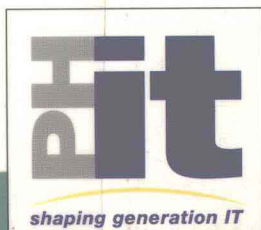


Computers

Information
Technology in
Perspective

TENTH
EDITION



Larry Long and Nancy Long

Prentice Hall, Committed to Shaping the Next Generation of IT Experts.

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Information Technology in Perspective

TENTH EDITION

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Prentice
Hall

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Computers

Information Technology in Perspective

Dedication
To our children,
Troy and Brady,
The motivation for all we do.

PREFACE TO THE INSTRUCTOR

THE PARADIGM SHIFT

The rules are changing. The criteria by which we make decisions, the way we do things, and even what we do are changing—dramatically. Affordable PCs with tremendous power can reach around the world via the Internet. Each increment in PC power and Internet resources adds fuel to the computing and information technology (IT) phenomena, accelerating the pace of change. We are now members of an interconnected society wherein we can shop at online Wal-Mart Supercenters, research our family tree, take virtual tours of thousands of sites from the Louvre Museum in Paris to the pyramids of Egypt, obtain college degrees without attending classes, and work at home as if we were at the office, all from a linked PC.

This paradigm shift is causing radical changes in all facets of society, including the way we teach and learn. We are entering a new era of education in which technology plays an increasingly significant role. This is especially true of introductory information technology courses in which the integration of technology is a natural extension of the learning process. After all, the best place to learn about computers is at the computer.

THE INTRODUCTORY IT COURSE

The introductory IT course has its teaching challenges. To be effective, we must continually change our lecture style and even the vehicle by which we convey content and interact with students. Throughout the term we are continually changing hats. Sometimes we are historians. Much of the time we are scientists presenting technical material. On occasion we are sociologists commenting on ethical and social issues as they relate to technology. In the same course we now toggle between lecture, lab, and, for some, distance learning via the Internet. If that's not enough, we teach an ever-increasing amount of material to students with a wide range of career

objectives and technical abilities. Prentice Hall and we have done everything we can to help you meet this challenge.

Opportunity, challenge, and competition are forcing all of us to become IT competent. *Computers*, 10th ed., its mixed-media components, and its ancillary materials provide a launch pad toward these objectives. The target course for this text and its teaching/learning system:

- *Provides overview coverage of computing/IT concepts and applications for introductory courses.* *Computers*, 10th ed., comes in two versions so that you can get the best fit for your course's educational objectives.
- *Accommodates students from a broad spectrum of disciplines and interests.*
- *May or may not include a laboratory component.* Prentice Hall offers an extensive array of optional learning resources for hands-on laboratories.

OBJECTIVES FOR THE TENTH EDITION OF *COMPUTERS*

We had these primary objectives as we began writing this tenth edition of *Computers*.

- *Present the right content for IT competency.* The tenth edition presents that body of knowledge that students need to become active participants in this exciting new era of technological innovation and application. We cover only that material which is appropriate for general IT competency. We avoid dated concepts and we are very careful not to present topics at depths inconsistent with introductory learning. We feel that students at this stage of their IT competency journey need a breadth of understanding that is applicable *today* and in the *future*. Also, we present only that information that will have an impact the student's ability to cope with the IT revolution, avoiding superfluous information that might dampen a student's interest in learning more about information technology.
- *Streamline the presentation of material.* We have streamlined the presentation eliminating those box items that may be interesting, but are not critical to chapter concepts or IT competency. Though students enjoy a colorful and illustrative presentation, in reality they focus on testable content, mainly the running text.
- *Organize text to enable in-sequence presentation of material.* No two instructors teach an introductory IT concepts course in the same way. What we have attempted to do is reflect the priorities and organizational wishes of the substantial majority of professors. For example, to better support those courses with lab components, which usually begin within the first week or two, we have included a "Getting Started" section up front and a software overview in the second chapter.
- *Present IT ethics in more depth.* IT Ethics has emerged as one of the most important IT concepts and often is a required topic for many college degree programs. A chapter is devoted to IT ethics. Each chapter has several IT Ethics and Issues boxes, with scores of follow-up discussion questions designed to spur lively in-class discussions. Also, numerous engaging discussion questions are placed at the end of each chapter in support of each section in the chapter.
- *Motivate the student to learn.* The text and all supplements are written in a style that remains pedagogically sound while communicating the energy and excitement of IT to the student. We used every writing tool and pedagogical technique in our arsenal to entice the student to turn the page and learn more. We want the information in this book to be absorbed, retained, and enjoyed.
- *Make content relevant to the student.* Throughout the book we make learning about IT a very personal experience by relating terms or concepts to their personal and professional lives. Students make the effort to learn when they can see why it's important to them. Each chapter begins with "Why This Chapter Is Important to You" and each major section begins with "Why This Section Is Important to You." These explanations relate the material to the student's life experiences, thus personalizing his or her IT learning experience.
- *Cover the Internet in a way that reflects its true impact on society.* The Internet is having a profound impact on everything we do. We feel that it is important that students

PREFACE TO THE STUDENT

Welcome to the computer and information technology revolution. You've taken the first step toward information technology (IT) competency, the bridge to an amazing realm of adventure and discovery. Once you have read and understood the material in this text and have acquired some hands-on experience with computers, you will be poised to play an active role in this revolution.

- You'll be an intelligent consumer of PCs and related products.
- You'll be better prepared to travel the Internet and take advantage of its wealth of resources and services.
- You'll become a participant when conversations at work and school turn to computers and technology.
- You'll be better able to relate your computing and information processing needs to those who can help you.
- You'll know about a wide variety of software and services that can improve your productivity at work and at home; give you much needed information; expand your intellectual and cultural horizons; amaze you, your family, and your friends; and give you endless hours of enjoyment.

Achieving IT competency is the first step in a lifelong journey toward greater knowledge and interaction with more and better applications of IT. IT competency is your ticket to ride. Where you go, how fast you get there, and what you do when you arrive are up to you.

LEARNING AIDS

Computers is supported by a comprehensive learning assistance package that includes these helpful learning aids.

THE LONG AND LONG COMPANION WEBSITE

The Long and Long Companion Website (CW) at <http://www.prenhall.com/long> is an Internet site that is accessible from any PC with Internet access. The site, which is designed to help you make the transition between textbook learning and real-world understanding, has a variety of learning aids, including these three main components.

- *Internet Exercises.* The Long and Long Companion Website invites you to go online and explore the wonders of the Internet through a comprehensive set of Internet exercises. These entertaining exercises invite you to learn more about the topics in this book and to do some serendipitous (just-for-fun) surfing.
- *Interactive Study Guide.* The Study Guide portion of the Companion Website gives you an opportunity to sharpen your problem-solving skills and to gauge your understanding of the material in the chapter. For each chapter, the Web site has multiple-choice, true or false, matching, and essay quizzes. The built-in grading feature gives you immediate feedback in the form of a report. The report also includes a question-by-question summary with an explanation or hint, your response, and the correct response (if needed).
- *Other Resources.* Other resources include crossword puzzles, technical updates, and downloadable supplements.

The WEB icons in the margins throughout the book relate material in the book to applicable Companion Website exercises, *Interactive Study Guide* chapters, and technology updates.

EXPLORE GENERATION IT LABS

Twelve Internet and CD-ROM-based labs present an interactive look into the world of computer concepts. The labs cover a variety of topics, including the Internet, e-commerce, hardware, networks, and buying a computer.

ONLINE DISTANCE LEARNING WITH COMPUTERS

Online distance learning in conjunction with *Computers*, 10th ed., is available on two popular Internet-based platforms, Blackboard and WebCT. This and other Prentice Hall online courses can be found at cms.prenhall.com/blackboard and cms.prenhall.com/webct. These sites let you take computer competency courses via distance learning or allow you to enhance your classroom experience with online learning. That is, you log on to the Blackboard or WebCT *Computers*, 10th ed., page on the Internet to interact with instructors and classmates, go over chapter summaries, evaluate your understanding of course material, participate in online discussion groups, take quizzes and tests, gain access to class information (schedule, homework, and so on), make inquiries about your grades, and much more.

Computers, 10th ed., is also available in Prentice Hall's proprietary course delivery platform called CourseCompass. CourseCompass™ is a dynamic, interactive online course management tool powered by Blackboard. This exciting product allows you to learn from Long and Long *Computers*, 10th ed., with an easy-to-use interface. With this tool you can interact with your professor and fellow students, as well as view instructor-designated lecture materials, assignments, self-quizzes, and much more.

YOU, COMPUTERS, AND THE FUTURE

Whether you are pursuing a career as an economist, a social worker, a politician, an attorney, a dancer, an accountant, a computer specialist, a sales manager, or virtually any other career, the knowledge you gain from this course ultimately will prove beneficial. Keep your course notes and your book; they will prove to be valuable references in other courses and in your career.

Even though computers are all around us, we are seeing only the tip of the information technology iceberg. You are entering the IT era in its infancy. Each class you attend and each page you turn will present a learning experience to help you advance one step closer to an understanding of how computers and IT are making the world a better place in which to live and work.

grasp its applications, its potential, its limitations, and how they can use the Internet to their benefit. The Internet is mentioned or discussed hundreds of times throughout the book and two chapters, including a new “Exploring the Cyberworld” chapter, are devoted to the Internet.

A TECHNOLOGY UPDATE

This tenth edition is a *technology update* intended to bring *Computers* abreast with a ram-paging technology. About six Internet years pass in one real-time year, the elapsed time since the last edition. The tenth edition retains the same familiar look and feel as the ninth edition. However, it contains hundreds of changes needed to ensure that Long and Long continues to be the *most current* introductory IT book available. Just look at what has happened over the past year since the last edition. *Computers*, tenth edition, reflects these changes.

- **Hardware**
Wearable PCs are becoming mainstream productivity tools and even are presented as accessory items in fashion shows.
Personal digital assistants (PDA) or palm PCs are beginning to converge with cellular telephones.
The new Apple iMac with its thin LCD monitor and 10-inch footprint has given the desktop PC a new look.
Virtually all new PCs have at least one high-speed FireWire (1394) port.
Hard disk storage capacity and transfer rate have more than doubled.
Notebook PCs have emerged as the PC of choice in many organizations.
- **Inside the Computer**
Processor speeds are up 30%.
Major new processors, such as the Intel Pentium 4™ 2.4 GHz, are common in PCs and the Intel McKinley™ processor opens a new era in 64-bit processing.
- **Applications Software**
Microsoft has released Office XP, a substantially upgraded version of their popular office suite.
Most popular applications software packages have been upgraded to new versions, including Visio 2002, Quicken 2002, Street Atlas 9.0, The Print Shop 12, Norton SystemWorks, and 40 more.
Many new software innovations, such as the software teacher (for example, Playing Rock Guitar) are now on the market.
- **Operating Systems**
Microsoft has released Windows XP, its new and dramatically improved operating system. For example, speech recognition capability is built into the Windows XP.
- **Applications of IT**
Three computers and a few gyroscopes are the foundation of the new Segway™ Human Transporter, a device that is predicted to revolutionize people movement.
The music recording industry is rapidly redefining itself to work within context of the reality of Internet file sharing.
Technology continues to change the way we shop. In one year, customers have become comfortable with scanning the bar codes of goods as they shop. Electronic retailing, e-tailing, grew 100% in a year.
In the aftermath of the September 11, 2001, face recognition technology has been implemented at a number of major airports and companies have embraced Internet-based videoconferencing as alternative to face-to-face meetings.
- **The Internet and Online Services**
Millions of Internet sites and pages have been redesigned to reflect the capabilities of improved development tools and a better understanding of the audience.
America Online has introduced a new version of its interface software.
Net surfers must now cope with *pop-under ads* and *floating ads*.
Half of all international telephone calls are now made via Internet telephone.
The dot.com fallout resulted in extensive consolidation of effort, such as Orbitz, an airline reservations site that is sponsored by a group of major airlines.
The iPIX browser plugin lets Net surfers view an image from every direction.

- **Networking**
Home networking, which has become relatively easy and inexpensive, has blossomed. An explosion of Bluetooth and Wi-Fi (IEEE 802.11b) wireless technology has enable us to be connected to each other and the Internet wherever we might be, thus changing many aspects of our lives, from the way we learn to the way we communicate.
- **Issues**
The events of September 11, 2001 that changed the world have had an equally dramatic impact on how we perceive and use information technology. For example, support for a national database and a more sophisticated national identification system is gaining momentum.
The United States is encouraging commuters to telecommute or “e-commute.”
The cost of computer crimes has doubled.
Spam has tripled causing companies, ISPs, and individuals to deal more aggressively with unsolicited e-mail.
IT opportunities continue, but salaries have remained flat during the economic downturn.
- **Terminology**
Some new terminology has been introduced and is now part of mainstream of computer jargon, such as *P2P* for *peer-to-peer*.

Computers, tenth edition, reflects these and many more changes in our rapidly advancing information technology. Over 150 new or updated images reflect the latest releases and innovations in software. Numerous new photos show new hardware and applications. Throughout the book, capacities and speeds for communications hardware, disks, RAM, processors, printers, and so on have been adjusted to reflect the state of the art.

POPULAR FEATURES IN THE TENTH EDITION

One reason that *Computers* has remained the choice of thousands of your colleagues through eight editions is because we try very hard to include the features you need to teach successful courses.

- **Getting Started.** Unique to introductory IT books, this very visual Getting Started section at the beginning of the book helps to jumpstart the student’s personal computing experience. The section introduces the essential information students need to get them up and running—hardware basics, GUI/operating system concepts, networking logon procedures, and a little on using word processing, e-mail, and Internet browser software.
- **Conversational writing style.** The book “talks” to the student in a manner that is more consistent with their everyday conversation.
- **Engaging design.** The tenth edition has a “reader-friendly” face that is more engaging to today’s students.
- **Applications-oriented.** The continuing theme throughout the text is applications. Hundreds of IT applications are presented, from online universities to telemedicine to robotics.
- **Readability.** All elements (photos, figures, sidebars, and so on) are integrated with the textual material to complement and reinforce learning.
- **Currency-plus.** About six *Internet years* pass in one real-time year—the elapsed time between the ninth and tenth editions. For almost two decades, your peers have told us that we consistently publish the most up-to-date IT concepts textbook. We take great pride in your confidence in us and are committed to presenting a current and forward-looking picture of IT innovations and issues. If it’s current and it’s within the IT-competency body of knowledge, it’s in this book. It has the latest on the Internet, including the digital jukebox, dynamic imaging, B2B, B2C, e-commerce, instant messaging, e-publishing, e-signature, and emerging IT ethical concerns. Software is right out of the box. The latest hardware is here, too: DVD-RAM, FMD-ROM, *HiFD disk*, Intel Pentium 4 processor, Apple’s small footprint iMac, and more. And, of course, the

numbers for communications, disks, RAM, processors, printers, the Internet, and so on are extrapolated from trends to reflect 2002–2003.

- *Flexibility.* The text and its mixed-media teaching/learning system are organized to permit maximum flexibility in course design and in the selection, assignment, and presentation of material.
- *Colorful IT Illustrated modules.* IT Illustrated modules combine dynamic photos with in-depth discussions of topics that are of interest to students, such as how chips are made, the history of computers, how to buy a PC, careers, and robotics.
- *Mixed-media margin icons.* The WEB and *Computers EXPLORE* Generation IT Labs icons in the margin point students to interactive multimedia learning resources on the Internet and the *Computers EXPLORE* Generation IT Labs CD-ROM. The WEB icons invite students to check out the Monthly Technology Update, do applicable Internet exercises, and use the online review exercises to assess their grasp of the material. The *Computers EXPLORE* Generation IT Labs icons identify applicable laboratory exercises that let students interactively explore IT concepts.
- *Many colorful photo images.* Almost 200 photo images give the student a better feel for state-of-the-art hardware and the role of IT in our information society.
- *Chapter pedagogy.* Chapter organization and pedagogy are consistent throughout the text. Learning Objectives and *Why This Chapter Is Important to You* preface each chapter. The Learning Objectives are framed within the context of what “you will have learned.” The *Why This Chapter Is Important to You* relates material directly to the student. In the body of the chapter, all major headings are numbered (1.1, 1.2, and so on) to facilitate selective assignment and to provide an easy cross-reference to all related material in the supplements. Important terms and phrases are highlighted in **boldface** type. Words and phrases to be emphasized appear in *italics*. Informative boxed features (*Emerging IT* and *IT Ethics and Issues*), photos, and *Memory Bits* (outlines of key points) are positioned strategically to complement the running text. Each chapter concludes with a *Summary and Key Terms* and *Discussion and Problem Solving*. A *Section Self-Check* gives students an opportunity to assess their understanding at the end of each section (Self-Check answers follow Chapter 13). Margin icons direct students to applicable Long and Long Companion Website exercises and activities and the PHitLabs CD-ROM-based lab activities.
- *Transition friendly.* *Computers*, 10th ed., was written to enable a smooth, seamless transition for those colleges moving from previous editions of *Computers*.

A MIXED-MEDIA LEARNING TOOL

This textbook is one component of a *mixed-media learning system*. Although it can be used as a stand-alone resource, its effectiveness is enhanced when used in conjunction with the Long and Long Companion Website CW at www.prenhall.com/long, the distance learning components—Blackboard and WebCT, the *Computers*, 10th ed., *Computers Explore IT Labs* (CD-ROM-based courseware), Image Library (multimedia lecture aid), the *Prentice Hall Test Manager*, and other media-based ancillaries. The mixed-media orientation of *Computers* gives students a power boost up the learning curve and instructors an innovative vehicle for delivery of course content. The margin icons throughout the book direct students to applicable mixed-media learning tools.

We’ve designed the *Computers*, 10th ed., mixed-media resources to give you maximum flexibility in course design and instruction. Use these resources to offer IT competency education in whatever formats meet your student and curriculum needs. We are proud that *Computers* has emerged as the standard for IT concepts courses offered completely online via distance learning.

Throughout all aspects of this mixed-media approach to learning, we play to the student’s sense of exhilaration by projecting the excitement of the age of information. We have attempted to include something on every printed page, every Internet page, and every CD-ROM-based laboratory that will tickle students’ senses and inspire them to learn more. Eventually anxieties and fears fade away as students recognize the dawning of a new era in their life, an era bursting with opportunity.

A COMPUTERS EDITION FOR EVERY COURSE

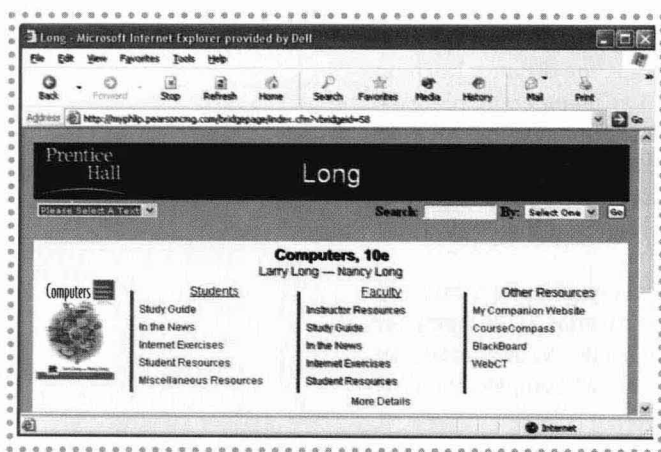
Computers comes in two editions.

- **The Brief Edition.** Ten core chapters, plus a *Getting Started* section at the beginning of the book, introduce students to the world of information technology: concepts relating to interaction with computers; fundamental hardware, software, and communications concepts; going online (the Internet and its applications); and IT ethics and issues. The last chapter is intended to enrich the student's personal computing experience. The brief book includes four IT Illustrated segments: computer history, the making of integrated circuits, a PC buyer's guide, and one on careers. This Brief Edition can support a complete course in information technology, but if you want more, there's the Full Edition.
- **The Full Edition.** The Full Edition has three additional chapters. A two-chapter sequence introduces students to the various types of information systems (MIS, DSS, expert systems, intelligent agents, and so on) and includes an overview of the latest approaches to system development. The last chapter lets the student travel the information superhighway, making frequent stops to learn about current and future applications. A vivid IT Illustrated on robots and robotics is included with the full book.

The Right PHit program offers a complete solution for introductory computer courses, from concepts to applications. Components of the Prentice Hall Application Series can be bound with the tenth edition of *Computers* via Prentice Hall's Right PHit program. Office 2000 and Office XP titles are available in this custom binding program and comprise part of the most extensive array of hands-on laboratory materials offered by any textbook publisher. These hands-on manuals can be bound together with *Computers*, 10th ed., or, if you prefer, bound separately and shrink-wrapped as a package so students can carry them to the lab one at a time. Your Prentice Hall representative will be happy to work with you to identify that combination of student support materials and packaging that best meets the needs of your lab environment.

THE COMPUTERS TEACHING / LEARNING SYSTEM

Computers, 10th ed., continues the Long and Long tradition of having the most comprehensive, innovative, and effective support package on the market. The teaching/learning system includes the following components.



Long and Long Internet Bridge

LONG AND LONG COMPANION WEBSITE

The Long and Long Companion Website (CW), also called the INTERNET BRIDGE, at <http://www.prenhall.com/long> is designed to help students studying Long and Long resources make the transition between textbook learning and real-world understanding. To use this resource, the student connects to the Internet, navigates to the Companion Website, and clicks on the *Computers*, 10th ed., image. The site offers a variety of activities and services, including these main components:

INTERNET EXERCISES

The Internet exercises encourage students to more fully explore IT competency topics while familiarizing themselves with the Internet. The student selects a specific chapter to begin an online adventure that will take him or her around and into the exciting world of computing. The student's journey will include many stops that can increase his or her understanding and appreciation of the technologies that change and embellish our lives.

Each chapter has from one to seven topics (for example, Printers, Telecommuting, Multimedia, Artificial Intelligence), at least one of which is Serendipitous Surfing (for

example, movies, sports, or popular culture). Each topic has from three to seven Internet Exercises. For each exercise, the student (1) reads the exercise; (2) searches for, then navigates to the applicable Internet site(s); (3) notes the source(s) title(s) and URL(s); (4) finds the requested information; and (5) returns to the topic page and enters the requested information in the response box. When all Internet exercises are completed for a given topic, the student clicks the “Submit for Grade” button to e-mail the responses to his or her instructor/grader.

COMPANION WEBSITE REVIEW EXERCISES

The Internet-based Companion Website Review Exercises, essentially an interactive study guide, help the student learn and retain concepts presented in the text. After navigating to the applicable chapter, the student can view the chapter Learning Objectives then choose from four skills quizzes: multiple choice, true or false, matching, or essay. These quizzes are designed to give students the opportunity to sharpen their problem-solving skills and assess their grasp of concepts.

- **Multiple Choice.** When taking the multiple-choice quiz the student simply clicks the radio button for the correct response for each question. After answering all of the questions, the student submits the answers for automatic grading. A summary report is returned to the student within seconds. The summary report includes the percentage correct, the number of incorrect answers, and the number of unanswered questions. The report also includes a question-by-question summary with an explanation, the student’s response, and the correct response with section reference (if needed).
- **True or False.** The true/false interface and summary report is like that of a multiple-choice quiz.
- **Essay Questions.** The essay exam includes a text response box for each question into which the student inserts the answer.
- **Matching.** The student matches a term with an applicable description by selecting a response from a drop-down box. Most questions have hints or they provide a reference to the applicable section in the text. After completing a quiz, the student has the option of routing the answers to his or her e-mail address and/or to that of the instructor. The summary report is sent for multiple-choice, true/false, and matching quizzes, and the questions and answers are sent for the essay exams.

Monthly Technology Update

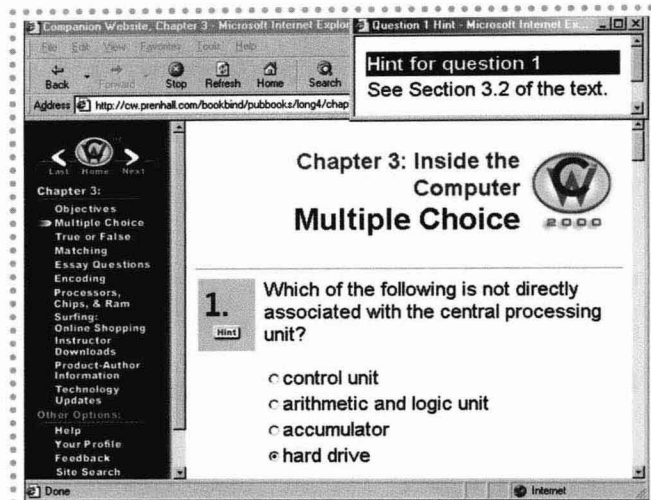
Each month we compile a summary of important changes and happenings in the world of computing and IT. These summaries, which are keyed to chapters, are intended to help keep the student’s learning experience current with a rampaging technology.

Syllabus Manager

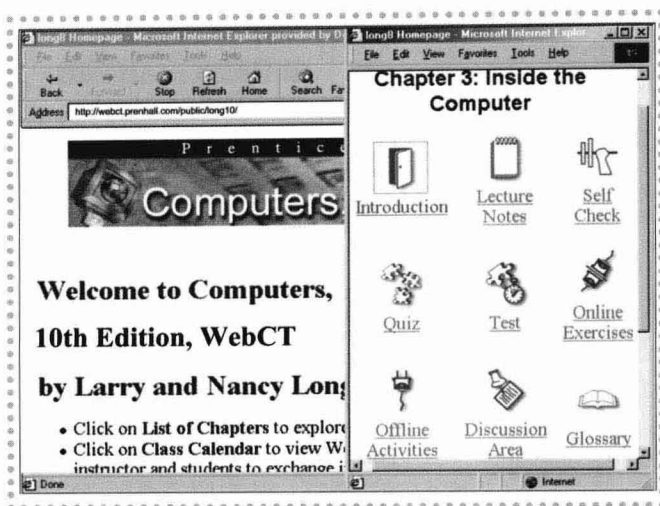
The Syllabus Manager component of the INTERNET BRIDGE is a free utility for instructors and students who use our book/Web site products. Faculty can easily build and maintain one or more syllabi on the Web. The course syllabus is readily available to students from any PC with Internet access.

Instructor’s Resource Page on the INTERNET BRIDGE

The INTERNET BRIDGE includes a continuously updated, password-protected Instructor’s Resource page that is available to all instructors who adopt the Long and Long package. The instructor’s resource page contains a variety of downloadable resources, including supplementary images, the *IRM*, crossword puzzles, PowerPoint Slides, a buyer’s guide worksheet, supplementary PC exercises, PDF format transparencies, applicable material contributed by colleagues, and other helpful teaching/learning aids. Also, a PDF version of the “robotics”



Companion Website Review Exercises



Online Learning: WebCT and Blackboard

IT Illustrated feature only in the *Computers*, Full Edition, is made available online to students with the Brief Edition.

DISTANCE LEARNING VIA THE INTERNET WITH LONG AND LONG ONLINE RESOURCES

For several years, professors from around the world have relied on Long and Long online teaching/learning resources to create and administer online courses for thousands of students, some taking courses entirely online while others go both online and to class.

WebCT and Blackboard

This edition is made available in the WebCT and Blackboard, two popular Web course development and management tools. These two Web-course tools have enabled professors to create a Web-based educational environment for millions of students at over 3,000 colleges throughout the world.

The Internet sites supporting distance learning for Long and Long resources can be accessed at cms.prenhall.com/webct and cms.prenhall.com/blackboard. These online course tools, along with embedded Long and Long content, offer you and your colleagues all the advantages of a custom-built program, but without the hassle. If you are considering offering all or part of your course via distance learning, then WebCT or Blackboard can help you create and implement a high-quality online course or course component with relative ease. If you already offer an online course, then these tools can assist you in formalizing your course. These Web-course tools give you the flexibility to integrate your custom material with the continuously updated *Computers*, 10th ed., content. *Computers*, 10th ed., content is packaged within these course-authoring tools so you can customize the content to meet the most demanding curriculum requirements. Whether you are off and running or this is your first online course, these ready-to-go online course resources can save you countless hours of preparation and course administration time.

WebCT and Blackboard include these and many other features in each of their learning modules: an introduction, objectives, summaries of key concepts, online activities that use the Internet, offline activities that integrate the text with Web content, self-check exercises, online quizzes (auto-scored and recorded), test item database and test preparation tools (auto-scored and recorded), e-mail accounts for students and instructors, and a bulletin board primed with interesting discussion topics.

A wizard program guides you through the initial stages of course development, including the creation of a password-protected course home page. One feature automatically grades online tests and records scores in your electronic grade book. Another lets you monitor individual and overall student progress. You can even determine how often and for how long each and every student visits an online course page. The WebCT and Blackboard shells also let you integrate files without using HTML.

CourseCompass

If you want to teach a distance-learning style course, but do not use WebCT or Blackboard, *Computers*, 10th ed., is also available in Prentice Hall's proprietary course delivery platform called CourseCompass.

CourseCompass™ is a dynamic, interactive online course management tool powered by Blackboard. This exciting product allows you to teach with Long and Long *Computers*, 10th ed., content in an easy-to-use customizable format. CourseCompass provides flexible tools and rich content resources that enable you to easily and efficiently customize online course materials to suit your needs. It includes Online Assessment whereby you can easily select or customize questions and answers to create quizzes and tests that can be administered online.

In addition, CourseCompass is hassle free. We handle the hosting, the technical support, and the training so you can focus on your course by creating the best teaching and learning environment for both you and your students.

EXPLORE GENERATION IT LABS

Experience the more challenging topics in Computer Concepts anywhere and at any time with Prentice Hall's EXPLORE Generation IT Labs. These labs present an interactive look into the world of computer concepts.

- | | |
|--------------------------|-----------------------|
| Building a Web Page | Multimedia |
| Internet and WWW | Building a Network |
| E-Commerce | Buying a Computer |
| Introduction to Computer | Hardware |
| Programming | Folders and Files |
| Application Software | Binary Representation |
| Operating Systems | |

The 12 labs are delivered both on the Web and on CD-ROM, allowing you to access them in the classroom, the dorm, at home, or anywhere you have access to a computer and/or the Internet. Each lab takes only about 20 minutes to complete, and the quiz section at the end of each lab allows you to self-test your knowledge. You can e-mail, print, or save your results to floppy disk. These experiential concepts labs are available for purchase through your bookstore and can help make your computer concepts course even more fun and interactive.

THE INSTRUCTOR'S ONE-STOP CD-ROM RESOURCE

A variety of helpful instructor resources are distributed on the Instructor's Resource CD-ROM that includes an Image Library with PowerPoint slides, Windows PH Test Manager, Test Item File, Instructor's Resource Manual (Microsoft Word format), and Transparency Masters. Please see the following for detailed descriptions of each. (ISBN)

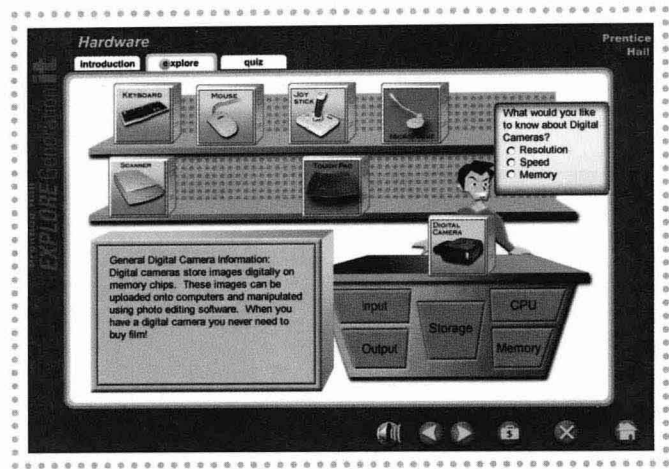
Image Library with PowerPoint Presentations

The *Image Library* is a wonderful resource for creating vibrant lecture presentations. The *Image Library* includes the following.

- **PowerPoint Slides.** Several hundred colorful and illustrative PowerPoint slides are available for use with Microsoft PowerPoint. The chapter-by-chapter PowerPoint slides can be easily customized to meet lecture needs.
- **Figures and Photos from the Textbook.** The *Image Library* contains just about every figure and photo in the text, all organized by chapter and section for your convenience. Caption/notes are supplied for each image within a Microsoft Word file, which can be copied or exported to a spreadsheet or database. These images and caption/notes can easily be integrated into Microsoft PowerPoint to create new presentations, or to add to existing presentations. Simply drag-and-drop slides and images in PowerPoint to sequence them for your presentation needs.

Windows PH Test Manager and Test Item File

Windows PH Test Manager is an integrated PC-compatible test-generation and classroom-management software package. The package permits instructors to design and create tests,



EXPLORE Generation IT Lab

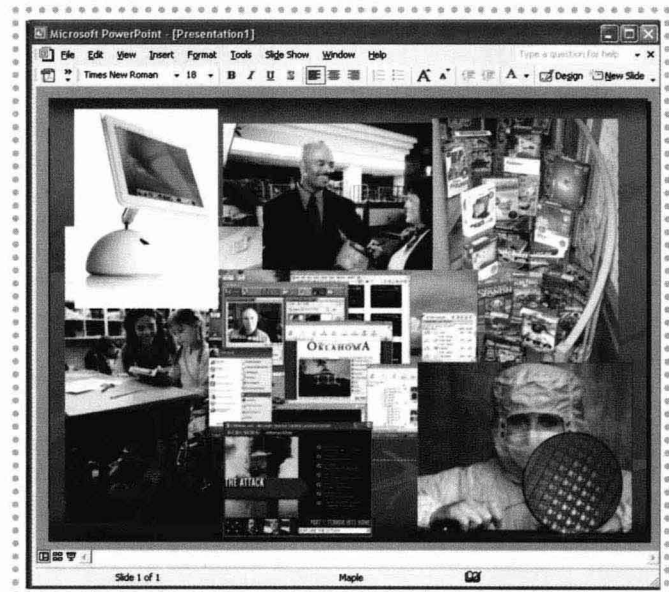


Image Library

Storing and Retrieving Information 4

LEARNING OBJECTIVES

Once you have read and studied this chapter, you will have learned:

- The relationship between mass storage and the various types of files.
- The various types of magnetic disk devices and media, including organization, principles of operation, maintenance, performance considerations, and security concerns.
- Procedures for backing up disk files to tape, data cartridges or to interchangeable disks.
- The operational capabilities and applications for the various types of optical laser disk storage.
- If there is disk storage in your future.

OVERVIEW AND LECTURE OUTLINE

TEACHING OBJECTIVES

to maintain student records, and to provide online practice testing for students. The accompanying *Test Item File* contains thousands of multiple-choice, true/false, matching, and essay questions. The questions are organized by numbered section head.

Instructor's Resource Manual (IRM)

The IRM, is available in Microsoft Word format on the Instructor's Resource CD-ROM and on the INTERNET BRIDGE in the Instructor's Download Section. The IRM contains teaching hints, references to other resources, selected images, lecture notes, key terms with definitions, solutions to review exercises, and much more.

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9th and 10th Edition:

Dr. David Bannon, Wake Technical Community College; Cheryl Cunningham, Embry-Riddle Aeronautical University; Dr. Charles Foltz, East Carolina University; Dr. Homa Ghajar, Oklahoma State University; Nancy Grant, Community College of Allegheny County; Rob Murray, Ivy Tech State College; Henry Wardak, Everett Community College; Lynn Wermers, North Shore Community College.

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