Essential Curriculum

**PC Hardware and Software**                                            **Teacher Resource**

**Cisco IT Essentials v4.1**

**Course Overview**

**Total Hours: 240**

**Fundamental Chapters 1 - 10**

**Chapter 1:    Introduction to the Personal Computer**

**Hours:        14.00**

**Goal:         The chapter will review IT certifications and the components of a basic personal computer system.**

**Objectives:**
- o  Explain IT industry certifications
- o  Describe a computer system
- o  Identify the names, purposes, and characteristics of cases and power supplies
- o  Identify the names, purposes, and characteristics of internal components
- o  Identify the names, purposes, and characteristics of ports and cables
- o  Identify the names, purposes, and characteristics of input devices
- o  Identify the names, purposes, and characteristics of output devices
- o  Explain system resources and their purpose

**Chapter 2:    Safe Lab Procedures and Tool Use**

**Hours:        5.00**

**Goal:         This chapter covers basic safety practices for the workplace, hardware and software tools, and the disposal of hazardous materials.**

**Objectives:**
- o  2.1 Explain the purpose of safe working conditions and procedures
- o  2.2 Identify tools and software used with personal computer components and their purpose
- o  2.3 Implement proper tool use

**Chapter 3:    Computer Assembly – Step by Step**

**Hours:        15.00**

**Goal:         This chapter focuses on computer assembly step by step in a logical, methodical manner when working with computer components.  As with any learned trade, computer assembly skills will improve dramatically with practice.**

**Objectives:**

- o  3.1 Open the case
- o  3.2 Install the power supply
- o  3.3 Attach the components to the motherboard and install the motherboard
- o  3.4 Install internal drives

o   3.5 Install drives in external bays
o   3.6 Install adapter cards
o   3.7 Connect all internal cables
o   3.8 Re-attach the side panels and connect external cables to the computer
o   3.9 Boot the computer for the first time


**Chapter 4:**     **Basics of Preventive Maintenance and Troubleshooting**

**Hours:**        **4.00**

**Goal:**         **This chapter introduces preventive maintenance and the troubleshooting process.**

**Objectives:**

o   4.1 Explain the purpose of preventive maintenance
o   4.2 Identify the steps of the troubleshooting process


**Chapter 5:**     **Fundamental Operating Systems**

**Hours:**        **15.00**

**Goal:**         **In this chapter, students will learn about the components, functions, and terminology related to the Windows 2000, Windows XP, Windows Vista, and Windows 7 operating systems.**

**Objectives:**

o   5.1 Explain the purpose of an operating system
o   5.2 Describe and compare operating systems to include purpose, limitations, and compatibilities
o   5.3 Determine operating system based on customer needs
o   5.4 Install an operating system
o   5.5 Navigate a GUI
o   5.6 Identify and apply common preventive maintenance techniques for operating systems
o   5.7 Troubleshoot Operating Systems

**Chapter 6:**     **Fundamental Laptops and Portable Devices.**

**Hours:**        **9.00**

**Goal:**

**Objectives:**   **This chapter focuses on the differences between laptops and desktops and describes the features of PDAs and smartphones.**

o   6.1 Describe laptops and other portable devices
o   6.2 Identify and describe the components of a laptop
o   6.3 Compare and contrast desktop and laptop components
o   6.4 Explain how to configure laptops
o   6.5 Compare the different mobile phone standards
o   6.6 Identify common preventive maintenance techniques for laptops and portable devices

o   6.7 Describe how to troubleshoot laptops and portable devices

**Chapter 7:**     **Fundamental Printers and Scanners**

**Hours:**      **12.00**

**Goal:**       **This chapter provides essential information about printers and scanners. Students will learn how printers operate, what to consider when purchasing a printer, and how to connect printers to an individual computer or to a network.**

**Objectives:**

o   7.1 Describe the types of printers currently available
o   7.2 Describe the installation and configuration process for printers
o   7.3 Describe the types of scanners currently available
o   7.4 Describe the installation and configuration process for scanners
o   7.5 Identify and apply common preventive maintenance techniques for printers and scanners
o   7.6 Troubleshoot printers and scanners

**Chapter 8:**     **Fundamental Networks**

**Hours:**      **18.00**

**Goal:**       **This chapter provides an overview of network principles, standards, and purposes.**

**Objectives:**

o   8.1 Explain the principles of networking
o   8.2 Describe types of networks
o   8.3 Describe basic networking concepts and technologies
o   8.4 Describe physical components of a network
o   8.5 Describe LAN topologies and architectures
o   8.6 Identify standards organizations
o   8.7 Identify Ethernet standards
o   8.8 Explain OSI and TCP/IP data models
o   8.9 Describe configuring a NIC and a modem
o   8.10 Identify names, purposes, and characteristics of other technologies for establishing connectivity
o   8.11 Identify and apply common preventive maintenance techniques for networks
o   8.12 Troubleshoot the network

**Chapter 9:**     **Fundamental Security**

**Hours:**      **9.00**

**Goal:**       **This chapter focuses on computer and network security.**

**Objectives:**

o   9.1 Explain why security is important

- o 9.2 Describe security threats
- o 9.3 Identify security procedures
- o 9.4 Identify common preventive maintenance techniques for security
- o 9.5 Troubleshoot security

**Chapter 10:     Communication Skills**

**Hours:          8.00**

**Goal:           In this chapter, students will learn the relationship between communications skills and troubleshooting when dealing with customers.**

**Objectives:**

- o 10.1 Explain the relationship between communication and troubleshooting
- o 10.2 Describe good communication skills and professional behavior
- o 10.3 Explain ethics and legal aspects of working with computer technology
- o 10.4 Describe call-center environment and technician responsibilities

**Advanced Chapters 11 - 16**

**Chapter 11:     Advanced Personal Computers**

**Hours:          14.00**

**Goal:           IT**

**Objectives:**

- o 11.1 Give an overview of field, remote, and bench technician jobs
- o 11.2 Explain safe lab procedures and tool use
- o 11.3 Describe situations requiring replacement of computer components
- o 11.4 Upgrade and configure personal computer components and peripherals
- o 11.5 Identify and apply common preventive maintenance techniques for personal computer components
- o 11.6 Troubleshoot computer components and peripherals

**Chapter 12:     Advanced Operating Systems**

**Hours:          18.00**

**Goal:           IT**

**Objectives:**

- o 12.1 Select the appropriate operating system based on customer needs
- o 12.2 Install, configure, and optimize an operating system
- o 12.3 Describe how to upgrade operating systems
- o 12.4 Describe preventive maintenance procedures for operating systems
- o 12.5 Troubleshoot operating systems

**Chapter 13:**　　**Advanced Laptops and Portable Devices**

**Hours:**　　**6.00**

**Goal:**　　**IT**

**Objectives:**

- o　13.1 Describe wireless communication methods for laptops and portable devices
- o　13.2 Describe repairs for laptops and portable devices
- o　13.3 Select laptop components
- o　13.4 Describe preventive maintenance procedures for laptops
- o　13.5 Describe how to troubleshoot a laptop

**Chapter 14:**　　**Advanced Printers and Scanners**

**Hours:**　　**12.00**

**Goal:**　　**IT**

**Objectives:**

- o　14.1 Describe potential safety hazards and safety procedures associated with printers and scanners
- o　14.2 Install and configure a local printer and scanner
- o　14.3 Describe how to share a printer and a scanner on a network
- o　14.4 Upgrade and configure printers and scanners
- o　14.5 Describe printer and scanner preventive maintenance techniques
- o　14.6 Troubleshoot printers and scanners
- o　14.7 Perform Printers and Scanners Work Order Labs

**Chapter 15:**　　**Advanced Networks**

**Hours:**　　**18.00**

**Goal:**　　**IT**

**Objectives:**

- o　15.1 Identify potential safety hazards and implement proper safety procedures related to networks
- o　15.2 Design a network based on the customer's needs
- o　15.3 Determine the components for your customer's network
- o　15.4 Implement the customer's network
- o　15.5 Upgrade the customer's network
- o　15.6 Describe installation, configuration and management of a simple mail server
- o　15.7 Describe preventive maintenance procedures for networks
- o　15.8 Troubleshoot the network

**Chapter 16:**　　**Advanced Security**

**Hours:**　　**10.00**

**Goal:**　　**IT**

**Objectives:**

- o 16.1 Outline security requirements based on customer needs
- o 16.2 Select security components based on customer needs
- o 16.3 Implement customer's security policy
- o 16.4 Perform preventive maintenance on security
- o 16.5 Troubleshoot security
- o 16.6 Perform security work order lab

**Review:**

**Hours:      53.00**

- o Final Exam
- o Skills Based Final Exam
- o A+ Certification Preparation