

# A+ Operating System Technologies Competency Profile

BTC: IT 141 - A+ Certification – Operating Systems (153 hours / 10 credits)

and

WCC: CIS 105 Operating Systems I (5 credits)

## DOMAIN 1.0: OPERATING SYSTEM FUNDAMENTALS

- 1.1 Identify major desktop components & interfaces & their functions. Differentiate characteristics of various Windows operating systems.
  - Identify major operating system components.
  - Identify major operating system interfaces.
- 1.2 Identify the names, locations, purposes & contents of major system files.
  - Identify Windows 9x – specific files.
  - Identify Windows NT-based specific files.
- 1.3 Demonstrate ability to use command-line functions & utilities to manage OS, including proper syntax & switches.
  - Identify various command line functions and utilities.
- 1.4 Identify basic concepts/procedures for creating, viewing & managing disks, directories & files. Includes procedures for changing file attributes & ramifications of changes (i.e., security issues).
  - Identify various disks, partitions & file systems.
  - Identify directory structures (root directory, subdirectories, etc.).
  - Identify various file conventions & attributes (creating & naming files, compression, encryption, test vs. binary, etc).
- 1.5 Identify major operating system utilities, their purpose, location & available switches
  - Identify disk management tools.
  - Identify system management tools.
  - Identify file management tools.

## DOMAIN 2.0: INSTALLATION, CONFIGURATION & UPGRADING

- 2.1 Identify procedures for installing various Windows systems & techniques for bringing OS to basic operational level.
  - Verify hardware compatibility & minimum requirements.
  - Determine OS installation options.
  - Explain disk preparation order (conceptual disk preparation).
  - Run appropriate set up utility.
  - Demonstrate installation methods.
  - Identify device driver configuration.
  - Restore user data files (if applicable).
  - Identify common symptoms & problems.
- 2.2 Identify steps to perform an OS upgrade from various Windows systems. Given upgrade scenario, choose appropriate next steps.
  - Identify available upgrade paths.
  - Determine correct upgrade startup utility (e.g. WINNT32 vs. WINNT).
  - Verify hardware compatibility & minimum requirements.
  - Verify application compatibility.
  - Apply OS service packs, patches & updates.
  - Install additional Windows components.
- 2.3 Identify the basic system boot sequences & boot methods, including the steps to create an emergency boot disk with utilities installed for various Windows operating systems.
  - Identify boot sequence.
  - Identify alternative boot methods.
  - Create emergency disks with OS utilities.
  - Create emergency repair disk (ERD).

- 2.4 Identify procedures for installing/adding a device, including loading, adding & configuring device drivers, & required software.
  - Describe device driver installation.
  - Install additional Windows components.
  - Determine if permissions are adequate for performing the task.
- 2.5 Identify procedures necessary to optimize operating system & major operating subsystems.
  - Identify virtual memory management.
  - Identify disk defragmentation.
  - Identify files & buffers.
  - Identify caches.
  - Identify temporary file management.

## DOMAIN 3.0: DIAGNOSING & TROUBLESHOOTING

- 3.1 Recognize & interpret the meaning of common error codes & startup messages from the boot sequence & identify steps to correct the problems.
  - Identify common error messages & codes.
  - Use the correct utilities (Dr. Watson, Boot Disk, Event Viewer).
- 3.2 Recognize when to use common diagnostic utilities & tools. Given a diagnostic scenario involving one of these utilities or tools, select the appropriate steps needed to resolve the problem.
  - Identify startup disks.
  - Identify startup modes.
  - Identify diagnostic tools, utilities & resources.
  - Eliciting problem symptoms from customers.
  - Have customer reproduce error as part of the diagnostic process.
  - Identify recent changes to the computer environment from the user.
- 3.3 Recognize common operational & usability problems & determine how to resolve them.
  - Troubleshooting Windows-specific printing problems.
  - Identify other common problems.
  - Identify viruses & virus types.

## DOMAIN 4.0: NETWORKS

- 4.1 Identify networking capabilities of Windows. Given configuration parameters, configure OS to connect to network.
  - Configure protocols.
  - Configure client options.
  - Verify the configuration.
  - Understand the use of certain tools (IPCONFIG.EXE, PING, TRACERT.EXE, etc.).
  - Share resources (understand the capabilities/limitations with each OS version).
  - Setting permissions to shared resources.
  - Identify network type & network card.
- 4.2 Identify basic internet protocols & terminologies. Identify procedures for establishing Internet connectivity. In a given scenario, configure operating system connectivity to & use internet resources.
  - Identify protocols & terminologies.
  - Identify connectivity technologies.
  - Describe installing & configuring browsers.
  - Describe firewall protection under Windows XP.

**Assignment/Assessment:** A+ *Operating Systems Practical Exam* – to earn college credit, students must achieve 75% (C) or better on exam & earn a B or better in high school course.

**Recommended Textbook and Lab Manual:** A+ *Guide to Software: Managing, Maintaining & Troubleshooting*, 2<sup>nd</sup> Edition. Jean Andrews

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