



## CompTIA A+ Practical Application (2009) – Course Outline

### Description:

This is the second of two courses in the CompTIA A+ certification program. Building upon the skills learned in the A+ Essentials course, the student will perform more advanced tasks in installing, configuring, upgrading, and maintaining personal computers in a business environment. More complex techniques are presented for troubleshooting PC, OS, and network connectivity issues and security implementation.

### Performance Objectives:

**Upon successful completion of this course, the student will be able to:**

1. Use hardware tools and techniques to diagnose and repair computer and printer problems
2. Use operating system tools to diagnose and repair system problems
3. Troubleshoot connectivity issues and configure a SOHO network
4. Configure application and system software to manage permissions and threats

### Outline:

#### I. Hardware

- a. Installing, configuring, maintaining, and troubleshooting components
  - i. Storage devices
  - ii. Motherboards
  - iii. Power Supplies
  - iv. Processors
  - v. Memory cards
  - vi. Adapter cards
  - vii. Cooling Systems
- b. Using hardware tools
  - i. Multimeter
  - ii. Power supply tester
  - iii. Specialty hardware / tools
  - iv. Cable testers
  - v. Loop back plugs
  - vi. Anti-static pad and wrist strap
  - vii. Extension magnet
- c. Detecting and resolving common printer issues
  - i. Printed image quality irregularities
  - ii. Fuser, drum, and paper feed problems

#### II. Microsoft Operating Systems

- a. Using command-line utilities
  - i. DIR, CHKDSK, EDIT
  - ii. COPY, XCOPY
  - iii. FORMAT
  - iv. MSCONFIG, IPCONFIG, PING
  - v. MD / CD / RD
  - vi. NET, TRACERT, NSLOOKUP
  - vii. DEFRAG, NTBACKUP
  - viii. CHKDSK
- b. Differentiating between Windows 2000, XP, and Vista directory structures
  - i. User and system file locations
  - ii. Fonts
  - iii. Program and temporary files
  - iv. Offline files and folders

- c. Using system utilities
  - i. Disk Manager
  - ii. System monitor
  - iii. Administrative tools
  - iv. Device Manager
  - v. Task Manager
  - vi. System Information
  - vii. System restore
  - viii. Remote Desktop Protocol (Remote Desktop / Remote Assistance)
  - ix. Task Scheduler
  - x. Regional settings and language settings
  
- d. Evaluating and resolving common issues
  - i. Operational Problems
  - ii. Error Messages and Conditions
  - iii. Startup
  - iv. Event viewer
  - v. System Performance and Optimization

### III. Networking

- a. Troubleshooting client-side connectivity issues using appropriate tools
  - i. TCP/IP settings
  - ii. Characteristics of TCP/IP
  - iii. Mail protocol settings
  - iv. FTP settings
  - v. Proxy settings
  - vi. Tools (use and interpret results)
  - vii. Secure connection protocols
  - viii. Firewall settings
  
- b. Installing and configuring a small office/home office (SOHO) network
  - i. Dial-up
  - ii. Broadband
  - iii. Wireless
  - iv. Routers / Access Points
  - v. LAN (10/100/1000BaseT)
  - vi. Bluetooth (1.0 vs. 2.0)
  - vii. Cellular
  - viii. Basic VoIP (consumer applications)
  - ix. Basics of hardware and software firewall configuration
  - x. Physical installation

### IV. Security

- a. Preventing, troubleshooting and removing viruses and malware
  - i. Antivirus software
  - ii. Identifying malware symptoms
  - iii. Quarantine infected systems
  - iv. Malware types, symptoms and solutions
  - v. Remediating infected systems
  - vi. Updating antivirus software
  - vii. Scheduling scans
  - viii. Repairing boot blocks
  - ix. Scanning and removal techniques
  - x. Educating the end user
  
- b. Implementing security and troubleshooting common issues
  - i. Local users and groups: Administrator, Power Users, Guest, Users
  - ii. Vista User Account Control (UAC)
  - iii. NTFS vs. Share permissions
  - iv. Shared files and folders
  - v. Encryption (Bitlocker, EFS)
  - vi. User authentication
  - vii. BIOS security