计算机专业英语

— Computing Essentials (2008 影印版)

- Timothy J. O'Leary
- Linda I. O'Leary



高等教育出版社

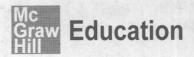


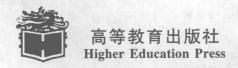
Education

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Timothy J. O'Leary Linda I. O'Leary





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Timothy J. O'Leary, Linda I. O'Leary

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出版说明

本书是美国麦格劳 - 希尔(McGraw-Hill)出版公司出版的 Computing Essentials 2008, Introductory Edition 一书的影印版。原书自 1989 年以来每年都出一次新版,主要用作英语国家的计算机导论性教材。我社曾经影印过本书的 1995—1996 版、1998—1999 版和 2002—2003 版,主要用作高等学校计算机专业英语教材,采用的学校普遍反映较好。本书是今年出版的新版,在内容上做了全面更新,突出了知识的先进性、系统性和教学的实践性,并提供了更为丰富的习题和在线学习功能。

本书概括地介绍了计算机与信息技术的常见概念和术语、主要应用领域及其对社会的影响。全书由11章和附录组成,主要内容包括:信息技术概述;因特网、万维网与电子商务;应用软件;系统软件;硬件系统;输入/输出设备;存储设备;通信与网络;隐私与安全;信息技术展望等。书中含有大量丰富的图片,用于说明计算机及各种技术、设备的结构、原理和组成,使各种技术、概念和术语一目了然。每章之后附有未来展望、综合性的图示小结、关键词和术语列表、习题、技术应用、知识扩展、自制文档等丰富的实践内容。

本书内容丰富新颖,叙述简练清楚,形式生动活泼,英语语言规范流畅。书中比较全面地覆盖了计算机与信息技术领域中的基本名词和术语,尤其是目前十分流行和最新的一些概念和词汇。因此,本书既有助于读者了解和掌握计算机及信息技术基础知识,也有助于他们掌握相应的英文词汇,提高专业英语的阅读能力。本书可作为计算机及信息技术相关专业的计算机专业英语教材,也可作为相应专业的计算机导论教材。

本书配有非常丰富的教学资源,包括教师手册、PPT、在线测试、辅助教学的多媒体资源等。使用本书的教师可以通过麦格劳-希尔教育出版集团北京办事处的免费服务热线(800-810-1936-108)获得相关资源。

本书中凡所提及页码、章节号及叙述内容等超出本书范围的,请参阅《计算机科学引论 (2008 影印版)》(Timothy J. O'Leary, Linda I. O'Leary,高等教育出版社出版,书号为 978 - 7 - 04 - 023967 - 6)。

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PREFACE

The 20th century brought us the dawn of the digital information age and unprecedented changes in information technology. There is no indication that this rapid rate of change will be slowing—it may even be increasing. As we begin the 21st century, computer literacy is undoubtedly becoming a prerequisite in whatever career you choose.

The goal of *Computing Essentials* is to provide you with the basis for understanding the concepts necessary for success. *Computing Essentials* also endeavors to instill an appreciation for the effect of information technology on people and our environment and to give you a basis for building the necessary skill set to succeed in this the 21st century.

Times are changing, technology is changing, and this text is changing too. As students of today, you are different from those of yesterday. You put much effort toward the things that interest you and the things that are relevant to you. Your efforts directed at learning application programs and exploring the Web seem, at times, limitless. On the other hand, it is sometimes difficult to engage in other equally important topics such as personal privacy and technological advances.

In this text, we present practical tips related to key concepts through the demonstration of interesting applications that are relevant to your lives and by focusing on outputs rather than processes. Then, we discuss the concepts and processes.

Motivation and relevance are the keys. This text has several features specifically designed to engage and demonstrate the relevance of technology in your lives. These elements are combined with a thorough coverage of the concepts and sound pedagogical devices.

We have specifically designed the end-of-chapter materials to this text to meet the different needs of students and instructors. In addition to the traditional end-of-chapter review materials, you will find three unique categories: (1) Applying Technology is designed to help students gain a better understanding of how the technology covered in a particular chapter is used today, (2) Expanding Your Knowledge offers a deeper understanding to topics covered in that particular chapter, and (3) Writing About Technology provides the opportunity to hone essential writing skills while learning about technology issues relating to privacy, security, and ethics.

This table offers a glimpse of the unique coverage you can find at the end of each chapter.

END-OF-CHAPTER COVERAGE

Chapter	Applying Technology	Expanding Your Knowledge	Writing About Technology
1	TV Tuner Cards and Video Clips (p. 176) Digital Video Editing (p. 98) Home Networking (p. 273) Job Opportunities (p. 331)	How Virus Protection Programs Work (p. 146) How Digital Cameras Work (p. 210) How Internet Telephones Work (p. 210) How Wireless Home Networks Work (p. 274)	HTML Source Code (p. 119) Antitrust (p. 147) Electronic Monitoring (p. 275) Processor Serial Numbers (p. 178)
2	Blocking Spam (p. 57) Online Shopping (p. 57) Web Auctions (p. 57)	How Spam Filters Work (p. 58) How Instant Messaging Works (p. 58) Domain Registrations (p. 58)	Free Speech Online (p. 59) Dot-Bombs (p. 59)
3	Speech Recognition (p. 89) Presentation Graphics (p. 89) Corel WordPerfect Office Suite (p. 89)	How Speech Recognition Works (p. 90) Sharing Data between Applications (p. 90) Shareware (p. 90)	Acquiring Software (p. 91) Software Standards (p. 91)
4	Digital Video Editing (p. 117) Shockwave (p. 117) Streaming Multimedia Players (p. 117)	How Digital Video Editing Works (p. 118) Personal Web Site (p. 118) Streaming Multimedia (p. 118)	HTML Source Code (p. 119) Online Expert Systems (p. 119)
5	Virus Protection (p. 145) Windows Update (p. 145) WinZip (p. 145)	How Virus Protection Programs Work (p. 146) Booting and POST (p. 146) Customized Desktop (p. 146)	Antitrust (p. 147) Online Backup (p. 147)
6	TV Tuner Cards and Video Clips (p. 176) Desktop and Notebook Computers (p. 176) Custom System Units (p. 176)	How TV Tuner Cards Work (p. 177) How Virtual Memory Works (p. 177) Binary Numbers (p. 177)	Processor Serial Numbers (p. 178) Smart Cards (p. 178)
7	WebCams and Instant Messaging (p. 209) Internet Telephones (p. 209) Voice Recognition (p. 209)	How Digital Cameras Work (p. 210) How Internet Telephones Work (p. 210) Handwriting Recognition (p. 210)	WebCams (p. 211) Electronic Security (p. 211)
8	iPods and Music from the Internet (p. 237) iPod (p. 237) USB Storage Devices (p. 237)	How Music is Downloaded from the Internet (p. 238) File Compression (p. 238) Internet Hard Drives (p. 238)	CD-R and Music Files (p. 239) Storage Trade-offs (p. 239)
9	Home Networking (p. 273) Distributed Computing (p. 273) Palm (p. 273)	How Wireless Home Networks Work (p. 274) How Napster and Gnutella Work (p. 274) Hotspots (p. 274)	Electronic Monitoring (p. 275) Digital Rights Management (p. 275)
10	Spyware (p. 307) Personal Firewalls (p. 307) Ergonomic Workstations (p. 307)	How Web Bugs Work (p. 308) Mistaken Identity (p. 308) Air Travel Database (p. 308)	Facial Recognition (p. 309) Plagiarism (p. 309)
11	Jobs Online (p. 331) Maintain Computer Competence (p. 331)	Your Career (p. 332) Resume Advice (p. 332)	Writing about Privacy and Ethics (p. 333) Writing about Security (p. 333)

Before beginning this new edition, an extensive review process was completed. Many of the reviewers were current users of *Computing Essentials* and many were users of other textbooks. A clear message was sent: More is not better... better is better. One reviewer succinctly stated: "Determine what is most important and focus on that."

As an educator myself, I knew exactly what the reviewer meant. Today, so many textbooks on information technology have way too much detail and too many technical terms. The density of the information can become overwhelming. To help ease this, many textbooks add relief by inserting numerous photographs that, while attractive to the eye, have little or no informational content.

The result is that our students have difficulty determining what is most important. Too many details tend to hide what is most important. As authors add more and more detail to textbooks, students have greater and greater challenges discerning what is really important—what are the key concepts. More is not better . . . better is better.

Fresh from reading the reviewer comments, I carefully reread Computing Essentials 2007. From this new perspective, it was clear what needed to be done. So, the focus of Computing Essentials 2008 is not to just cover the newest material but to refocus on what are the most important concepts. I have carefully reviewed every figure, photograph, and table. If it lacked informational content, the figure, photograph, or table was dropped. I reexamined every key term. If the term was outdated or not essential, I dropped it. My objective was to return to the roots of Computing Essentials—focusing on the most important and essential concepts of information technology.

VISUAL LEARNING

VISUAL CHAPTER OPENERS



Each chapter begins with a list of chapter competencies or objectives and provides a brief introduction to what will be covered in the chapter. Graphics in the chapter opener demonstrate how the chapter is organized, while text callouts provide a glimpse of topical coverage.

VISUAL SUMMARIES

Visual summaries appear at the end of every chapter and summarize major concepts covered throughout the chapter. Like the chapter openers, these summaries use graphics to reinforce key concepts in an engaging and meaningful way.





HANDS-ON

ON THE WEB EXPLORATIONS

people and organizations become more have practical applications for business post, computers used calculating power which can be whose down into a series of intuition, reasoning, and memory—were problems, whether busiling a product on have long been able to computers the tax knowledge-intensive work and unstruction to the problems of the properties of

Suppose you could create and virtually experience any new wished. You could see the world through the eyes of a chil a lobster. You could explore furaway resorts, the moon,

Virtual reality is an artificial, or simulated, reality general computer. Virtual reality is also commonly known as VR, artifivirtual environments. To navigate in a firtual space, you us hardware including headgear and gloves. The headgear base

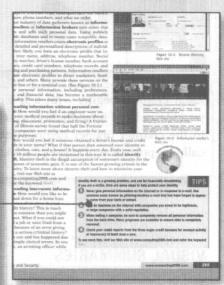
sendgear and gloves. The headgear has three-dimensional steroscopic scree called Eyephones). The gloves have se lect data about your hand movemen called DataGlove). Coupled with softs program called Body Electric), this , sory equipment lets you immerse you

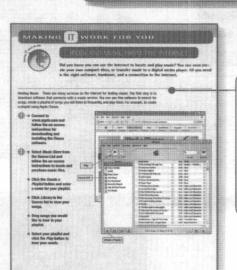
puter-generated world, See Pigure 4-1
Vertual reality modeling language
to create real-time animated 3-D seem
sites exist on the Web with virtual real
Users are able to experience these ap
browsers that support VRMI.
Constitute of the conference of the seems of the conference of th

Creating virtual reality programs very-high-end software costing sever dollars. Recently, several lower-cost y thoring programs have been introdus grams utilize VRMI, and are widely At least two On the Web Explorations appear within the margins of nearly every chapter. These explorations ask you to search specific Web sites for additional information on key topics, encouraging you to expand your knowledge through Web resources.

TIPS

Tips appear within nearly every chapter and provide advice on chapter-related issues, such as how to efficiently locate information on the Web, how to speed up computer operations, and how to protect against computer viruses. Tips assist you with common technology-related problems or issues and motivate you by showing the relevance of concepts presented in the chapter to everyday life. Additional tips can be found on the O'Leary Web site at www. computing 2008.com by entering the keyword tips.





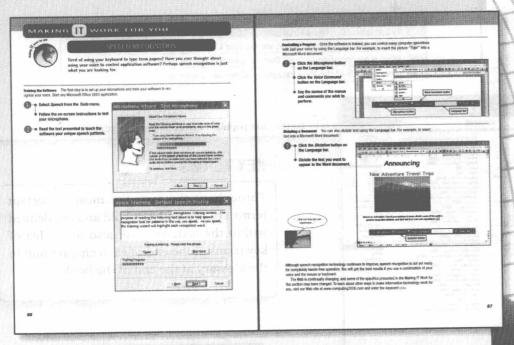
MAKING IT WORK FOR YOU

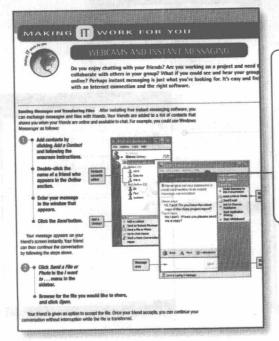
Special interest topics are presented in the Making IT Work for You section found within nearly every chapter. These topics include protecting against computer viruses, downloading music from the Internet, and using the Internet to place free long-distance telephone calls.

LEARNING TOOLS

MAKING IT WORK FOR YOU

The Making IT Work for You icon appears throughout the chapter to show you which topics in the chapter are expanding upon the Making IT Work for You section.





MAKING IT WORK FOR YOU FIGURES

Critical technologies are presented to show how technologies work and how they are used. These animated figures include such topics as How Digital Cameras Work, How Instant Messaging Works, and How Home Networks Work. Additionally, several other topics are animated and presented on the book's Web site.



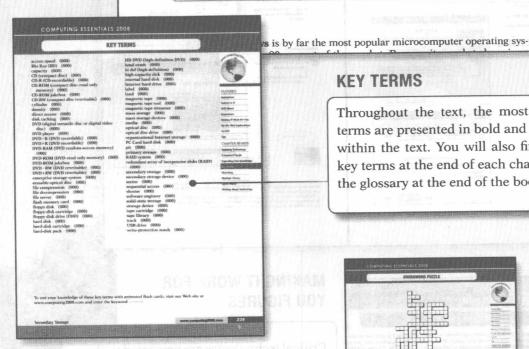
CONCEPT CHECKS

Located at points throughout each chapter, the Concept Check cues you to note which topics have been covered and to self-test your understanding of the material already discussed.

systems. Windows, Mac US, and Linux are operating systems commonly used by individuals.

CONCEPT CHECK

- What is system software? What are the four kinds of system software programs?
- What is an operating system? Discuss operating system functions and features.
- Describe each of the three categories of operating systems.

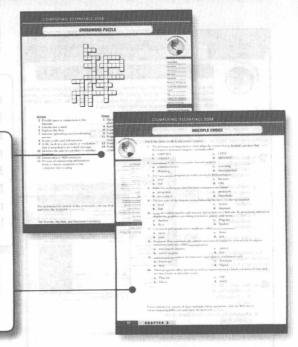


KEY TERMS

Throughout the text, the most important terms are presented in bold and are defined within the text. You will also find a list of key terms at the end of each chapter and in the glossary at the end of the book.

CHAPTER REVIEW

Following the Visual Summary, the chapter review includes material designed to review and reinforce chapter content. It includes a Key Terms list that reiterates the terms presented in the chapter, a Crossword Puzzle to challenge your understanding of the chapter material, Multiple Choice questions to help test your understanding of information presented in the chapter, Matching exercises to test your recall of terminology presented in the chapter, and Open-Ended questions or statements to help review your understanding of the key concepts presented in the chapter.



THE FUTURE OF INFORMATION TECHNOLOGY

states to a topic presented at



CAREERS IN IT

Some of the fastest-growing career opportunities are in information technology. Each chapter highlights one of the most promising careers in IT by presenting job titles, responsibilities, educational requirements, and salary ranges. Among the careers covered are Webmaster, software engineer, and database administrator. You will learn how the material you are studying relates directly to a potential career path.

A Look to the Future

A LOOK TO THE FUTURE

Each chapter concludes with a brief discussion of a recent technological advancement related to the chapter material, reinforcing the importance of staying informed.

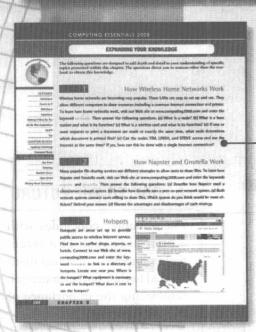
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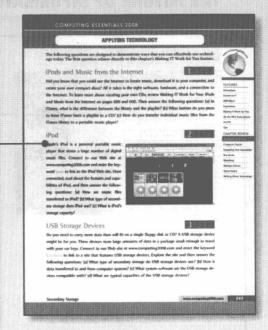
CHAPTER 4

UNIQUE END-OF-CHAPTER MATERIALS

APPLYING TECHNOLOGY

In each chapter, Applying Technology presents questions designed to help you gain a better understanding of how technology is being used today. One question typically relates to the chapter's Making IT Work for You topic. Other questions focus on interesting applications of technology that relate directly to you. Topics include online auctions, online Personal Information Managers, and desktop and notebook computers.



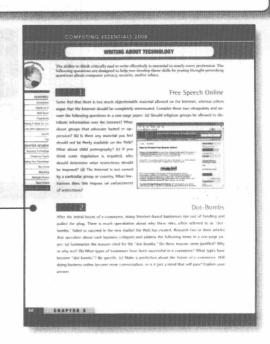


EXPANDING YOUR KNOWLEDGE

In each chapter, Expanding Your Knowledge presents questions that help you gain a deeper understanding of select topics. Typically, one question relates to a topic presented at the book's Web site, www.computing2008.com, such as How Instant Messaging Works, How Streaming Media Works, and How Virus Protection Works. Other questions in Expanding Your Knowledge typically require Web research into carefully selected topics including robotics, multimedia, HDTV, and Internet hard drives.

WRITING ABOUT TECHNOLOGY

In each chapter, Writing About Technology presents questions relating to security, privacy, and ethical issues. The issues presented include HTML source code, antitrust legislation, processor serial numbers, CD-R and music files, and electronic monitoring. One objective of the Writing About Technology feature is to help you develop critical thinking and writing skills. Another objective is to help you recognize, understand, and analyze key privacy, security, and ethical issues relating to technology.



SUPPORT MATERIALS

IR CD-ROM

Instructor's Resource CD-ROM (ISBN: 9780073294698; MHID: 0073294691) contains the Instructor's Manual, PowerPoint slides, an EZ Test generation software with accompanying test item files for each chapter, and 20 video clips (with summaries) from G4techTV.

The Instructor's Manual, prepared by Ann Mauss of Loras College, offers lecture outlines with teaching notes and page references. It provides definitions of key terms and solutions to the end-of-chapter material, including multiple-choice, matching, and open-ended questions. It also offers summaries of the concept checks in each chapter. A selection of G4techTV video clips accompany this text, as do summaries for each clip.

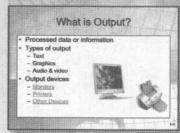
The PowerPoint slides, prepared by Brenda Nielsen of Mesa Community College–Red Mountain, are designed to provide instructors with a comprehensive resource for lecture use. The slides include a review of key terms and definitions, artwork taken from the text, as well as new illustrations to further explain concepts covered in each chapter. Comprehensive teaching notes are provided for each slide.

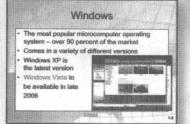
The testbank, prepared by Rajiv D. Narayana, senior editor, and Flevy Crasto, group manager–operations, of Info Data Systems (India) Pvt. Ltd., contains over 2,200 questions categorized by level of learning (definition, concept, and application). This is the same learning scheme that is introduced in the text to provide a valuable testing and reinforcement tool. Text page references have been provided for all questions, including a level-of-difficulty rating. Additional quizzes are provided on the Online Learning Center at www.computing2008. com. These can be used by students to help them prepare for classroom testing. The testbank is offered in Word files, as well as in EZ Test format.

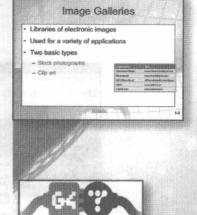
G4TECHTV VIDEOS

G4techTV videos offer instructors and students video content directly related to computing that enhances the classroom or lab experience with technology programming from business and society. Video selections include "The Screen Savers" and "Pulse," which provide edgy and informative discussion. Use of these videos will help students understand how computing interacts with and contributes to business and society and will also offer an advance look at emerging technology and devices.











THE O'LEARY WEB SITE

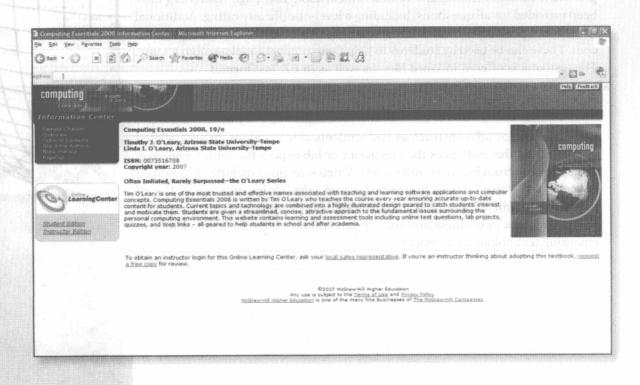
The O'Leary Web site can be found at www.computing 2008.com. Students can find a host of additional resources on the Web site, including animations of key concepts, videos relating to select Making IT Work for You applications, and in-depth coverage of select topics. Look for the Web icon throughout the text to indicate where additional related materials can be found on the Web site. Throughout the end-of-chapter material for the text, marginal lists, denoted by the Web icon,



alert students that expanded coverage of the material in the text can be found on the Web site.

OLC

The text's Online Learning Center can be found at www.mhhe.com/ce2008. Instructors can find support materials to accompany the text on the OLC and can link directly to the OLC from the text's Web site.



O'LEARY SERIES

The O'Leary Application Series for Microsoft Office is available separately or packaged with *Computing Essentials*. The O'Leary Application Series offers a step-by-step approach to learning computer applications and is available in both brief and introductory versions. The introductory books are MCAS Certified and prepare students for the Microsoft Office User Certification Exam.

SIMNET ASSESSMENT FOR OFFICE APPLICATIONS

SimNet Assessment for Office Applications provides a way for you to test students' software skills in a simulated environment. Simnet is available for Microsoft Office 2007 and provides flexibility for you in your applications course by offering:

Pre-testing options

Post-testing options

Course placement testing

Diagnostic capabilities to reinforce skills

Web delivery of test

MCAS preparation exams

Learning verification reports

For more information on skills assessment software, please contact your local sales representative, or visit us at www.mhhe.com.

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