

GLOBAL
EDITION



Technology in Action

Complete

SIXTEENTH EDITION

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Don't just read about technology, interact with it.

HELPDESKS

These highly-interactive, almost game-like simulations let you take the role of a helpdesk staffer where you answer computer technology questions from customers. These simulations help reinforce the book content in a fun, engaging way.

CHAPTER 1

Technology Impacts
The Impact of Artificial
Intelligence

CHAPTER 2

Understanding Bits
and Bytes
Exploring Storage
Devices and Ports

CHAPTER 3

Doing Business
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Evaluating Websites

CHAPTER 4

Buying and Installing
Software
Choosing Software

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Evaluating Your CPU
and RAM
Evaluating Computer
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CHAPTER 7

Understanding
Networking
Managing and
Securing Wireless
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CHAPTER 8

Managing Digital
Media
Understanding
Intellectual Property
and Copyright

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Threats to Your
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Understanding
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Software
Programming
A Variety of
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Using Databases
How Businesses
Use Databases

CHAPTER 12

Using Servers
Transmission Media
and Network
Adapters

CHAPTER 13

Understanding IP
Addresses, Domain
Names, and
Protocols
Keeping E-Mail
Secure

SOUND BYTES

These multimedia lessons demystify complex computer concepts with short audio, animation, or video. The Sound Bytes now also include integrated learning objectives, a summary, and a quiz.

CHAPTER 1

Virtual Computer
Tour
How to Debate
Ethical Issues

CHAPTER 2

Binary Numbers
Interactive
Smartphone Are
Really Smart

CHAPTER 3

Blogging
Finding Information
on the Web

CHAPTER 4

Where Does Binary
Show Up?
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Using Windows
Task Manager to
Evaluate System
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Installing an SSD
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Network Topology
and Navigation
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A Day in the Life
of a Network
Technician

CHAPTER 13

Creating Web Pages
with Squarespace
Client-Side
Web Page
Development

IT SIMULATIONS

IT Simulations are detailed, interactive scenarios covering the core chapter topic. Students work through the simulations to apply what they have learned and demonstrate understanding in an active learning environment.

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Technology and
Ethics

CHAPTER 2

What Is
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System Software

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Communicating,
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Technology In Action Complete, Global Edition

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Global Issues

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Technology Connects Us with Others

Technology Impacts How and Why We Connect and Collaborate

Objective 1.3 Describe how technology is changing how and why we connect and collaborate with others.

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Helpdesk: Technology Impacts

Sound Byte: Virtual Computer Tour

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Make This: TOOL: App Inventor 2 or Thunkable

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Make This: TOOL: App Inventor 2 or Thunkable

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Try This: Testing Your Network Security

Make This: App Inventor 2 or Thunkable

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Make This: TOOL: App Inventor 2 or Thunkable

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Make This: TOOL: App Inventor 2 or Thunkable

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Ethics in IT: Data, Data Everywhere But Is It Protected?

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Business Information Systems

Objective 11.11 Describe the main types of business information systems and how they are used by business managers.

Sound Byte: Analyzing Data with Microsoft Power BI Suite

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Bits&Bytes: Virtual Agents: Expert Systems Replace People on the Web

Trends In IT: Mobile Business Intelligence

Solve This: College Database

Chapter 12 Behind the Scenes: Networking and Security in the Business World

Part 1: Client/Server Networks and Topologies

Learning Outcome 12.1 You will be able to describe common types of client/server networks, servers found on them, and network topologies used to construct them.

Client/Server Network Basics

Networking Advantages

Objective 12.1 List the advantages for businesses of installing a network.

Comparing Client/Server and Peer-to-Peer Networks

Objective 12.2 Explain the differences between a client/server network and a peer-to-peer network.

Types of Client/Server Networks

Objective 12.3 Describe the common types of client/server networks as well as other networks businesses use.

Bits&Bytes: Make Your Browser Protect You!

Servers and Network Topologies

Servers

Objective 12.4 List the common types of servers found on client/server networks.

Helpdesk: Using Servers

Trends In IT: Virtualization: Making Servers Work Harder

Network Topologies

Objective 12.5 Describe the common types of network topologies and the advantages and disadvantages of each one.

Sound Byte: Network Topology and Navigation Devices

Try This: Sharing Printers on a Network Using Windows

Make This: TOOL: App Inventor 2 or Thunkable

Part 2: Setting Up Business Networks

Learning Outcome 12.2 You will be able to describe transmission media, network operating system software, and network navigation devices and explain major threats to network security and how to mitigate them.

Transmission Media

Wired and Wireless Transmission Media

Objective 12.6 Describe the types of wired and wireless transmission media used in networks.

Bits&Bytes: Guidance on Green Computing

Network Adapters and Navigation Devices

Network Adapters

Objective 12.7 Describe how network adapters help data move around a network.

MAC Addresses

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Objective 12.8 Define MAC addresses, and explain how they are used to move data around a network.

Switches, Bridges, and Routers

Objective 12.9 List the various network navigation devices, and explain how they help route data through networks.

Helpdesk: Transmission Media and Network Adapters

Network Operating Systems and Network Security

Network Operating Systems

Objective 12.10 Explain why network operating systems are necessary for networks to function.

Bits&Bytes: Extending Smart Homes: Smart Yards Coming Soon!

Client/Server Network Security

Objective 12.11 List major security threats to networks, and explain how network administrators mitigate these threats.

Dig Deeper: The OSI Model: Defining Protocol Standards

Sound Byte: A Day in the Life of a Network Technician

Ethics in IT: How Should Companies Handle Data Breaches?

Bits&Bytes: Logging in? Try Finger Vein Recognition

Solve This: Cyber-Security Flyer and Mail Merge

Chapter 13 Behind the Scenes: How the Internet Works

Part 1: Inner Workings of the Internet

Learning Outcome 13.1 You will be able to explain how the Internet is managed and the details of how data is transmitted across the Internet.

Internet Management and Networking

Management

Objective 13.1 Describe the management of the Internet.

Networking Components

Objective 13.2 Explain how the Internet's networking components interact.

Data Transmission

Objective 13.3 List and describe the Internet protocols used for data transmission.

Bits&Bytes: A Free Cloud-Based Server for You

Internet Identity

IP Addresses

Objective 13.4 Explain how each device connected to the Internet is assigned a unique address.

Helpdesk: Understanding IP Addresses, Domain Names, and Protocols

Bits&Bytes: What's Your IP Address?

Bits&Bytes: Amazing Applications of IoT

Sound Byte: Creating Web Pages with Squarespace

Dig Deeper: Connection-Oriented Versus Connectionless Protocols

Domain Names

Objective 13.5 Discuss how a numeric IP address is changed into a readable name.

Bits&Bytes: Scale Up for Success

Try This: Ping Me

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Make This: TOOL: App Inventor 2 or Thunkable

Part 2: Coding and Communicating on the Internet

Learning Outcome 13.2 You will be able to describe the web technologies used to develop web applications.

Web Technologies

Web Development

Objective 13.6 Compare and contrast a variety of web development languages.

Bits&Bytes: CodePen: An Editing Community for Web Designers

Application Architecture

Objective 13.7 Compare and contrast server-side and client-side application software.

Sound Byte: Client-Side Web Page Development

Bits&Bytes: Repl It

Communications over the Internet

Types of Internet Communication

Objective 13.8 Discuss the mechanisms for communicating via e-mail and instant messaging.

Bits&Bytes: AI and Your Inbox

Encryption

Objective 13.9 Explain how data encryption improves security.

Bits&Bytes: Numbers: We Wouldnt Have Encryption Without Them!

Ethics in IT: Do We Really Want Strong Encryption?

Helpdesk: Keeping E-Mail Secure

Trends In IT: Cognitive Computing

Solve This: Creating an HTML Document

Appendix A The History of the Personal Computer

Appendix B Careers in IT

Glossary

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