

# Table of Contents

Preface ..... iii

FUNDAMENTAL		WINDOWS	
<b>1. Introduction to Computer</b>	<b>1</b>	<b>1. Introducing Window 7</b>	<b>25</b>
Introduction	2	Introduction	26
History of Computer	2	Exploring the New and Improved Features of Windows 7	26
Abacus	2	The Getting Started Menu	27
Blaise Pascal	2	HomeGroup	28
Charles Babbage	3	Jump List	28
ENIAC	3	Aero Peek, Aero Snap, and Aero Shake	29
IBM Personal Computer	4	Windows Search	30
Classification of Computers	4	Windows Taskbar	31
Desktop Computer	5	Desktop Gadget Gallery	32
iPad	5	Performance Improvements	32
Personal Digital Assistant (PDA)	6	Play To	33
Laptop	6	Ribbon	33
Mainframe	6	Remote Media Streaming	34
Supercomputer	7	Windows Touch	34
Kindle	7	Libraries	35
Introduction to Personal Computer Hardware	8	Internet Explorer 8	35
Monitor	8	Action Center	36
Keyboard	8	Windows Live Essentials	36
Mouse	10	Device Management	36
Scanner	10	Exploring Windows 7 Editions	37
Printer	11	Installing Windows 7	38
Speaker	12	System Requirements	38
System Unit	13	Fresh Installation	38
Basic Input Output Software	15	Windows 7 Upgrade Advisor	44
Uninterruptable Power Supply	18	Upgrade from Previous Versions of Windows	46
Modem	19	Windows Update	47
Web Camera	19	Hiding/Restoring Windows Updates	49
Fax	19	Uninstalling Windows Update	51
Understanding Computer Software	20	Starting Windows 7	52
System Software	20	Getting Help in Windows 7	52
Application Software	21		
Summary	24		

## x Comdex Hardware and Networking Course Kit

Logging Off, Restarting, and Shutting Down a System	53
Summary	54

### 2. Working with Control Panel 55

Introduction	56
Opening the Control Panel Window	56
Working with the User Accounts and Family Safety Category	58
Working with User Accounts	58
Creating, Changing, and Removing Passwords	60
Setting Parental Controls	66
Working with the Clock, Language, and Region Category	67
Installing and Uninstalling Programs	70
Taking Backup and Restoring the Windows 7 Registry	74
Taking Backup and Restoring Windows 7 Files	77
Summary	84

## MICROSOFT WORD

### 1. Introduction to MS Word 2010 85

Introduction	86
Starting MS Word 2010	86
Exploring the MS Word 2010 User Interface	86
File Tab	87
Quick Access Toolbar	88
Title Bar	88
Ribbon	88
Document Window	88
Scroll Bar	88
Ruler	88
Status Bar	88
Zoom Controls	88
Document View Button	89
Exploring the Ribbon	89
Home Tab	89
Insert Tab	90
Page Layout Tab	90

References Tab	91
Mailings Tab	92
Review Tab	93
View Tab	94
Creating a New Document	95
Creating Document Using a Blank Template	95
Creating Document based on Templates	96
Saving the Document	97
Saving a Document in Compatible Format	98
Saving Document as a PDF File	99
Opening an Existing Document	100
Adding Text in a Document	101
Working with Graphics	101
Inserting a Picture	101
Defining SmartArt Graphic	103
Selecting the Text	105
Cutting, Copying, and Pasting Text	106
Performing Spelling and Grammar Check in MS Word 2010 Document	108
Formatting the Text	110
Changing the Font and Font Size of Text	110
Aligning Text	111
Changing the Page Setup	112
Setting the Page Margins	112
Changing the Page Size	113
Working with Table	114
Inserting Table	114
Inserting Table by Using the Insert Table Dialog Box	115
Inserting Rows and Columns to an Existing Table	116
Printing a Document	117
Previewing a Document	117
Setting Print Options	118
Closing the Document and Quitting from MS Word 2010 Application	119
Summary	120

**MICROSOFT EXCEL**

<b>1. Introduction to MS Excel 2010</b>	<b>121</b>
Introduction	122
Defining the Need for Excel	122
Understanding Workbooks and Worksheets	122
Starting Microsoft Excel 2010	122
Exploring the Microsoft Excel 2010 User Interface	124
The File Tab	124
Quick Access Toolbar	124
The Title Bar	124
The Minimize, Maximize/Restore, and Close Buttons	124
The Ribbon	125
The Formula Bar	125
The Worksheet	125
The Scroll Bars	125
The Sheet Tab	126
The Status Bar	126
Exploring the Ribbon	126
Closing a Workbook	133
Quitting the MS Excel Application	133
Summary	134

**MICROSOFT POWERPOINT**

<b>1. Introduction to MS PowerPoint 2010</b>	<b>135</b>
Introduction	136
Launching Microsoft PowerPoint 2010	136
Exploring Microsoft PowerPoint 2010 Interface	137
Quick Access Toolbar	137
Title Bar	138
Minimize, Maximize/Restore down, and Close Buttons	138
File Tab	138
Ribbon	139
Working Area	139

Slides and Outline Tabs	139
Slide Pane	139
Notes Pane	140
Status Bar	140
Navigation Pane	140
Zoom Control	140
Exploring the Ribbon	140
The Home Tab	140
The Insert Tab	141
The Design Tab	142
The Transitions Tab	143
The Animations Tab	144
The Slide Show Tab	144
The Review Tab	145
The View Tab	146
<b>Creating a Presentation</b>	<b>147</b>
Creating a Presentation using the Blank Template	147
Creating a Presentation using an Installed Template	147
Inserting a New Slide	148
Saving a Presentation	149
Saving Presentation in the Default File Format	149
Saving Presentation in a compatible Format	150
Saving Presentation as PDF	152
Closing the Presentation and Quitting Microsoft PowerPoint Application	153
Summary	154

**MICROSOFT OUTLOOK**

<b>1. Introduction to MS Outlook 2010</b>	<b>155</b>
Introduction	156
Exploring New Features of MS Outlook 2010	156
Configuring an E-mail Account in MS Outlook 2010	157
Exploring the User Interface of MS Outlook 2010	162
Title Bar	163
Quick Access Toolbar	164

Maximize, Minimize, and Close Buttons	164
File Tab	164
Ribbon	164
Navigation Pane	166
Content Pane	167
People Pane	167
Reading Pane	167
To-Do Bar	168
Status bar	168
Describing the MS Outlook 2010 Components	168
Mail	169
Calendar	169
Contacts	170
Tasks	170
Notes	171
Working with E-mail Messages	171
Creating and Sending an E-mail Message	171
Attaching a File to an E-mail Message	173
Viewing a Received E-mail Message	175
Backing Up and Restoring a Data File	176
Summary	178

## HARDWARE

<b>1. Mouse</b>	<b>179</b>
Introduction	180
Using a Mouse	180
Exploring Different Types of Mouse	181
The Mechanical Mouse	181
The Optomechanical Mouse	181
The Optical Mouse	181
The Wireless Mouse	182
Working with a Mouse	182
Clicking the Left Mouse Button	182
Clicking the Right Mouse Button	183
Double-Clicking the Left Mouse Button	185
Adjusting Mouse Properties using Control Panel	186
Discussing Mouse Connectors	187

The Serial Mouse Connector	187
The PS/2 Mouse Connector	188
The USB Mouse Connector	188
Cleaning a Mouse	188
Cleaning the Roller Mouse	188
Cleaning the Optical Mouse	189
Troubleshooting Problems of a Mouse	190
Exploring a Flowchart to Troubleshoot the Problems of a Mouse	191
Summary	192

## **2. Keyboard** **193**

Introduction	194
Types of Keyboard	194
101-key Enhanced Keyboard	194
104-keys Windows Keyboard	195
Ergonomic Keyboard	195
Multimedia Keyboard	195
Cordless Keyboard	196
Keyboard Technology	196
Membrane Switch	196
Rubber Dome Switch	196
Mechanical Switch	196
Keyboard Connector	197
5-pin DIN Connector	197
6-pin PS/2 Connector	197
4-pin USB Connector	197
Working of the Keyboard	198
Adjusting Keyboard Properties from Control Panel	198
Keyboard Maintenance	200
Dealing With Liquids	200
Preventing Problems	200
Keyboard Cleaning	200
Troubleshooting Problem of a Keyboard	201
Exploring a Flowchart to Troubleshoot the Problems of a Keyboard	202
Summary	202

<b>3. Understanding Display Devices</b>	<b>203</b>	Text and Graphics	221
Introduction	204	Fonts	221
Understanding Display Types	204	Print Styles	221
CRT	204	Set Print Sizes	222
LCD	205	Classification of Fonts	222
LED	205	Printer Languages	222
Plasma	206	Exploring Different Types of Printer	222
Display Device Technologies	206	The Dot Matrix Printer	223
Monitor Size and Viewable Area	206	The Inkjet Printer	224
Dot Pitch	207	The Laser Printer	227
Refresh Rate	207	The Work Center Printer	231
Resolution	209	Discussing the Sequence to Print a Document	232
Multimonitor	211	Discussing Printer Ports	233
Degauss	211	SPP	233
Video Standards	211	EPP	233
MDA	212	ECP	233
CGA	212	Installing a Local Printer	234
EGA	212	Installing a Network Printer	237
VGA	212	Cancelling the Printing Job	239
Super VGA	213	Uninstalling a Printer	240
XGA	213	Troubleshooting Problems of a Printer	241
UXGA	213	Troubleshooting the Problems of the	
Video Technologies	213	Dot Matrix Printer	242
DVI	213	Troubleshooting the problems of the	
HDMI	214	Inkjet Printer	242
Component Video	214	Troubleshooting the Problems of the	
S-video	215	Laser Printer	243
Composite Video	215	Exploring a Flowchart to Troubleshoot the	
Display Port	215	Problems of a Printer	243
Display Device Troubleshooting	216	Summary	246
Troubleshooting Monitor Related Problems		<b>5. Motherboard</b>	<b>247</b>
using a Flowchart	218	Introduction	248
Summary	218	Exploring Different Components of	
<b>4. Printer</b>	<b>219</b>	a Motherboard	248
Introduction	220	Processor Sockets/Slots	249
Exploring the Characteristics of a Printer	220	Memory Sockets	250
Type Quality	220	Motherboard Chipsets	250
Print Speed	221	BIOS	250
		Clock Generator	250



CMOS Memory Chips	250	Areal Density	266
Super I/O Controllers	250	Read/Write Heads	266
Expansion Slots	250	Understanding SSD	266
Power Connectors	251	Discussing Interfaces of Hard Disk Drives	267
Voltage Regulators	251	The IDE/ATA Interface	267
Capacitors	251	The SCSI Interface	267
Batteries	251	The SATA Interface	267
Keyboard and Mouse Connectors	251	The USB Interface	268
Jumpers	251	The eSATA Interface	268
Ports and Headers	252	Exploring File Systems of Hard Disk Drives	268
Pin Connectors	252	FAT12 and FAT16	269
Understanding Motherboard Form Factors	253	VFAT	269
The AT Form Factor	253	FAT32	269
The Baby AT Form Factor	253	NTFS	269
The ATX Form Factor	254	NTFS 5.0	270
The Mini-ATX Form Factor	254	HPFS	270
The MicroATX Form Factor	254	ReFS	270
The FlexATX Form Factor	255	Difference between Various File Systems	270
The LPX Form Factor	255	Exploring Hard Disk Drive Tools	272
The NLX Form Factor	255	Disk Cleanup	272
Exploring a Dual Processor Motherboard	256	Check Errors in a Hard Disk Drive	274
Upgrading a Motherboard	257	Disk Defragmentation	275
Installing RAM	257	Compress Files or Folders	276
Verifying the Installation of RAM	258	Check Hard Disk Drives for Viruses	278
Troubleshooting Problems of a Motherboard	258	Formatting a Hard Disk Drive	284
Exploring a Flowchart to Troubleshoot a Motherboard	259	Format a Hard Disk Drive by Windows 7	284
Summary	260	Format a Hard Disk Drive Using DOS	285
<b>6. Computer Memory</b>	<b>261</b>	Adding an Additional Hard Disk Drive	287
Introduction	262	Exploring New Trends in Hard Disk Drives	294
Exploring RAM	262	External Hard Disk Drives	294
Discussing Types of Physical Memory	262	Pocket Hard Disk Drives	295
Understanding Hard Disk Drives	263	Controlling Data Loss	295
Exploring the Components of a Hard Disk Drive	264	Troubleshooting Problems of a Computer Memory	296
Platters	264	Troubleshooting Problems of RAM	296
Magnetic Media	265	Troubleshooting Problems of a Hard Disk Drive	296
Tracks and Sectors	265	Exploring a Flowchart to Troubleshoot Hard Disk Drives	299
		Summary	300

<b>7. Microprocessors</b>	<b>301</b>	Exploring CD Technologies	329
Introduction	302	Understanding CD Standards	330
Exploring Different Types of Microprocessors	302	Discussing a DVD-ROM Drive	331
The CISC Microprocessor	302	Storage Capacity of a DVD	332
The RISC Microprocessor	302	DVD Technologies	332
Exploring Different Components of a Microprocessor	303	Understanding Magneto-Optical Drives	333
Describing Different Terms Used with a Microprocessor	303	Exploring Blu-ray	333
Clock Rate	303	Exploring the Combo Drive	333
Motherboard	303	Decoding Optical Media	333
System Bus	303	Maintaining a CD/DVD Drive	334
Cache Memory	303	Cleaning a CD/DVD-ROM Drive	334
Instruction Pipelining	304	Writing Data on a CD/DVD with the Windows 7 Wizard	334
Heat Sink	304	Writing Data on a CD/DVD Using Nero	337
Discussing the Development of the Microprocessor	304	Creating an Image of a CD/DVD	341
The Desktop Microprocessor	304	Troubleshooting Problems of Optical Media	343
The AMD Microprocessor	316	Exploring a Flowchart to Troubleshoot a CD/DVD Drive	344
The Server Microprocessor	318	Summary	344
Understanding the Basics of a Microprocessor	320		
Packaging of a Microprocessor	320	<b>9. Understanding Laptops</b>	<b>345</b>
Discussing the Sockets of a Microprocessor	321	Introduction	346
Installing a New Microprocessor	322	Laptops vs. Desktops	346
Troubleshooting Problems of a Microprocessor	323	Understanding Laptop Architecture	346
Exploring a Flowchart to Troubleshoot a Microprocessor	324	Laptop Case	347
Summary	324	Motherboards	347
		Processors	347
<b>8. Optical Media</b>	<b>325</b>	Memory	348
Introduction	326	SODIMM	348
Understanding the Key Terms of a CD/DVD-ROM Drive	326	Storage	349
Exploring a CD-ROM Drive	326	Input and Pointing Devices	350
Discussing the Buffer/Cache of a CD-ROM Drive	328	Expansion Cards	351
Understanding the Operation of a CD-ROM Drive	328	Laptop Ports	352
		Docking Stations	352
		Power Systems	353

Understanding Laptop Power Management	354	Network Topology	373
Global States	354	Protocol	376
Processor States	355	Hardware and Software Requirements to Setup a Network	376
Device States	355	NIC	376
Performance States	355	Networking Cables	383
Replacing Laptop Components	355	Hubs	385
Replacing LCD Component	355	Switches	385
Replacing Hard Drive and Memory	356	Repeaters	386
Replacing Internal Laptop Expansion Slots	359	Bridges	386
Upgrading Wireless Network Cards and Video Cards	359	Routers	387
Replacing Other Internal Components	363	Protocols	387
Updating BIOS	366	NOS	387
Removing External Hardware	367	Role of a Server in Networking	388
Processor Related Problems	367	Types of Servers	388
Summary	368	The File Server	389
<b>NETWORKING</b>		The Database Server	389
<b>1. Introduction to Networking</b>	<b>369</b>	The Print Server	389
Introduction	370	The FTP Server	390
Basics of Networking	370	The Proxy Server	390
Need for Networking	371	The Web Server	390
Advantages of Networking	371	The Mail Server	390
Sharing Files	371	The Application Server	391
Sharing Resources	371	Network Models	391
Enhancing Communication	372	The Peer-to-Peer Network	391
Improving Person-to-Person Communication	372	The Client/Server Network	392
Disadvantages of Networking	372	The Hybrid Network	393
Lack of Data Security and Privacy	373	The OSI Model	393
Costly and Complex Wiring	373	The Physical Layer	394
Complicated and Expensive Network Software	373	The Data Link Layer	394
Server Crashing	373	The Network Layer	395
Characteristics of a Network	373	The Transport Layer	396
Architectural Model	373	The Session Layer	397
		The Presentation Layer	397



The Application Layer	398	Wiring Distribution Components	424
The Client/Server Architecture	399	Vertical and Horizontal Cross Connects	424
The Two-Tier Architecture	399	Patch Panels	424
The Three-Tier Architecture	399	66 Block Connector	424
Summary	400	Main Distribution Frame	425
<b>2. Types of Networking</b>	<b>401</b>	Intermediate Distribution Frame	425
Introduction	402	25-pair Cable	425
Local Area Network (LAN)	402	100-pair Cable	425
Ethernet	402	110 Block Connector	425
Token Bus	405	Demarc	426
Token Ring	405	Demarc Extension	426
Fiber Distributed Data Interface (FDDI)	407	Smart Jack	426
Metropolitan Area Network (MAN)	408	Summary	426
Wide Area Network (WAN)	408	<b>4. Understanding TCP/IP</b>	
Exploring CSMA/CD	409	<b>Protocol Suite</b>	<b>427</b>
Summary	410	Introduction	428
<b>3. Network Cabling</b>	<b>411</b>	Exploring Different Layers of TCP/IP	
Introduction	412	Protocol Suite	428
Network Cable Types	412	The Network Interface Layer	428
Twisted-Pair Cable	412	The Internet Layer	429
Coaxial Cable	414	The Transport Layer	429
Fiber Optic Cable	416	The Application Layer	429
Media Converters	417	Understanding the IP Address	430
Broadband over Power Line	418	Understanding IPv4 Addresses	430
Serial Cables	418	Exploring the Need for IPv6	433
Common Cable Properties	419	Exploring IPv6 Addressing	433
Distance	419	Discussing NAT	436
Data Rate	419	SNAT	437
Frequency	419	DNAT	437
Bandwidth	419	Exploring DNS	437
Noise Immunity	419	Name Space	437
Duplex	420	Domain Name Space	437
Wiring Standards	420	Summary	440
568A	420	<b>5. Wireless Networking</b>	<b>441</b>
568B	420	Introduction	442
Straight-Through Cable	421	Understanding the Basics of Wireless	
Crossover Cable	422	Networking	442

Advantages of Wireless Networking	442	WPAN	455
Disadvantages of Wireless Networking	442	Mobile Computing	455
Exploring Hardware Requirements to Setup a Wireless Network	443	Troubleshooting Problems of a Wireless Network	455
Wireless Access Point	443	Summary	456
Wireless Repeater	444	<b>6. Troubleshooting Tools</b>	<b>457</b>
Wireless Bridge	445	Introduction	458
Wireless Antennae	445	Protocol Analyzer	458
Wireless Adapter	446	Throughput Tester	459
Discussing Software Requirements to Setup a Wireless Network	447	Connectivity Software	459
Exploring Different Types of Wireless Networking Models	448	The Traceroute Utility	460
The P2P Wireless Networking Model	448	The ipconfig Command	460
The AP Wireless Networking Model	448	The ping Command	462
Understanding Different Wireless Technologies	449	The Address Resolution Protocol	463
The Bluetooth Technology	449	Windows ARP Table	464
The IR Technology	451	The ARP Utility	464
The Radio Waves Technology	451	The nslookup Utility	466
Wireless Networking Standards	451	Resolving Names with the Hosts Table	467
IEEE 802.11	451	The pathping Command	468
IEEE 802.11a	452	The route Command	469
IEEE 802.11b	452	The nbtstat Utility	470
IEEE 802.11g	452	Using -a option	471
IEEE 802.11n	452	Using -A option	472
IEEE 802.16 (WiMAX)	452	Using -c Option	473
IEEE 802.16a (WiMAX)	452	Using -n Option	473
HomeRF	453	Using -r Option	473
Understanding Wireless Network Security	453	Using -R Option	474
The SSID Technology	453	Using -S Option	474
The MAC Address Filtering Technology	454	Using -s Option	475
The WEP Technology	454	The netstat Utility	475
The WPA Technology	454	Using -a Option	476
The WPA 2 Technology	454	Using -e option	477
Exploring Different Types of Wireless Networks	454	Using -r Option	478
WLAN	454	Using -s Option	478
WWAN	455	Using -p Option	480
		Using -n Option	480
		Understanding Telnet Utility	481

Enabling Telnet in Windows 7	481	Exploring the Services and Protocols Supported by IIS 7	520
Secure Shell Better Than Telnet	487	The ASP.NET Service	520
Summary	488	The File Transfer Protocol (FTP) Publishing Service	520
<b>WINDOWS SERVER 2008 R2</b>		The World Wide Web Service	520
<b>1. Getting Started with Windows Server 2008 R2</b>		The Simple Mail Transfer Protocol (SMTP)	521
Introduction	490	The Network News Transfer Protocol	521
Exploring Windows Server 2008 R2 Editions	490	Installing IIS 7	521
Windows Server 2008 R2 Foundation Edition	490	Installing Web Server (IIS7) Management Service	526
Windows Server 2008 R2 Standard Edition	490	Configuring Web Server (IIS 7) Management Services	528
Windows Server 2008 R2 Enterprise Edition	490	Working with Websites	531
Windows Server 2008 R2 Datacenter Edition	491	Managing a Default Website	532
Windows Server 2008 R2 Web Server Edition	491	Creating a New Website	534
Windows Server 2008 R2 HPC Server Edition	491	Summary	536
Windows Server 2008 R2 for Itanium-based Systems Edition	491	<b>3. Remote Desktop Services</b> <b>537</b>	
Exploring the Features of Windows Server 2008 R2	491	Introduction	538
Exploring Hardware Requirements for Windows Server 2008 R2 Installation	492	Introducing Remote Desktop Services	538
Installing Windows Server 2008 R2	493	Exploring Role Services in RDS	539
Configuring Windows Server 2008 R2	498	RD Session Host	539
Exploring Active Directory	503	RD Web Access	539
Requirements for Installing Active Directory	503	RD Licensing	540
Installation of Active Directory	503	RD Gateway	540
Installation of Active Directory Domain Controller	507	RD Connection Broker	541
Exploring Organizational Unit	513	RD Virtualization Host	541
Creating an Organizational Unit	513	Adding Remote Desktop Services Role	542
Creating a Group in an OU	514	Enabling Remote Desktop Feature	546
Adding User Accounts into a Group	516	Configuring RD Session Host	548
Summary	518	Using RD Services Manager	554
<b>2. Internet Information Services 7 (IIS 7)</b>		Working with RemoteApp Program	555
Introduction	520	Configuring RemoteApp Program	556
Understanding Internet Information Services 7	520	Packaging RemoteApp Program	558
		Deploying RemoteApp Program MSI Package by Using Group Policy	560
		Summary	564

**4. Managing Network Services and Policies**

**565**

Introducing the DHCP Server	567
The DHCP Address Assignment Process	568
Address Leases	568
DHCP Scopes	568
DHCP Options	569
Installing the DHCP Server	569
Configuring the DHCP Server	576
Creating an Address Exclusion Range	576
Creating an Address Reservation	577
Introducing the DNS Server	578
Using Name Resolution Methods	578
Link Local Multicast Name Resolution	579
Network Basic Input/Output System	579
Describing the Components of DNS	579
Working with a DNS Query	580
Installing a DNS Server	581
Configuring the DNS Server Setting	583
Configuring the Caching-only DNS Server	584
Using the Properties Dialog Box of the DNS Server	584
Configuring the DNS Client Settings	585
Configuring the DNS Server Address for the Client	585
Setting Computer Name and DNS Suffix	585
Configuring a DNS Domain Suffix Search List	587
Configuring Dynamic Updates	588
Clearing the DNS Client Cache	589
Exploring DNS Zones	589
Routing and Remote Access Service	593
Introducing Network Access Protection	602
Describing the Components of Network Access Protection	602
Describing the NAP	
Client-Server Architecture	603
Creating a Network Access Policy	605
Introducing Windows PowerShell	612
Introducing Public Key Infrastructure	613

Managing Resource and Services	
Using WSRM	613
Windows Reliability and Performance Monitor	613
Introducing User Profiles	614
The Local User Profile	614
The Roaming User Profile	614
The Mandatory User Profile	614
Summary	614

**APPENDIX**

Appendix A: Appendix: Introducing Windows Server 2012	615
---	-----

**E-CHAPTERS**

**1. Windows**

Working with Windows Explorer	1
Securing Windows	37
Working with Disk Operating System (DOS)	49

**2. Office 2010**

Sharing a Document	75
Understanding Mail Merge	85
Working with Worksheet	99
Working with Charts and SmartArt Graphics	125
Working with Sorting and Filtering Data, Formulas and Functions	135
Working with Presentation and Objects	175
Enhancing the Presentation	175

**3. Hardware**

Scanner	185
Speakers	197
Projector	209
Power and SMPS	217
Beep Codes	225

**4. Networking**

The Internet	233
--------------	-----