

IT Essentials I: PC Hardware and Software

V3.0

Course Outline

1. Information Technology Basic

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: more and more for less and less

1.2 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 a computer's basic system information
- 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

Lab: Getting to know Windows

Worksheet: Windows Navigation and Settings

1.4 Overview of Software Applications

- 1.4.1 Word processors
- 1.4.2 Spreadsheets
- 1.4.3 Databases
- 1.4.4 Graphics 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

1.5.3 Boolean logic gates

Lab: Boolean Operation

1.5.4 Decimal and binary number systems

1.5.5 Decimal to binary conversion

Interactivity Lab: Decimal to Binary Conversion

Interactivity Lab: Binary to Decimal Conversion

1.5.6 The hexadecimal number system

1.5.7 Binary to hexadecimal conversion

Interactivity Lab: Binary to Hexadecimal Conversion

1.5.8 Hexadecimal to binary conversion

1.5.9 Converting to any base

Lab: Converting Numbers Overview

Worksheet: Number Systems Exercise

1.5.10 Introduction to algorithms

1.6 Laboratory Safety and Tools

1.6.1 Basic lab safety principles

1.6.2 Workspace practices that help reduce ESD potential

1.6.3 Tools of the trade

1.6.4 Workspace cleaning supplies

1.6.5 Workplace testing equipment

1.6.6 Lab safety agreement

Worksheet: Lab Safety Checklist

Summary

2. How Computers Work

2.1 System Overview

2.1.1 Input, process, output, and storage

Add pointer devices and touch screen

2.2 Boot Process

2.2.1 Initializing and testing the system hardware

2.2.2 Loading the operating system

2.2.3 The boot sequence

2.3 Hardware Components

2.3.1 Computer cases

PhotoZoom: PC

2.3.2 Power supplies

PhotoZoom: Power Supply and Connectors

Worksheet: Power Supply

2.3.3 Cooling Systems

2.3.4 The motherboard

2.3.5 Motherboard Form factors

2.3.6 Motherboard Components

PhotoZoom: Motherboard

Lab: Motherboard Identification

2.3.7 The CPU

2.3.8 BIOS

Lab: Identify the ROM and BIOS Chips

Worksheet: BIOS/ROM

2.3.9 Expansion slots

Lab: Identifying Computer Expansion Slots (R)

Worksheet: Expansion Slots (R)

(Add Riser Card)

2.3.10 **Riser Card**

2.3.11 Bus types

2.4 Memory Components

2.4.1 RAM

(add DDR, SoDIMM, MicroDIMM)

Lab: Identifying RAM and RAM Sockets (R)

Worksheet: RAM and RAM Sockets (R)

2.4.2 Identifying SIMMs and DIMMs

2.4.3 Cache/COAST memory

2.5 Display Components

2.5.1 Monitors / Display Devices

PhotoZoom: Monitor

2.5.2 Video cards

PhotoZoom: Video Card

Lab: Video Card Identification

Worksheet: Video Card

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

Infrared added

2.6.4 IDE, EIDE, ULTRA, and SCSI controllers

PIO added

2.6.5 SCSI Disk Types

2.7 Storage Components

2.7.1 Floppy Drive

PhotoZoom: Floppy Disk Drive

Worksheet: Floppy Drive

2.7.2 The hard drive

PhotoZoom: Hard Drive

Worksheet: Hard Drive Identification

2.7.3 CD-ROMs

PhotoZoom: CD-ROM Drive

Worksheet: CD-ROM Identification

2.7.4 **DVD-DVDRW**

Removable Storage (Tape Drives, etc)

2.7.5 Backup Hardware

2.8 Network Components

2.8.1 Modems

2.8.2 Network interface cards (NICs)

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 (I/O) addresses

2.10 Portable Devices

2.10.1 Notebook Computers

2.10.2 Portable Hardware

Power Sources

Storage Devices/Hard Drives

Removable Storage

PCMCIA/Mini PCI Adapters

Memory

2.10.3 PCMCIA cards

2.10.4 Laptop Portable Computer displays

2.10.5 Docking station – port replicators

2.10.6 Upgrading and Troubleshooting Laptops Notebooks – (includes memory)

Modem/Network Interface Card (NIC)

2.10.7 Infrared Devices

2.10.8 Wireless Access Points

Summary

3. Assembling A Computer

3.1 Overview of The Assembly Process and Safety Issues

- 3.1.1 Overview of general safety issues
- 3.1.2 ESD precautions
- 3.1.3 Process demonstration

Video: Assembling a Computer

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

Lab: The Computer Case and Power Supply

Worksheet: 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 Attaching the LEDs, keylock, and speaker
- 3.5.3 Connecting power supply cables to the motherboard

Lab: Motherboard Installation

3.6 Installing The Floppy Drive, Hard Drive, CD-ROM, **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, CD-ROM and **DVD**

Lab: Floppy Drive, Hard Drive, and CD/**DVD**-ROM Installation

Video: Installing the Floppy Drive, Hard Drive, and CD-ROM Drive

3.7 Video Card Installation

3.7.1 Step-by-step installation of the video card

Lab: Video Card Installation and System Booting

Video: Installing a Video Card

3.8 Final Steps

3.8.1 Fitting the case together

3.8.2 Connecting the keyboard, mouse, monitor, and power cord

3.9 Booting The System for The First Time

3.9.1 What is BIOS?

Worksheet: 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

Summary

4. 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 - basic terminology

Worksheet: Operating System Fundamentals

4.2 Disk Operating System (DOS)

- 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

Lab: Basic DOS Commands

Worksheet: DOS Commands

- 4.2.4 Creating a DOS boot disk

Lab: 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

Worksheet: DOS

4.3 Memory Management

- 4.3.1 Memory types (check for updates)
- 4.3.2 Memory management tools
- 4.3.3 Other types of memory
- 4.3.4 Memory conflicts
- 4.3.5 Real versus Protected mode memory addressing

Summary

5. Windows 9x Operating Systems

5.1 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, move, or create shortcuts
- 5.1.5 Viewing document details
- 5.1.6 Recognizing file types in Windows
 - Lab:** Change File Views in Windows (showing file extensions)
- 5.1.7 Selecting, copying, and moving files
 - Lab:** Text Editing and File Management
- 5.1.8 Searching for a file, folder, or directory
- 5.1.9 Make backup copies of files onto a diskette
- 5.1.10 Using the Recycle Bin

Worksheet: Windows Files and Folders

5.2 Windows Management with Control Panel

- 5.2.1 System applet
- 5.2.2 Printer
 - Worksheet:** Managing Printers
- 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 Using REGEDIT and SCANREG
- 5.3.3 Understanding MSCONFIG, Startup Menu, and Safe Mode
- 5.3.4 Using WSCRIPT, HWINFO, and ASD

5.4 Preparing a Hard Drive for Operation System Installation

- 5.4.1 Partitioning a hard drive
- 5.4.2 Formatting a hard drive
 - Lab:** Hard Drive Preparation Using FDISK and FORMAT

Worksheet: Preparing the hard Drive

5.5 Installing the 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

Lab: Windows OS Installation

5.6 Troubleshooting the Installation Process

5.6.1 Systematic troubleshooting techniques and finding help

Lab: Troubleshooting 101

5.6.2 Windows 98 setup errors

5.6.3 System properties and identifying icon symbols

5.6.4 Adding software drivers

Lab: Install a Driver

5.6.5 Making a backup Windows startup disk

Lab: Create a Startup Disk

5.6.6 Uninstalling Windows 98

Worksheet: Troubleshooting Windows Installation

Summary

6. Windows NT/2000 Operating Systems

6.1 Windows 9x Contrasts

6.1.1 NTFS versus FAT

6.1.2 Security and permissions

Lab: Assigning Permissions in Windows 2000

6.1.3 Windows 2000 boot process

6.1.4 Plug-and-Play and drivers

6.2 System Tools

6.2.1 Administrative tools

Lab: Creating User Accounts in Windows 2000

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

Lab: Create an Emergency Repair Disk in Windows 2000

6.3 Overview of The Installation Process

6.3.1 Differences between Windows 2000 and 9x installation

Lab: Installation Demonstration of Windows 2000

6.3.2 Hardware requirements

6.3.3 Windows 2000 features

6.4 Installing The Windows 2000 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 Win2000

6.5.2 Upgrading Windows 9x with Windows 2000

6.5.3 Dual boot Windows 9x/Windows NT 4/Windows2000

Summary

7. Windows XP Operating Systems

7.1 Windows XP and Windows NT/2000/ME/9x Contrasts

7.1.1 System Tools

7.1.2 Keeping User Files Private

7.1.3 Simple File Sharing vs. Windows 2000 Sharing

Lab: Using Simple File Sharing to Share Files

7.1.4 Internet Enhancements

7.1.5 System Properties

7.1.6 Graphical User Interface (GUI)

7.2 Windows XP Versions

7.2.1 Windows XP Home Edition

7.2.2 Windows XP Professional

7.2.3 Windows XP Professional 64-bit

7.2.4 Windows XP Media Center Edition

7.3 Installing The Windows XP OS

7.3.1 Hardware Requirements

7.3.2 Windows XP installation steps

Lab: Installation Demonstration of Windows XP

7.3.3 Files and settings transfer wizard and user state migration tool

7.3.4 User State Migration Tool

7.3.5 Activating Windows XP

7.4 Special Installations

7.4.1 Upgrading to XP from previous Windows versions

7.4.2 Upgrading from Windows NT Workstation 4 and Windows 2000

7.4.3 Upgrading Windows 9x

7.4.4 Dual boot Windows 98 and Windows XP

7.5 Troubleshooting Windows XP

7.5.1 Troubleshooting the installation

7.5.2 Troubleshooting remote desktop

7.5.3 Troubleshooting folder and file sharing and security

Summary

8. Multimedia Capabilities

Multimedia Capabilities (moved from ch 6 in v.2)

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

Worksheet: Multimedia Devices

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

Lab: Upgrading the Video Accelerator

Video: Replacing a Video Card

- 8.2.4 Understanding RAMDAC and video memory
- 8.2.5 Flashing the video board with BIOS updates

Worksheet: Video Accelerators

8.3 Adding Audio Capabilities with a Sound Card

- 8.3.1 Sound cards operation
- 8.3.2 USB, PCI, and build-in sound
- 8.3.3 Removing or disabling outdated sound cards

Worksheet: Sound Card

- 8.3.4 Physical installation of sound cards

Lab: Sound Card Installation

Video: Installing a Sound Card

- 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

- 8.4.1 Drive
- 8.4.2 Recording CDs with CD-R and CD-RW
- 8.4.3 Digital audio extraction explained
- 8.4.4 DVD Players

- 8.4.5 Recordable DVD
- 8.4.6 CD recording formats
- 8.4.7 DVD layering and formats

Worksheet: CD and DVD Terminology

8.5 Digitizing 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

Summary

9. Advanced Hardware Fundamentals and Servers

9.1 Network Server Overview

9.1.1 Network server

9.1.2 RAID

Lab: Basic Disk Dynamic Disk Conversion

9.1.3 RAID controller

Worksheet: RAID

9.1.4 Hardware RAID versus 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 processor

9.4.3 Upgrading the operating system for multiple processors

9.4.4 Adding hard drives

Worksheet: Adding Processors

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

Worksheet: Adapters

9.5.4 Upgrading peripheral devices

9.5.5 Upgrading system monitoring agents

9.5.6 Upgrading service tools

9.5.7 Document the configuration

Summary

10. 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)

Worksheet: Types of Networks

10.3 Adding a Network Interface Card (NIC)

- 10.3.1 What is a NIC?

Lab: NIC Installation

Video: Installing a NIC

- 10.3.2 Setting the IP address
- 10.3.3 DHCP servers

Lab: Configuring the NIC to Work with a DHCP Server

- 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 versus logical topology

Worksheet: Network Topology

- 10.4.3 Networking media
- 10.4.4 Common networking 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

10.6.4 Internetwork Packet Exchange/Sequenced Packet Exchange

10.6.5 NetBEUI

10.6.6 AppleTalk

Worksheet: OSI Model, TCP/IP, and Protocols

10.7 TCP/IP Utilities

10.7.1 Overview

10.7.2 Ping

Lab: Troubleshooting the NIC using the ping Command

10.7.3 ARP, RARP, 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, 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 versus DSL Internet technologies

10.8.8 ISDN

10.8.9 Satellite

Worksheet: Connecting to the Internet

Summary

11. Printers and Printing

11.1 Introduction to Printing

- 11.1.1 Printer overview (add thermal and dye sublimintion)
- 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 Print quality and resolution
- 11.2.3 Reliability
- 11.2.4 Cost of ownership
- 11.2.5 Laser versus 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

Lab: Adding an Ink-jet Printer to a Computer

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

Lab: Setting up Print Sharing Capabilities

- 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

Lab: Managing Files in a Printer Queue

11.5.5 Options/Upgrades

Trays and Feeders

Finishers

Scanners/fax/copier

11.6 Dealing with Paper Problems

11.6.1 Obstructions in the paper path

Worksheet: Paper Jams

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 paper

11.6.6 High humidity

11.6.7 Paper dusting

Summary

12. Preventive Maintenance and Upgrading

12.1 Preventive Maintenance and the Technician

12.1.1 Elements of a preventive maintenance program

12.1.2 Tools and equipment

Lab: Using a Digital Multimeter

12.1.3 Environmental guidelines

12.1.4 Environmental guidelines for a server room

Worksheet: Environmental Considerations

12.1.5 Proper disposal of hazardous materials

12.1.6 Using Material Safety and Data Sheets (MSDS)

12.2 Preventive Maintenance and Electrostatic Discharge (ESD)

12.2.1 Electrostatic discharge (ESD) overview

Worksheet: Electrostatic Discharge (ESD)

12.2.2 Anti-static bags

12.2.3 Grounding wrist straps

12.2.4 Compressed air

12.2.5 Grounded workbench

12.3 Preventive Maintenance and Upgrading Computer Peripherals

12.3.1 Monitor

12.3.2 Mice

12.3.3 Keyboard

12.3.4 Cleaning printers

12.3.5 Scanners

Lab: Cleaning Computer Components

Worksheet: Preventive Maintenance for Components

12.4 Computer Software PM

12.4.1 Software utilities

Lab: Using the Scandisk and Defrag Utilities

12.4.2 User responsibilities

12.4.3 Anti-virus

12.4.4 Firewall

Lab: Setting up Windows XP Personal Firewall

12.4.5 Power issues

12.4.6 Surge suppressor and power supplies

12.4.7 UPS in a server environment

Summary

13. Troubleshooting PC Hardware

13.1 Troubleshooting Basics

13.1.1 What is troubleshooting?

13.1.2 Identify the problem

Worksheet: Troubleshooting Basics

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

Lab: The Steps of the Troubleshooting Process

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

Lab: Identifying POST 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 system

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

Worksheet: Troubleshooting Printers

13.3.3 SCSI interface issues

13.3.4 Internet/network access devices

Worksheet: Troubleshooting Hardware

Summary

14. Troubleshooting Software

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 Issues

- 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 Window 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

Worksheet: Troubleshooting Software

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

14.7 Windows NT4/2000 Troubleshooting Problems

14.7.1 Windows NT/2000 installation problems

14.7.2 Windows NT/2000 upgrade issues

14.7.3 Windows NT Startup Modes

14.7.4 Windows 2000 Startup Modes

Lab: Booting into Safe Mode

14.7.5 Windows 2000 Recovery Console

Lab: Using the Windows 2000 Recovery Console

14.8 Windows XP Troubleshooting Problems

14.8.1 Windows XP installation problems

14.8.2 Troubleshooting Remote Desktop

14.8.3 Troubleshooting Folder and File Sharing and Security

14.9 Troubleshooting Applications

14.9.1 Troubleshooting DOS applications (include Dr. Watson)

14.9.2 Troubleshooting NT/2000 applications

14.10 Windows Data Back Up 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

Lab: Windows Registry Backup and Recovery

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 trouble shooting software utilities

14.13 Windows 9x/NT/2000/XP Help

14.13.1 Help and troubleshooting files

14.13.2 Troubleshooting and information resources

Summary