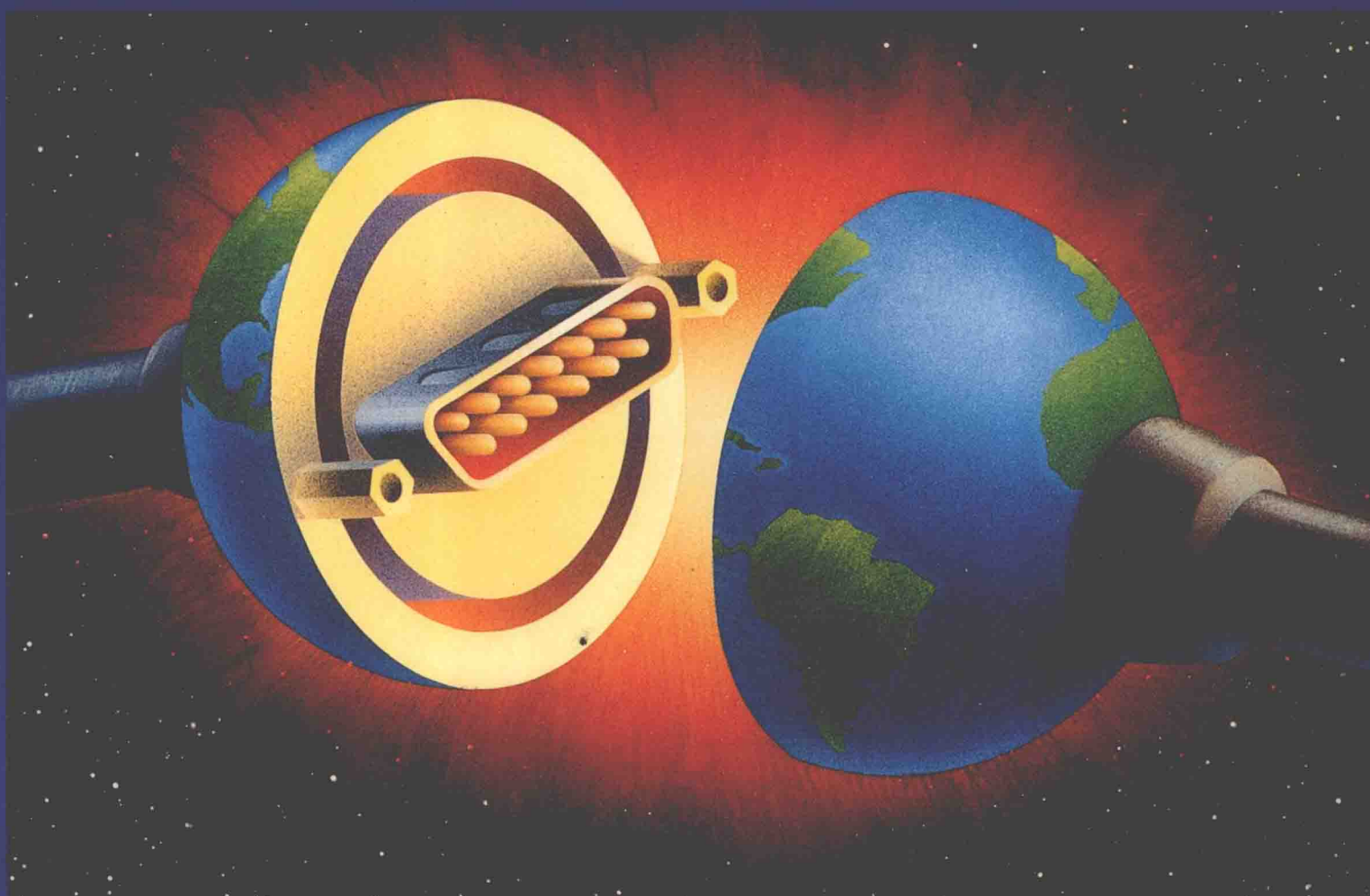
Using Information Technology

Brief Version



A Practical Introduction to Computers & Communications

awyer
Villiams
Hutchinson

Third Edition

Using Information Technology 3

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A Practical Introduction to Computers & Communications

BRIEF VERSION

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Brian K. Williams

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Irwin McGraw-Hill

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Brief Contents

Preface to the Instructor

The Audience for & Promises of This Book

USING INFORMATION TECHNOLOGY: A Practical Introduction to Computers & Communications: Brief Version, THIRD EDITION, is intended for use as a concepts textbook to accompany a one-semester or one-quarter introductory course on computers or microcomputers. It is, we hope, a book that will make a difference in the lives of our readers. The **key features** are as follows. We offer:

1. **Emphasis on unification of computer and communications systems.**
2. **Careful revision in response to extensive instructor and student feedback.**
3. **Emphasis on practicality.**
4. **Emphasis throughout on ethics.**
5. **Use of techniques for reinforcing student learning.**
6. **Up-to-the-minute material—in the book and on our Web site.**

We elaborate on these features next.

Key Feature #1: Emphasis on Unification of Computers & Communications

The First Edition of this text broke new ground by emphasizing the technological merger of the computer, communications, consumer electronics, and media industries through the exchange of information in the digital format used by computers. This is the relatively new phenomenon known as **technological convergence.**

Since the First Edition, other texts have also added coverage of the Internet and the World Wide Web. However, we agree with analysts who say the revolution is far broader than this, and we continue to stress the unification of entire industries and technologies and their effects. Thus, the THIRD EDITION continues to embrace the theme of convergence by giving it in-depth treatment in six chapters—the introduction, system software, telecommunications, communications technology, storage and databases, and promises and challenges (Chapters 1, 3, 7, 8, 9, 10). Convergence is also brought out in examples throughout other chapters.

This theme covers much of the technology currently found under such phrases as *the Information Superhighway, the Multimedia Revolution,* and *the Digital Age: mobile computing, the Internet, Web search tools, online services, workgroup computing, the virtual office, video compression, PC/TVs, "intelligent agents,"* and so on.

Key Feature #2: Careful Revision in Response to Extensive Instructor & Student Feedback

Our publisher has told us that the First Edition of *USING INFORMATION TECHNOLOGY* was apparently the most successful new text in the field at that time, with over 300 schools adopting both comprehensive and brief versions. We were delighted to learn that the Second Edition reached an even wider audience. An important reason for this success, we believe, was all the valuable contributions of our reviewers, both instructors and students.

Both the printed version of the Second Edition and the manuscript and proofs of the THIRD EDITION underwent a highly disciplined and wide-ranging reviewing process. This process of expert appraisal drew on instructors who were both users and nonusers, who were from a variety of educational institutions, and who expressed their ideas in both written form and in focus groups.

We also received input from a number of student users and nonusers of the Second Edition. Many indicated their appreciation for the Experience Boxes, as well as such pedagogical devices as section "Previews & Reviews," our unique end-of-chapter Summary, the practical emphasis of the book, and the people-oriented writing.

We have sometimes been overwhelmed with the amount of feedback, but we have tried to respond to all consensus criticisms and countless individual suggestions. Every page of the THIRD EDITION has been influenced by instructor feedback. The result, we think, is **a book addressing the needs of most instructors and students.**

New to this edition! In particular, we have addressed the following matters:

- **Communications material separated into two chapters:** Because of the overwhelming amount of new material, and following the direction of our reviewers, we split the old "Communications" chapter into two chapters. Chapter 7, "Telecommunications," covers online resources, the Internet, and the World Wide Web. Chapter 8, "Communications Technology," covers communications hardware, channels, and networks. (The chapters may be assigned in reverse order without loss of continuity.)
- **Input and output material made one chapter:** The two chapters "Input" and "Output" are combined into a single chapter, which allows us to continue to offer a book of just 10 chapters, which instructors have indicated they prefer.

In addition to these major structural and substantive changes, we have made hundreds of line-by-line and word-by-word adjustments to refine coverage and to conform with instructor's requests.

Key Feature #3: Emphasis on Practicality

As with past editions, we are trying to make this book a "keeper" for students. Thus, we not only cover fundamental concepts but also offer a great deal of **practical advice.** This advice, of the sort found in computer magazines and general-interest computer books, is expressed principally in two kinds of boxes—Experience Boxes and README boxes:

- **The Experience Box:** Appearing at the end of some chapters, the Experience Box is **optional** material that may be assigned at the instructor's

discretion. However, students will find the subjects covered are of immediate value: "Getting Started with Computers in College & Going Online"; "Using Software to Access the World Wide Web"; "Good Habits: Protecting Your Computer System, Your Data, & Your Health"; and "Job Searching on the Internet & World Wide Web."

- README boxes: README boxes consist of optional material on practical matters, such as tips for managing your e-mail or staying focused to avoid information overload.


Ethics

Key Feature #4: Emphasis Throughout on Ethics

Many texts discuss ethics in isolation, usually in one of the final chapters. We believe this topic is too important to be treated last or lightly. Thus, **we cover ethical matters in numerous places** throughout the book, as indicated by the special logo shown here in the margin. For example, the all-important question of what kind of software can be legally copied is discussed in Chapter 2 ("Applications Software"), an appropriate place for students just starting software labs. Other ethical matters discussed are the manipulation of truth through digitizing of photographs, intellectual property rights, netiquette, censorship, privacy, and computer crime.

A list of pages with ethics coverage appears on the inside front cover. Instructors wishing to teach all ethical matters as a single unit may refer to this list.

Key Feature #5: Reinforcement for Learning

Having individually or together written nearly two dozen textbooks and scores of labs, the authors are vitally concerned with reinforcing students in acquiring knowledge and developing critical thinking. Accordingly, we offer the following to provide learning reinforcement:

- Interesting writing: Studies have found that textbooks **written in an imaginative style** significantly improve students' ability to retain information. Thus, the authors have employed a number of journalistic devices—such as the short biographical sketch, the colorful fact, the apt direct quote—to make the material as interesting as possible. We also use real anecdotes and examples rather than fictionalized ones.
- Key terms and definitions in boldface: **Each key term AND its definition is printed in boldface** within the text, in order to help readers avoid any confusion about which terms are important and what they actually mean.
- "Preview & Review" presents abstracts of each section for learning reinforcement: Each main section heading throughout the book is followed by **an abstract or précis entitled Preview & Review.** This enables the student to get a preview of the material before reading it and then to review it afterward, for maximum learning reinforcement.
- Innovative chapter Summaries for learning reinforcement: The end-of-chapter Summary is especially innovative—and especially helpful to students. In fact, research through student focus groups has shown that this format was clearly first among five different choices of summary formats. Each concept is discussed under **two columns, headed "What It Is/What It Does" and "Why It's Important."**

Each concept or term is also given a cross-reference page number that refers the reader to the main discussion within the chapter.

In addition, as we discuss next, the term or concept is also given a Key Question number (such as *KQ 2.1, KQ 2.2,* and so on) corresponding to the appropriate Key Question (learning objective) at the beginning of the chapter.

- **Key Questions to help students read with purpose:** ***New to this edition!*** Lists of learning objectives at the start of chapters are common in textbooks—and most students simply skip them. Because we believe learning objectives are excellent instruments for reinforcement, we have crafted ours to make them more helpful to students. We do this in two ways:

  (1) By **phrasing the learning objectives as Key Questions.** These Key Questions appear on the chapter-opening page and again at the start of each chapter section. By phrasing learning objectives as Key Questions we give students a tool to help them read with purpose.


Ethics

  (2) By **tying terms and concepts in the end-of-chapter Summary to the Key Questions.** That is, in the Summary we have given "KQ" numbers to the terms and concepts that relate to the particular Key Question numbers in the text.

  For example, in Chapter 2, *Key Questions 2.11* ask "When is copying a violation of copyright laws, what is a software license agreement, and what types of agreements are there?" Terms and concepts appearing in the end-of-chapter Summary that relate to these questions—such as "copyright," "freeware," and "intellectual property"—are identified with the notation *KQ 2.11* and the page number in the chapter where they are discussed.

- **Cross-referencing system for key terms and concepts:** Wherever important key terms and concepts appear throughout the text that students might need to remind themselves about, we have added **"check the cross reference"** information, to indicate the first definition or usage of a key term or concept, as in: "use of machine language (✔ p. 120)." In student focus groups, this cross-reference device was found to rank *first* out of 20-plus study/learning aids.
- **Material in "bite-size" portions:** Major ideas are presented in **bite-size form,** with generous use of advance organizers, bulleted lists, and new paragraphing when a new idea is introduced.
- **Short sentences:** Most sentences have been kept short, the majority not exceeding **22–25 words** in length.
- **End-of-chapter exercises:** For practice purposes, students will benefit from several exercises at the end of each chapter: **fill-in-the-blank questions, short-answer questions, multiple-choice questions,** and **true-false questions.** Answers to selected exercises appear upside down at the end of the Exercises section.

  In addition, we present several "Knowledge in Action," end-of-chapter **projects/critical-thinking questions,** generally of a practical nature, to help students absorb the material. In a typical example, students are asked to identify the security threats to which their home computers are vulnerable.

Key Feature #6: Up-to-the-Minute Material—in the Text & on the Irwin/McGraw-Hill Web Site

Writing a text like this is a constant steeplechase of trying to keep up with changing technological developments. Every day seems to bring reports of something new and important. As we write this, our 1998 publication date is only three months away. However, because our publisher has allowed us to do several steps concurrently (writing, reviewing, editing, production), our text includes coverage of the following material:

> *ActiveX. Cable modems. Cyberspace job hunting. Digital cameras. Digital TV. Divx. DSL. DVD. Extranets. GEO, MEO, and LEO satellite systems. Internet 2. The Merced chip. Net addiction. NGI. Online secondary storage. Portal sites. Radio-frequency identification devices. Set-top boxes. Telephony. VRML. WebTV. Windows 98. XML . . . And more.*

Still, we recognize that a Gutenberg-era lag exists between our last-minute scribbling and the book's publication date. And of course we also realize that fast-moving events will unquestionably overtake some of the facts in this book by the time it is in the student's hands. Accordingly, after publication we are periodically offering instructors updated material and other interaction on the Irwin/McGraw-Hill UIT Web Site: **http://www.mhhe.com/cit/concepts/uit**

Complete Course Solutions: Supplements That Work—Four Distinctive Offerings

It's less important how many supplements a textbook has than whether they are truly useful, accurate, and of high quality. Irwin/McGraw-Hill presents **four distinctive kinds of supplement offerings** to complement the text:

1. **Application-software tutorials—four types**
2. **McGraw-Hill Learning Architecture Web-based software**
3. **Classroom presentation software**
4. **Instructor support materials**

We elaborate on these below.

Supplement Offering #1: Application-Software Tutorials—Four Types

Our publisher, Irwin/McGraw-Hill, offers four different series of tutorials, which present four different hands-on approaches to learning various types of application software. An Irwin/McGraw-Hill sales representative can explain the specific software covered by each series.

- **Advantage Series tutorials:** Written by *Sarah E. Hutchinson* and *Glen J. Coulthard,* manuals in the **Advantage Series for Computer Education** average just over 200 pages each and cover a large number of popular software packages, including the latest versions of Microsoft Office. Each tutorial leads students through step-by-step instructions not only for the most common methods of executing commands but also for alternative methods.

Each session begins with a case scenario and concludes with case problems showing real-world application of the software. "Quick Reference" guides summarizing important functions and shortcuts appear throughout. Boxes introduce unusual functions that will enhance the user's productivity. Hands-on exercises and short-answer questions allow students to practice their skills.

- **Advantage Interactive CD-ROM tutorials:** Offered by Irwin/McGraw-Hill in partnership with *MindQ Publishing*, the **Advantage Interactive** CD-ROM tutorials are based on the printed *Advantage Series* texts described above. The CD-ROMs combine sight, sound, and motion into a truly interactive learning experience. Video clips, simulations, hands-on exercises, and quizzes reinforce every important concept. *Advantage Interactive* tutorials are available for latest versions of Microsoft Office and may be used independently or with corresponding manuals in the *Advantage Series.*
- **O'Leary Series print tutorials:** Written by *Linda* and *Timothy O'Leary*, the **O'Leary Series** manuals are designed for application-specific short courses. Each manual offers a project-based approach that gives students a sense of the real-world capabilities of software applications. Extensive screen captures provide easy-to-follow visual examples for each major textual step, while visual summaries reinforce the concepts, building on students' knowledge. Manuals are available for a wide variety of software applications, including latest versions of Microsoft Office.
- **Interactive Computing Skills CD-ROM tutorials:** Created by *Ken Laudon* and *Azimuth Multimedia*, the **Interactive Computing Skills** CD-ROM tutorials offer complete introductory coverage of software applications, including Microsoft Office 4.3 and 97. Each narrated and highly interactive lesson takes 45–60 minutes to complete. "SmartQuizzes" at the end of the lessons actively test software skills within a simulated software environment. With up to four lessons per disk, *Interactive Computing Skills* is a valuable addition to an instructor's courseware package or an excellent self-study tool for students.

Supplement Offering #2: McGraw-Hill Learning Architecture

New to this edition! The future of interactive, networked education is here today! This exciting Web-based software provides complete course administration, including content customization, authoring, and delivery. With the **McGraw-Hill Learning Architecture (MHLA)** and a standard Web browser, students can take online quizzes and tests, and their scores are automatically graded and recorded. *MHLA* also includes useful features such as e-mail, message boards, and chat rooms, and it easily links to other Internet resources. Your Irwin/McGraw-Hill sales representative can explain *MHLA* in detail.

Supplement Offering #3: Classroom Presentation Software

To help instructors enhance their lecture presentations, Irwin/McGraw-Hill makes available the **CIT Classroom Presentation Tool,** a graphics-intensive set of electronic slides. This CD-ROM-based software helps to clarify topics that may otherwise be difficult to present. Topics are organized to correspond

with the text chapters. The *Presentation Tool* also includes electronic files for all of the graphics in the text, allowing instructors to customize their presentations.

Minimum system requirements: IBM PC or compatible with a Pentium processor, 4X CD-ROM drive, and at least 16 MB of RAM, running Windows 95 or later. An LCD panel is needed if the images are to be shown to a large audience.

Supplement Offering #4: Instructor Support Materials

We offer the instructor the following other kinds of supplements and support to complement the text:

- **Instructor's Resource Guide:** This complete guide supports instruction in any course environment. For each chapter, the **Instructor's Resource Guide** provides an overview, chapter outline, lecture notes, notes regarding the boxes (README boxes) from the text, solutions, and suggestions, and additional information to enhance the project and critical thinking sections.
- **Test bank:** The test bank contains over 1200 different questions, which are directly referenced to the text. Specifically, it contains *true/false, multiple-choice,* and *fill-in questions,* categorized by difficulty and by type; *short-essay questions; sample midterm exam; sample final exam;* and *answers to all questions.*
- **Diploma 97—computerized testing software:** Created by *Brownstone Research Group,* **Diploma 97** has been consistently ranked number one in evaluations over similar testing products. *Diploma 97* gives instructors simple ways to write sophisticated tests that can be administered on paper or posted over a campus local area network, an intranet, or the Internet.

  Test results can be merged into *Diploma 97's* gradebook program, which automates grading, curving, and reporting functions. Indeed, thousands of students and hundreds of assignments can be put into the same gradebook file. In addition, teaching programs can be attached to questions to create interactive study guides.

  System requirements: (a) IBM PC or compatible with at least 2 MB of RAM running Windows 3.1 or (b) Macintosh with at least 2 MB of RAM running System 6.01 or later; CD-ROM drive or 3.5-inch floppy-disk drives.
- **Videos:** A selection of 10 video segments of the acclaimed PBS television series, *Computer Chronicles,* is available to qualified adopters. Each video is approximately 30 minutes long. The videos cover topics ranging from computers and politics, to online financial services, to the latest developments in PC technologies.
- **Technical support services:** Irwin/McGraw-Hill's Technical Support is available to instructors on any of our software products, such as the McGraw-Hill Learning Architecture or the CIT Classroom Presentation Tool. Instructors can access the Online Helpdesk at **www.mhhe.com/helpdesk** or by calling toll free 1-800-331-5094.
- **UIT Web site:** It's appropriate that a text with a strong communications focus also find a way to employ the communications technology available. Accordingly, a text-specific Irwin/McGraw-Hill UIT Web is available, located at **http://www.mhhe.com/cit/concepts/uit**

  This Web site was developed as a place to go for periodic updates of text material, relevant links, downloads of supplements, an instruc-

tor's forum for sharing information with colleagues, and other value-added features.

Acknowledgment of Focus Group Participants, Survey Respondents, & Reviewers

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