

IT Essentials I: PC Hardware and Software v4.0

Detailed Objectives (Draft)

November 2006

The following draft of detailed objectives will be used by the authoring team to write the content of the revised IT Essentials I course. Although we intend to follow this general direction, instructors should be aware that specific content details might change before the scheduled course publication in June 2007.

IT Essentials I v4.0 will be a single course divided into two parts. The first part of the course (Fundamentals Chapters 1-10) will cover core competencies in the latest hardware and software technologies, including a greater emphasis on information security skills, safety and environmental issues, and soft skills. This first part will align with the CompTIA A+ *Essentials* exam required for all A+ candidates.

The second part of the course (Advanced Chapters 11-16) will be more hands-on and lab-based and will cover many of the same Fundamentals topics but in greater depth and with more practical application. All three CompTIA job environment certification exams will be covered: IT technician (602), remote support technician (603), and bench technician (604). Instructors will have the flexibility to teach the course based on any or all of the certification exams.

Students taking the full course will be prepared to take all exams associated with the new CompTIA A+ certification or the first three EUCIP IT Administrator exams.

Part One - Fundamentals

1 Introduction to the Personal Computer

- 1.1 Explain the IT Industry and Your Place in It
- 1.2 Explain the Career Opportunities in IT
- 1.3 Explain the Differences Between PCs Based on Implementation Needs
- 1.4 Identify Personal Computer Components
- 1.5 Explain System Resources and Their Purpose
- 1.6 Chapter Summary

2 Safe Lab Procedure and Tool Use

- 2.1 Identify Safe Working Conditions and Procedures
- 2.2 Identify Tools and Software Used with Personal Computer Components and Their Purpose
- 2.3 Implement Proper Tool Use
- 2.4 Chapter Summary

3 Computer Assembly – Step By Step

- 3.1 Open the Case
- 3.2 Attach the Power Supply to the Case
- 3.3 Attach the Components to the Motherboard
- 3.4 Attach the Hard Drives to the Case
- 3.5 Install the Adapter Cards in the Appropriate Slots
- 3.6 Connect All Internal Cables to the Appropriate Computer Components
- 3.7 Re-Attach the Panels to the Computer Case
- 3.8 Attach Peripherals to the Case
- 3.9 Boot the Computer for the First Time
- 3.10 Chapter Summary

4 Basics of Preventive Maintenance and Troubleshooting

- 4.1 Explain the Purpose of Preventive Maintenance
- 4.2 Identify the Elements of the Troubleshooting Process
- 4.3 Chapter Summary

5 Operating Systems

- 5.1 Explain the Purpose of Operating Systems
- 5.2 Describe and Compare Operating Systems to Include Purpose, Limitations, Compatibilities
- 5.3 Determine Operating System Based on Customer Needs
- 5.4 Install an Operating System
- 5.5 Navigate a GUI
- 5.6 Identify and Apply Common Preventive Maintenance Techniques for Operating Systems
- 5.7 Troubleshoot Operating Systems
- 5.8 Chapter Summary

6 Laptop and Portable Devices

- 6.1 Describe Laptops and the Various Portable Devices Currently Available
- 6.2 Identify the Name, Purpose, and Characteristics of Laptops
- 6.3 Compare and Contrast Desktops and Laptop Components
- 6.4 Explain How to Configure Laptops
- 6.5 Define the Various Mobile Phone Standards
- 6.6 Identify Common Preventive Maintenance Techniques for Laptops and Portable Devices
- 6.7 Troubleshoot Laptops and Portable Devices
- 6.8 Chapter Summary

7 Printers and Scanners

- 7.1 Describe the Types of Printers Currently Available
- 7.2 Select a Printer Based on Customer's Needs
- 7.3 Describe the Installation and Configuration Process for Printers
- 7.4 Describe the Types of Scanners Currently Available
- 7.5 Select a Scanner Based on Customer's Needs
- 7.6 Describe the Installation and Configuration Process for Scanners
- 7.7 Identify and Apply Common Preventive Maintenance Techniques for Printers and Scanners
- 7.8 Troubleshoot Printers and Scanners
- 7.9 Chapter Summary

8 Networks

- 8.1 Explain the Principles of Networking
- 8.2 Describe Types of Networks
- 8.3 Describe Basic Networking Concepts and Technologies
- 8.4 Describe Physical Components of a Network
- 8.5 Explain LAN Architectures
- 8.6 Identify Standards Organizations
- 8.7 Identify Ethernet Standards and Protocols
- 8.8 Explain OSI and TCP/IP Data Models
- 8.9 Configuring a NIC
- 8.10 Identify Names, Purposes, and Characteristics of Other Technologies for Establishing Connectivity
- 8.11 Identify and Apply Common Preventive Maintenance Techniques for Networks
- 8.12 Troubleshoot the Network ITE
- 8.13 Chapter Summary

9 Security

- 9.1 Explain Why Security is Important
- 9.2 Describe Security Threats
- 9.3 Identify Security Procedures
- 9.4 Identify and Apply Common Preventive Maintenance Techniques for Security
- 9.5 Troubleshoot Security
- 9.6 Chapter Summary

10 Troubleshooting and Communication Skills

- 10.1 Explain the Relationship Between Communication and Troubleshooting
- 10.2 Describe/Identify Good Communication Skills and Professional Behavior
- 10.3 Explain Ethics and Legal Aspects of Working with Computer Technology
- 10.4 Perform Call Center Labs
- 10.5 Perform Role Playing Labs
- 10.6 Chapter Summary

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Part Two - Advanced**11 Personal Computers**

- 11.1 Give an Overview of Field/Remote/Bench Tech Jobs
- 11.2 Explain Safe Lab Procedures and Tool Use
- 11.3 Describe Situations Requiring Replacement of Computer Components
- 11.4 Upgrade and Configure Personal Computer Components and Peripherals
- 11.5 Identify and Apply Common Preventive Maintenance Techniques for Personal Computer Components
- 11.6 Troubleshoot Personal Computer Components and Peripherals
- 11.7 Perform Work Order Labs
- 11.8 Chapter Summary

12 Operating Systems

- 12.1 Select the Appropriate Operating System Based on the Customer's Needs
- 12.2 Install, Configure, and Optimize Operating Systems
- 12.3 Describe How to Upgrade Operating Systems
- 12.4 Describe Preventive Maintenance Procedures for Operating Systems
- 12.5 Troubleshoot Operating Systems
- 12.6 Perform Operating System Work Order Labs
- 12.7 Chapter Summary

13 Laptops and Portable Devices

- 13.1 Describe Laptops and Portable Devices
- 13.2 Select/Replace Laptop Components
- 13.3 Explain How to Upgrade and Configure a Laptop
- 13.4 Describe Preventive Maintenance Procedures for Laptops
- 13.5 Describe Troubleshooting Laptops
- 13.6 Perform Laptop Work Order Labs
- 13.7 Chapter Summary

14 Printers and Scanners

- 14.1 Describe Potential Safety Hazards and Safety Procedures Associated with Printers and Scanners
- 14.2 Install and Configure a Printer/Scanner Locally
- 14.3 Describe How to Share a Printer/Scanner on a Network
- 14.4 Upgrade and Configure Printers and Scanners
- 14.5 Describe Preventive Maintenance Techniques Used with Printers and Scanners
- 14.6 Describe Troubleshooting Printers and Scanners
- 14.7 Perform Printer and Scanner Work Order Labs
- 14.8 Chapter Summary

15 Networks

- 15.1 Identify Potential Safety Hazards and Implement Proper Safety Procedures Related to Networks
- 15.2 Design a Network Based on the Customer's Needs
- 15.3 Determine the Components for Your Customer's Network
- 15.4 Implement the Customer's Network
- 15.5 Upgrade the Customer's Network
- 15.6 Describe Installation, Configuration, and Management of a Simple Mail Server
- 15.7 Define and Compare SMTP, POP, and IMAP
- 15.8 Describe Preventive Maintenance Procedures for Networks
- 15.9 Troubleshoot the Network
- 15.10 Perform Network Work Order Labs
- 15.11 Chapter Summary

16 Security

- 16.1 Outline Security Requirements for Customer's Needs
- 16.2 Select Security Components Based on Customer Needs
- 16.3 Implement Customer's Security Plan
- 16.4 Perform Preventive Maintenance on Security
- 16.5 Troubleshoot Security
- 16.6 Perform Security Work Order Labs
- 16.7 Chapter Summary

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