Course #: CB44
Course Name: Information Technology Essentials 1: PC Hardware and Software (A+ Preparation)
Prerequisites: none (general interest in the repair, upgrading, and maintenance of computer systems)

Grade Level: 10-12
Level of Difficulty: Average
# of Credits: ½

Students should know and be able to…

State Standards	Course Objectives	Mastery Elements	Notes/Resources
Reading **R-P1 (PO 1-5)** **R-P3 (PO 1-3)** **R-P4 (PO 1-3)** **Writing** **W-P1 (PO 1-4)** **W-P5 (PO 1-4)** **Math** **Strand 1, PO5-6** **Strand 3, PO3, 14** **Strand 5, PO4-5**	**1.0 Demonstrate an understanding of information technology basics**	1.1 Getting Started in IT 1.1.1 Computer Systems and Programs 1.1.2 Computer Types 1.1.3 Connecting Computer Systems 1.1.4 Birth of the Internet 1.1.5 The Cost of Technology 1.2 Windows Desktop Environment 1.2.1 Starting, shutting down, and restarting Microsoft Windows 1.2.2 Windows Explorer 1.2.3 The Desktop 1.2.4 Working with Icons 1.2.5 Recognizing an Application Window 1.2.6 Resizing a Desktop Window 1.2.7 Switching Between Windows 1.3 Basic Features of Windows 1.3.1 Viewing the Basic System Information of a Computer 1.3.2 Setting the Clock and Date 1.3.3 Minimizing, Maximizing, and Exiting 1.3.4 Adjusting the Screen Display 1.3.5 Desktop Settings 1.3.6 Adjusting Audio Volume 1.3.7 Start Menu Options 1.3.8 Recycle Bin 1.3.9 Word Processors 1.4 Overview of Software Applications 1.4.1 Word Processors 1.4.2 Spreadsheets 1.4.3 Databases 1.4.4 Graphic Applications 1.4.5 Presentation Applications 1.4.6 Web Browser and E-Mail 1.5 Math for a Digital Age 1.5.1 Measurement-Related Terminology 1.5.2 Analog and Digital Systems	1. Cisco Online Curriculum 2. Study Guide 3. Internet Resources 4. Presentations 5. Teacher Demonstration with Computer Components and Software 6. Binary and Hexadecimal Math Activities 7. Labs 8. Worksheets 9. Videos 10. Software 11. Quiz 12. Online Assessment

Students should know and be able to…			
State Standards	Course Objectives	Mastery Elements	Notes/Resources
R-E5 (PO 1-4) **R-P4 (PO3)** **Reading Strand 3, Concept 2 (PO1-4)**	**1.0 Demonstrate an understanding of information technology basics.**	1.5.3 Boolean Logic Gates 1.5.4 Decimal and Binary Number Systems 1.5.5 Decimal to Binary Conversion 1.5.6 The Hexadecimal Number System 1.5.7 Binary to Hexadecimal Conversion 1.5.8 Hexadecimal to Binary Conversion 1.5.9 Converting to any Base 1.5.10 Introduction to Algorithms 1.6 Laboratory and Safety Tools 1.6.1 Basic Lab Safety Principles 1.6.2 Workplace Practices that Help Reduce ESD Potential 1.6.3 Tools of the Trade 1.6.4 Workplace Cleaning Supplies 1.6.5 Workplace Testing Equipment 1.6.6 Lab Safety Agreement	

Students should know and be able to…			
State Standards	Course Objectives	Mastery Elements	Notes/Resources
	2.0 Demonstrate knowledge of how computers work	2.1 System Overview 2.1.1 Input, Process, Output, and Storage 2.2 The Boot Process 2.2.1 Initializing the System Hardware 2.2.2 Loading the Operating System 2.2.3 The Boot Sequence 2.3 Hardware Components 2.3.1 The Computer Case 2.3.2 The Power Supply 2.3.3 Cooling Systems 2.3.4 The Motherboard 2.3.5 Motherboard Form Factors 2.3.6 Motherboard Components 2.3.7 CPUs 2.3.8 BIOSs 2.3.9 Expansion Slots 2.3.10 Riser Cards 2.3.11 Bus Types 2.4 Memory Components 2.4.1 RAM 2.4.2 Identifying SIMMs and DIMMs 2.4..3 Cache/COASt Memory 2.5 Display Components 2.5.1 Monitor/Display Devices 2.5.2 Video Cards 2.6 Connector Components 2.6.1 Serial and Parallel Ports 2.6.2 PS/2 ports/6-pin mini DIN, 5-pin DIN 2.6.3 Universal serial bus (USB) and FireWire 2.6.4 IDE, EIDE, Ultra, and SCSI Controllers 2.6.5 SCSI Disk Types 2.7 Storage Components 2.7.1 Floppy Drives 2.7.2 Hard Drives 2.7.3 CD-ROMs 2.7.4 DVD Formats and Drives 2.7.5 Backup Hardware 2.8 Network Components 2.8.1 Modems 2.8.2 Network Interface Card	1. Cisco Online Curriculum 2. Study Guide 3. Internet Resources 4. Presentations 5. Teacher Demonstration with Computer Components and Software 6. Labs 7. Worksheets 8. Videos 9. Quiz 10. Online Assessment

Students should know and be able to…			
State Standards	Course Objectives	Mastery Elements	Notes/Resources
	2.0 Demonstrate knowledge of how computers work	2.9 System Resources 2.9.1 What are System Resources? 2.9.2 Interrupt Requests (IRQs) 2.9.3 Direct Memory Access (DMA) 2.9.4 Input/Output Addresses 2.10 Portable Devices 2.10.1 Notebook Computers 2.10.2 Portable Hardware 2.10.3 PCMCIA Cards 2.10.4 Portable Computer Displays 2.10.5 Docking Station/Port Replicator 2.10.6 Upgrading and Troubleshooting Notebooks 2.10.7 Infrared Devices 2.10.8 Wireless Access Points	

Students should know and be able to…			
State Standards	Course Objectives	Mastery Elements	Notes/Resources
	3.0 Demonstrate the ability to assemble a computer	3.1 Overview the Assembly Process and Safety Issues 3.1.1 Overview of General Safety Issues 3.1.2 ESD Precautions 3.1.3 Process Demonstration 3.2 Creating a Computer Inventory 3.2.1 Importance of an Inventory 3.2.2 Inventory Checklist 3.3 The Computer Case and Power Supply 3.3.1 Computer Cases and System Units 3.3.2 Desktops 3.3.3 Towers 3.3.4 Power Supplies 3.4 Preparing the Motherboard for Installation 3.4.1 Motherboard Location Map 3.4.2 Motherboard Configuration 3.4.3 Motherboard Jumpers 3.4.4 Installing the CPU 3.4.5 Installing the Heat Sink and Fan 3.4.6 Installing RAM 3.5 Installing the Motherboard 3.5.1 Installing the Motherboard into the Case 3.5.2 Installing the LEDs, Keylock, and Speaker 3.5.3 Connecting Power Supply Cables to the Motherboard 3.6 Installing the Floppy Drive, Hard Drive, CD-ROM, and DVD 3.6.1 Attaching the Floppy Drive to the Case 3.6.2 Attaching the Hard Drive and CD-ROM to the Case 3.6.3 Connecting the Floppy Drive, Hard Drive, CD-ROM, and DVD to the System 3.6.4 Connecting Power Cables to the Floppy Drive, Hard Drive, and CD-ROM 3.7 Video Card Installation 3.7.1 Step-by-Step Installation of the Video Card 3.8 Final Steps 3.8.1 Fitting the Case Together 3.8.2 Connecting the Keyboard, Mouse, Monitor, and Power Cord	1. Cisco Online Curriculum 2. Study Guide 3. Internet Resources 4. Presentations 5. Teacher Demonstration with Computer Components and Software and Tools 6. Labs 7. Worksheets 8. Lab Safety Agreement 9. Videos (online) and separate tapes 10. Quiz 11. Online Assessment

Students should know and be able to…			
State Standards	Course Objectives	Mastery Elements	Notes/Resources
		3.9 Booting the System for the First Time 3.9.1 What is BIOS? 3.9.2 Entering the BIOS Configuration 3.9.3 Standard CMOS Setup Screen 3.9.4 BIOS features and chipset features setup screens 3.9.5 Power Management and Plug and Play Screens 3.9.6 Integrated Peripherals and Fixed Disk Detection Screens 3.9.7 Password Screens and the Load Setup Defaults Screen 3.9.8 BIOS Exit Options 3.9.9 Startup Sequence	

Students should know and be able to…			
State Standards	Course Objectives	Mastery Elements	Notes/Resources
	4.0 Demonstrate an understanding of Operating System Fundamentals	4.1 The Operating System 4.1.1 Components of an Operating System 4.1.2 Operating System Functions 4.1.3 Operating System Types and Basic Terminology 4.2 Disk Operating System 4.2.1 What is DOS and Why Learn About It 4.2.2. DOS File Structure 4.2.3 Overview of Basic DOS Commands 4.2.4 Creating a DOS Boot Disk 4.2.5 Booting the System with a DOS Disk 4.2.6 DOS Configuration Files 4.2.7 Editing System Configuration Files 4.3 Memory Management 4.3.1 Memory Types 4.3.2 Memory Management Tools 4.3.3. Other Types of Memory 4.3.4 Memory Conflicts 4.3.5 Real vs. Protected Mode Memory Addressing	1. Cisco Online Curriculum 2. Study Guide 3. Internet Resources 4. Presentations 5. Computer Systems and Software 6. DOS Activities 7. Teacher Demonstration 8. Memory Management 9. Labs 10. Worksheets 11. Quiz 12. Online Assessment

Students should know and be able to…			
State Standards	Course Objectives	Mastery Elements	Notes/Resources
	5.0 Demonstrate an understanding of Windows 9x Operating Systems	5.1 The Windows 9x File Structure and File Management System 5.1.1 Naming Files in Windows 5.1.2 Directories and Folders 5.1.3 Using a Text Editing Application to Create a File (document) 5.1.4 Copy, Cut, or Create Shortcuts 5.1.5 Viewing Document Details 5.1.6 Recognizing File Types in Windows 5.1.7 Selecting, Copying, and Moving Files 5.1.8 Searching for File, Folder, or Directory 5.1.9 Making Backup Copies of Files onto a Diskette 5.1.10 Using the Recycle Bin 5.2 Windows Management with Control Panel 5.2.1 System Applet 5.2.2. Printer 5.2.3 Add/Remove Programs 5.2.4 Add/Remove Hardware 5.2.5 Display and Sounds 5.3 System Tools 5.3.1 The Registry 5.3.2 REGEDIT and SCANREG 5.3.3. MSCONFIG, Startup Menu, and Safe Mode 5.3.4 WSCRIPT.EXE, HWINFO.EXE, and ASD.EXE 5.4 Preparing a Hard Drive for Operating System Installation 5.4.1 Partitioning a Hard Drive 5.4.2 Formatting a Hard Drive 5.5 Installing Windows 9x 5.5.1 Windows 9x Versions Overview 5.5.2 Requirements for Installing Windows 98 5.5.3 Understanding the Steps in Windows 98 Installation 5.5.4 Windows 98 Setup Options 5.5.5 Upgrade Installation 5.6 Troubleshooting the Installation Process 5.6.1 Systematic Troubleshooting Techniques and Finding Help 5.6.2 Windows 98 Setup Errors 5.6.3 System Properties and Identifying Icon Symbols 5.6.4 Adding Software Drivers 5.6.5 Making a Backup Windows Startup Disk 5.6.6 Uninstalling Windows 98	1. Cisco Online Curriculum 2. Study Guide 3. Internet Resources 4. Presentations 5. Computer Systems and Software 6. Labs 7. Worksheets 8. Videos 9. Quiz 10. Online Assessment

Students should know and be able to…			
State Standards	Course Objectives	Mastery Elements	Notes/Resources
	6.0 Demonstrate an understanding of Windows NT/2000 Operating Systems	6.1 Windows 9x Contrasts 6.1.1 NTFS versus FAT 6.1.2 Security and Permissions 6.1.3 Windows 2000 Boot Process 6.1.4 Plug and Play and Drivers 6.2 System Tools 6.2.1 Administration Tools 6.2.2 Windows 2000 Registry 6.2.3 Startup Menu and Safe Mode 6.2.4 The ERD and Recovery Console for Windows 2000 6.3 Overview of the Installation Process 6.3.1 Differences Between Windows 2000 and 9x Installation 6.3.2 Hardware Requirements 6.3.3. Windows 2000 Features 6.4 Installing the Windows OS 6.4.1 Requirements for Installing Windows 2000 6.4.2 Understanding the Steps in Windows 2000 Installation 6.4.3 Windows 2000 Setup Options 6.5 Special Installations 6.5.1 Upgrading from Windows NT Workstation 4 to Windows 2000 6.5.2 Upgrading Windows 9x with Windows 2000 6.5.3 Dual boot Windows 9x with Windows 2000	1. Cisco Online Curriculum 2. Study Guide 3. Internet Resources 4. Presentations 5. Computer Systems and Software 6. Labs 7. Worksheets 8. Videos 9. Quiz 10. Online Assessment

Students should know and be able to…			
State Standards	Course Objectives	Mastery Elements	Notes/Resources
	7.0 Demonstrate an understanding of the Windows XP Operating System	7.1 Windows XP Versions 7.1.1 Windows XP Home Edition 7.1.2 Windows XP Professional 7.1.3 Windows XP Professional 64-Bit 7.1.4 Windows XP Media Center Edition 7.2 Overview of the Installation Process 7.2.1 Differences Between Windows 2000/9x Installation and XP 7.2.2 Hardware Requirements 7.2.3 Windows XP Features 7.3 Installing the Windows XP OS 7.3.1 Requirements for Installing Windows XP 7.3.2 Understanding the Steps in Windows XP Installation 7.3.3 Windows XP Setup Options 7.4 Special Installations 7.4.1 Upgrading Windows NT Workstation 4/2000 to XP 7.4.2 Upgrading Windows 98 to Windows XP Professional 7.4.3 Dual boot Windows 9x, Windows NT 4, Windows 2000, and Windows XP 7.5 Windows XP and Windows NT/2000/ME/9x Contrasts 7.5.1 Keeping User Files Private 7.5.2 Simple File Sharing versus Windows 2000 Sharing 7.5.3 Internet Enhancements 7.5.4 System Properties 7.5.5 Graphical User Interface (GUI)	1. Cisco Online Curriculum 2. Study Guide 3. Internet Resources 4. Presentations 5. Computer Systems and Software 6. Labs 7. Worksheets 8. Videos 9. Quiz 10. Online Assessment

Students should know and be able to…			
State Standards	Course Objectives	Mastery Elements	Notes/Resources
	8.0 Demonstrate an understanding of Multimedia Capabilities	8.1 Introduction to Multimedia 8.1.1 Basic Hardware Required for Multimedia Upgrades 8.1.2 The Video Adapter 8.1.3 Characterizing Computer Displays 8.1.4 Sound Cards and Speaker Systems 8.1.5 Common Media File Formats Used in Multimedia Applications 8.1.6 MPEG Hardware versus Software 8.2 Upgrading Video with a Video Acceleration Board 8.2.1 PCI and AGP Types 8.2.2 All in One 8.2.3 Installing and Configuring the Video Card Driver and Software 8.2.4 Understanding RAMDAC and Video Memory 8.2.5 Flashing the Video Board with BIOS Updates 8.3 Adding Audio Capabilities with a Sound Card 8.3.1 Sound Card Operation 8.3.2 USB, PCI, and Build-In Sound 8.3.3 Removing or Disabling Outdated Sound Cards 8.3.4 Physical Installation of Sound Cards 8.3.5 Connecting the CD-ROM or DVD Player to the Sound Card 8.3.6 Sound Card Driver and Software Installation 8.3.7 MIDI and External-Audio Source Connection 8.4 Overview of CD-RW and DVD Drive 8.4.1 Drive 8.4.2 Recording CDs with CD-R and CD-RW 8.4.3 Digital Audio Extraction 8.4.4 DVD Drives 8.4.5 Recordable DVD 8.4.6 CD Recording Formats 8.4.7 DVD Layering and Formats 8.5 Digitized Video 8.5.1 Digital Cameras and Video Cameras 8.5.2 Hardware and Software Video Capture 8.5.3 Installing and Configuring a Video Capture Board	1. Cisco Online Curriculum 2. Study Guide 3. Internet Resources 4. Presentations 5. Computer Systems and Software 6. Labs 7. Worksheets 8. Videos 9. Digital equipment 10. Quiz 11. Online Assessment

Students should know and be able to…			
State Standards	Course Objectives	Mastery Elements	Notes/Resources
	9.0 Demonstrate an understanding of Advanced Hardware and Servers	9.1 Network Server Overview 9.1.1 Network Server 9.1.2 RAID 9.1.3 RAID Controller 9.1.4 Hardware RAID vs. Software RAID 9.2 Hardware-Based RAID Configuration 9.2.1 Hardware-Based RAID Configuration Overview 9.2.2 RAID 0 Configuration 9.2.3 RAID 1 Configuration 9.2.4 RAID 5 Configuration 9.2.5 RAID 0/1 Configuration 9.3 Configuring External Peripherals 9.3.1 Overview of External Disk Subsystems 9.3.2 Configuring an External Disk Subsystem 9.3.3 Configuring an External CD-ROM System 9.4 Adding Hardware to a Server 9.4.1 Replacing a Single Processor with a Faster Processor 9.4.2 Installing Additional Processors 9.4.3 Upgrading the Operating System for Multiple Processors 9.4.4 Adding Hard Drives 9.4.5 Adding Memory 9.5 Upgrading Server Components 9.5.1 Upgrading Adapter Memory 9.5.2 Upgrading Adapter BIOS or Firmware 9.5.3 Replacing an Adapter 9.5.4 Upgrading Peripheral Devices 9.5.5 Upgrading System Monitoring Agents 9.5.6 Upgrading Service Tools 9.5.7 Documenting the Configuration	1. Cisco Online Curriculum 2. Study Guide 3. Internet Resources 4. Presentations 5. Computer Systems and Software 6. Labs 7. Worksheets 8. Videos 9. Server components 10. Quiz 11. Online Assessment

Students should know and be able to…			
State Standards	Course Objectives	Mastery Elements	Notes/Resources
	10.0 Demonstrate an understanding of Networking Fundamentals	10.1 Introduction to PC Networking 10.1.1 Defining a Computer Network 10.1.2 File, Print, and Application Services 10.1.3 Mail Services 10.1.4 Directory and Name Services 10.1.5 The Internet 10.1.6 Network Administration 10.1.7 Simplex, Half-Duplex, and Full-Duplex Transmission 10.2 Types of Networks 10.2.1 Overview 10.2.2 Peer-to-Peer Networks 10.2.3 Client-Server Networks 10.2.4 Local Area Networks (LANs) 10.2.5 Wide Area Networks (WANs) 10.3 Adding a Network Interface Card (NIC) 10.3.1 What is a NIC? 10.3.2 Setting the IP Address 10.3.3 DHCP Servers 10.3.4 Default Gateway 10.3.5 Domain Name System 10.4 Physical Components of a Network 10.4.1 Network Topologies 10.4.2 Physical vs. Logical Topology 10.4.3 Networking Media 10.4.4 Common Network Devices 10.4.5 Server Components 10.5 LAN Architectures 10.5.1 Ethernet 10.5.2 Token Ring 10.5.3 Fiber-Distributed Data Interface (FDDI) 10.6 Networking Protocols and the OSI Model 10.6.1 OSI Model Overview 10.6.2 What is a Protocol? 10.6.3 Transmission Control Protocol/Internet Protocol (TCP/IP) 10.6.4 Internetwork Packet Exchange/Sequenced Packet Exchange (IPX/SPX) 10.6.5 NetBEUI 10.6.6 AppleTalk	1. Cisco Online Curriculum 2. Study Guide 3. Internet Resources 4. Presentations 5. Networking devices and media 6. Labs 7. Worksheets 8. Videos 9. Server components 10. Quiz Online Assessment

Students should know and be able to…			
State Standards	Course Objectives	Mastery Elements	Notes/Resources
	10.0 Demonstrate an understanding of Networking Fundamentals	10.7 TCP/IP Utilities 10.7.1 Overview 10.7.2 Ping 10.7.3 ARP, RARP, and NSLOOKUP 10.7.4 NETSTAT and TPCON 10.7.5 NBTSTAT 10.7.6 IPCONFIG, WINIPCFG, CONFIG, and IFCONFIG 10.7.7 TRACERT, IPTRACE, and TRACEROUTE 10.8 Connecting to the Internet 10.8.1 Synchronous and Asynchronous Serial Lines 10.8.2 Modems 10.8.3 Dial-up Networking, Modem Standards, and AT Commands 10.8.4 ISPs and Internet Backbone Providers 10.8.5 Digital Subscriber Line (DSL) 10.8.6 Cable Modems 10.8.7 Cable Modem vs. DSL Internet Technologies 10.8.8 ISDN 10.8.9 Satellite Internet	

Students should know and be able to…			
State Standards	Course Objectives	Mastery Elements	Notes/Resources
	11.0 Demonstrate an understanding of Printers and Printing	11.1 Understanding Printers and Printing 11.1.1 Printer Overview 11.1.2 Understanding Dot-Matrix Printer Operation 11.1.3 Understanding Inkjet Printer Operation 11.1.4 Understanding Laser Printer Operation 11.2 Buying a Printer 11.2.1 Print Capacity and Speed 11.2.2 Printer Quality and Resolution 11.2.3 Reliability 11.2.4 Cost of Ownership 11.2.5 Laser vs. Inkjet Printers 11.3 Connecting a Printer 11.3.1 Serial, Parallel, USB, SCSI, and Network Communication Types 11.3.2 Page Description Languages 11.3.3 Installing and Updating Printer Drivers 11.3.4 Ink and Toner Installation and Replacement 11.3.5 Print Media Installation and Adjustment 11.3.6 Installing Additional Printer Memory 11.3.7 Adding a Local Printer in Windows 2000 11.3.8 Printing a Test Page 11.4 Sharing a Printer 11.4.1 Host-Based Printing Technology 11.4.2 Printer Switches 11.4.3 Printer Built-In Fonts and Font Cards 11.4.4 Configuring Printer Sharing 11.4.5 Adding a Network Printer 11.4.6 Installing Print Services 11.4.7 The Network Print Server 11.4.8 Printer Network Interface Cards (NICs) 11.5 Managing a Printer 11.5.1 Using the Printer Queue to Manage Print Jobs 11.5.2 Setting Print Times for Large or Less Important Documents 11.5.3 Selecting a Default Printer 11.5.4 Configuring Individual Printer Options 11.5.5 Printer Accessories	1. Cisco Online Curriculum 2. Study Guide 3. Internet Resources 4. Presentations 5. Labs 6. Worksheets 7. Videos 8. Printer Demos 9. Quiz 10. Online Assessment

Students should know and be able to…			
State Standards	Course Objectives	Mastery Elements	Notes/Resources
	11.0 Demonstrate an understanding of Printers and Printing	11.6 Dealing with Paper Problems 11.6.1 Obstructions in the Paper Path 11.6.2 Stripped and Broken Drive Gears 11.6.3 Stepper Motor Problems 11.6.4 Defective Registration Roller and Other Feed Rollers 11.6.5 Wrong Type of Paper 11.6.6 High Humidity 11.6.7 Paper Dusting	

Students should know and be able to…			
State Standards	Course Objectives	Mastery Elements	Notes/Resources
	12.0 Demonstrate an understanding of Preventative Maintenance and Upgrading	12.1 Preventative Maintenance and the Technician 12.1.1 Elements of a Preventative Maintenance Program 12.1.2 Tools and Equipment 12.1.3 Environmental Guidelines 12.1.4 Environmental Guidelines for a Server Room 12.1.5 Proper Disposal of Hazardous Materials 12.1.6 Using Material Safety and Data Sheets (MSDS) 12.2 Preventative Maintenance and Electrostatic Discharge 12.2.1 Electrostatic Discharge Overview 12.2.2 Antistatic Bags 12.2.3 Grounding Wrist Straps 12.2.4 Compressed Air 12.2.5 Grounded Workbench 12.3 Preventative Maintenance for Computer Peripherals 12.3.1 Monitor 12.3.2 Mice 12.3.3 Keyboard 12.3.4 Cleaning Printers 12.3.5 Scanners 12.4 Preventative Maintenance for Computer Software 12.4.1 Software Utilities 12.4.2 User Responsibilities 12.4.3 Anti-Virus 12.4.4 Firewall 12.4.5 Power Issues 12.4.6 Surge Suppressor and Power Supplies 12.4.7 UPS in a Server Environment	1. Cisco Online Curriculum 2. Study Guide 3. Internet Resources 4. Presentations 5. Labs 6. Worksheets 7. Videos 8. Utilities and Tools 9. Quiz 10. Online Assessment

Students should know and be able to…			
State Standards	Course Objectives	Mastery Elements	Notes/Resources
	13.0 Demonstrate an understanding of Troubleshooting PC Hardware	13.1 Troubleshooting Basics 13.1.1 What is Troubleshooting? 13.1.2 Identify the Problem 13.1.3 Gathering Information 13.1.4 Developing a Solution 13.1.5 Implementing the Solution 13.1.6 Is the Problem Solved? 13.1.7 Documenting the Solution 13.1.8 Troubleshooting Tools 13.1.9 Diagnostic Software 13.1.10 Disposal Actions 13.2 Troubleshooting the Hardware Box 13.2.1 Overview of Field Replaceable Units (FRUs) 13.2.2 POST Errors 13.2.3 CMOS/BIOS Errors 13.2.4 Motherboard-Related Errors 13.2.5 CPUs 13.2.6 RAM 13.2.7 Cable Issues 13.2.8 Ports 13.2.9 The Video Systems 13.2.10 Secondary Storage Devices 13.2.11 Sound Cards 13.2.12 Power Supply Issues 13.2.13 Box Cooling Issues 13.3 Troubleshooting Peripheral Devices 13.3.1 Input Devices 13.3.2 Output Devices 13.3.3 SCSI Interface Issues 13.3.4 Internet/Network Access Devices	1. Cisco Online Curriculum 2. Study Guide 3. Internet Resources 4. Presentations 5. Labs 6. Worksheets 7. Videos 8. Utilities and Tools 9. Quiz 10. Online Assessment

Students should know and be able to…			
State Standards	Course Objectives	Mastery Elements	Notes/Resources
	14.0 Demonstrate an understanding of how to troubleshoot software problems	14.1 Role of the End User 14.1.1 Overview of the Troubleshooting Process 14.1.2 Eliciting Information From the End User Regarding the Problem 14.1.3 Reproducing the Error Symptoms 14.1.4 Identify Recent User Changes to the Software Environment 14.1.5 Determining Whether the Problem is Hardware or Software Related 14.1.6 Fixing the Software 14.2 DOS Troubleshooting Issue 14.2.1 System Boot Problems 14.2.2 DOS Error Messages 14.2.3 Invalid Directory Errors 14.3 Common Windows Operating System Problems 14.3.1 Troubleshooting Setup (Installation) Problems 14.3.2 Troubleshooting Startup (Booting) Problems 14.3.3 Windows Memory Usage Problems 14.3.4 Windows OS Missing/Corrupt .DLL or .VxD files 14.3.5 System Lockup Errors 14.3.6 Troubleshooting Shutdown Problems 14.4 Windows 9x Troubleshooting Problems 14.4.1 Upgrade Issues 14.4.2 Error Codes and Startup Messages 14.4.3 Windows 9x Startup Modes 14.4.4 Windows 9x Error Log Files 14.4.5 Windows Virtual Memory Errors 14.5 Using System Tools and System Editors to Troubleshoot Windows 9x/2000/XP 14.5.1 Using System Tools 14.5.2 Using Windows Device Manager to Troubleshoot 14.5.3 Using Windows System Editors 14.6 Windows 9x/2000/XP Registry Problems 14.6.1 The Registry Files 14.6.2 The Registry Structure 14.6.3 Editing the Registry 14.6.4 Cleaning the Registry	1. Cisco Online Curriculum 2. Study Guide 3. Internet Resources 4. Presentations 5. Labs 6. Worksheets 7. Videos 8. Utilities and Software 9. Quiz 10. Online Assessment

Students should know and be able to…			
State Standards	Course Objectives	Mastery Elements	Notes/Resources
	14.0 Demonstrate an understanding of how to troubleshoot software problems	14.7 Windows NT4/2000 Troubleshooting Problems 14.7.1 Windows NT/2000 Installation Problems (Review) 14.7.2 Windows NT/2000 Upgrade Issues 14.7.3 Windows NT Startup Modes 14.7.4 Windows 2000 Startup Modes 14.7.5 Windows 2000 Recovery Console 14.8 Troubleshooting Windows XP 14.8.1 Windows XP Installation Problems 14.8.2 Windows XP Upgrade Issues 14.8.3 Windows XP Startup Modes 14.8.4 Windows XP Recovery Console 14.9 Troubleshooting Applications 14.9.1 Troubleshooting DOS Applications 14.9.2 Troubleshooting NT/2000 Applications 14.10 Windows Data Backup and Recovery 14.10.1 Windows Registry Backup and Recovery Tools 14.10.2 Windows Data and Application Backup and Recovery Tools 14.10.3 Types of Data Backup Procedures 14.11 Windows-Specific Printer Software Problem Troubleshooting 14.11.1 Print Spoolers 14.11.2 Print Queues 14.11.3 Incorrect/Incompatible Printer Drivers 14.12 Windows-Specific Networking Software Connection Troubleshooting 14.12.1 Error Messages 14.12.2 Incorrect Parameter Setting/Switches 14.12.3 Incorrect Protocols or Protocol Properties 14.12.4 Incorrect Client or Client Properties 14.12.5 Missing or Incorrect Bindings 14.12.6 Incorrect Service Selection 14.12.7 Incorrect Primary Network Logon Settings 14.12.8 Incorrect Computer Name or Workgroup Name 14.12.9 Network Troubleshooting Software Utilities 14.13 Windows 9x, NT, 2000, XP Help 14.13.1 Help and Troubleshooting Files 14.13.2 Troubleshooting and Information Resources 14.13.3 Incorrect Protocols or Protocol Properties	