardware problems