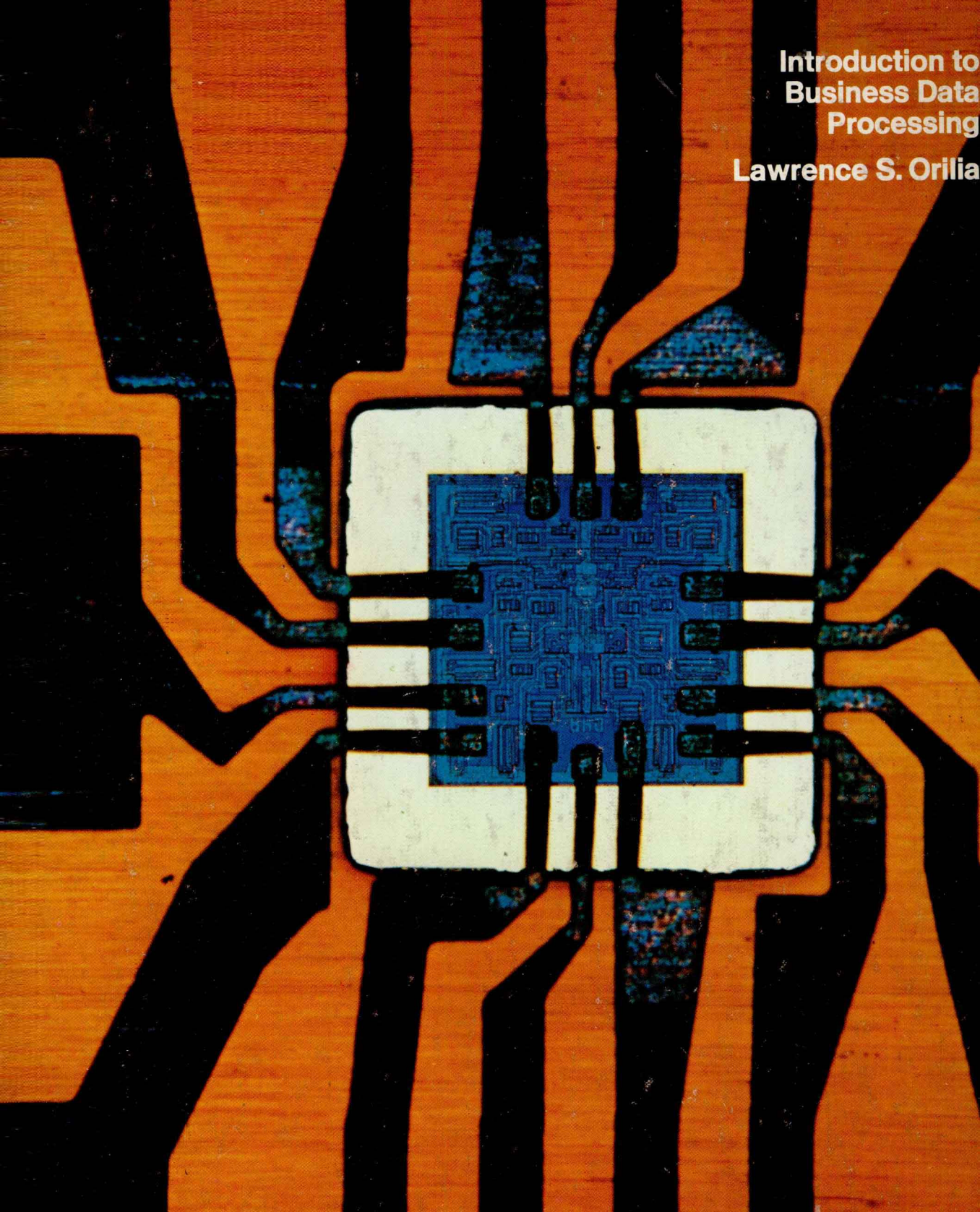


**Introduction to
Business Data
Processing**

Lawrence S. Orilia

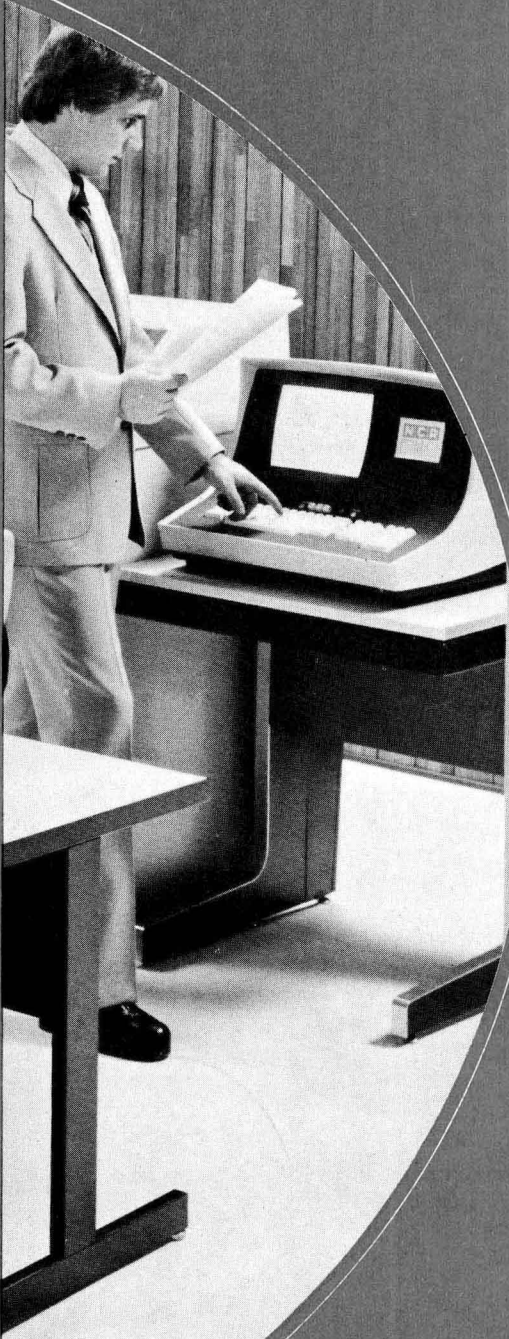


Introduction Business Data Processing

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Introduction to Business Data Processing

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About the cover

Silicon chips, such as the one shown here, are the basis of the microelectronic devices that have revolutionized the computer industry. Photo-micrograph by Fritz Goro.

To my son Adrian, my daughter Vanessa,
and my wife Tracy, who have all helped to fulfill my life
and represent the measure of my happiness.

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Preface

My initial exposure to computers occurred when I enrolled in an introductory computer course as an undergraduate at Pratt Institute. The first half of the course concentrated on the principles of the computer. I mastered this material with a minimum of difficulty because the instructor reinforced each concept with a variety of illustrative examples.

The second half of the semester course, which concentrated on the principles of programming, was taught by a graduate assistant who had recently discovered the power of the computer and had become enamored of this new technology. He passed his enthusiasm on to the class through his lectures and the large number of lab problems assigned for homework. He was a strong believer in the educational principle of "learn by doing." Though many lab problems were assigned, each stressed a particular programming concept that was of value to the student programmer. The result of this programming effort was quite positive. I soon became capable of independently programming problems and deriving my own solutions. My initial uncertainty related to programming had been replaced by an eagerness to apply these newly developed skills.

In the development of a personal philosophy to use in the classroom, I have frequently looked back at the lessons learned from that original computer class. Technical concepts must be explained in terms students can understand and immediately reinforced with illustrative examples. Also, students learn best by doing. When provided with sufficient illustrative examples, students can master a concept and complete related exercises on their own.

In writing this text, I have tried not to confuse the student with useless technical discussions. In addition, I have attempted to reinforce all discussions with illustrative examples. I believe that a good example provides a practical basis for a concept. All discussions are logically developed, permitting the student to follow along on a step-by-step basis.

Throughout the text, I have employed a conversational mode as the vehicle for all discussions. This format enables readers to easily follow along, yet does not talk down to them. Moreover, it avoids the highly technical or monotonous approach adapted by other texts. I have also tried to avoid extremes in the presentation of informative material. Anec-

Organization

dotal material, cartoons, and the like are kept to a minimum. Often, an overabundance of this type of material detracts from the continuity of the text, diverting attention from more critical material.

When writing this text, I had one thought in mind. I wanted the beginning computer student to be capable of reading the text and fully understanding the material presented. This desire evolved from a problem I have frequently encountered in the classroom. Too often, I have assigned readings to students, only to have them state that it was impossible for them to follow the material. This is especially true for discussions of flowcharting and introductions to programming, in which sufficient detail is required to master the subject matter. Many texts skim the surface of a topic, leaving the student with nothing concrete on which to base learning. I have provided the detail necessary to permit independent student development of material.

This approach has a positive benefit to the instructor as well. Freed of the necessity to cover virtually all aspects of a topic, the instructor can introduce new material for class discussion. This new material might enhance a discussion, motivate increased student participation, provide special projects, or introduce topics which are of particular importance to the individual instructor.

The overall organization of this text enables the reader to develop a fundamental knowledge of the computer prior to the discussions of programming and systems analysis and design. Each chapter is written as an independent unit, providing complete coverage of a topic within its content. Thus, if an instructor desires to cover a chapter out of sequence, the continuity of the presentation will not be adversely affected.

Classroom testing has proved the chapter organization used in this text to be effective. Chapters 1 to 5 present material consistent with most introductory data processing courses. The material covered provides students with principles fundamental to data processing, enabling them to begin programming. Chapter 6, Flowcharting, provides a strong foundation for the programming chapters that follow. The computer languages BASIC and COBOL are discussed in Chapters 8 and 9, respectively. Program solutions developed in these chapters are closely tied to the flowcharting problems discussed in Chapter 6. Instructors are also free to develop solutions they have specifically employed in the past.

The organization of the chapters affords the instructor flexibility. The instructor can use the first seven chapters to develop the concepts of data processing for half of the semester. The remainder of the semester can be devoted to programming applications. Another approach might provide a brief discussion of programming and the development of systems-related concepts in the last half of the semester. The instructor is free to choose the topics of coverage and can diversify the material presented.

<p>Learning Objectives</p>	<p>The latter part of the text offers special discussions of minicomputers, microcomputers, and other types of computer systems; data communication systems, systems analysis, and design concepts; and a detailed example of a systems documentation package. The review of many of these topics can add much to the content of an introductory computer course and provide the student with a broader overview of the business data processing field.</p> <p>Every chapter begins with a section entitled Purpose of this Chapter, which presents the student with an overview of the material and topics to be covered. This section provides a general feel for the chapter's content. The student can grasp the organization of the chapter and place topics of discussion in their proper perspective.</p> <p>The purpose section also presents the learning objectives for the chapter. These briefly stated objectives offer the student a guide to the key areas of the chapter and the skills and concepts to be gained from reading it. The learning objectives are also of value when a review of the chapter is anticipated, prior to a test.</p> <p>Key terms used throughout the chapter are also listed in the learning objectives. The terms are commonly used in data processing and represent an operational vocabulary vital to the current or future user of computer services. All the terms are defined in the text of the chapter and appear in a glossary at the chapter's end.</p>
<p>Readability</p>	<p>A concerted effort has been made to keep the reading level of this text from becoming overly technical, monotonous, or unduly complicated. Standardized reading tests applied to the text indicate that the average high school graduate should not have difficulty in comprehending the material presented. I have blended this reading level into a conversational mode of presentation. It is my belief that the conversational approach greatly assists the learning process and is uniquely suited to today's student. It does not belittle the student, but rather guides the reader through the required material on a step-by-step basis in an easily comprehensible manner.</p>
<p>Summary</p>	<p>A point-by-point summary of all material covered appears at the end of the chapter. The summary details the major topics discussed in the chapter, capsulizing each point in a few sentences. The summary is organized to follow the presentation of material in the chapter, reinforcing the order of topic coverage. Students will find this type of summary particularly advantageous when reviewing for a test.</p>
<p>Glossary</p>	<p>An introductory text requires clear definitions of all terms used in its discussion. The chapter glossaries list, in alphabetical order, all key terms</p>

End-of-Chapter Tests

introduced in the chapter. The page on which each term is defined appears in boldface type in the index of the book for easy referencing to its appropriate chapter.

The discussion questions and summary tests at the end of each chapter enable the reader to test his or her mastery of the material covered in the chapter. The student is advised to complete the summary test before preceding on to the next topic of discussion. The summary test can also be used in preparation for an exam. The topics related to questions that have been answered incorrectly can be reviewed before the test. Summary test answers appear at the end of each chapter.

Special-Interest Items

Students like to study material that is current and related to real-life situations. In an effort to meet this requirement, items of special interest have been included in each chapter. These items are drawn from a variety of sources and relate directly to the materials covered in the chapter. In some cases, these special items note the widespread applicability of the computer and some of its more appealing uses. In the chapters related to programming, the special items highlight programming considerations affecting the student. These items point out commonly made student errors, ways to avoid specific mistakes, and tips to help simplify programming assignments. Each special item is intended to enhance the presentation of the material and complement the chapter's coverage of a topic.

In general, I have tried to write a text that is easy to read, is informative, and assists in the development of selected data processing skills. I have attempted to include material which is relevant to the study of computers, without becoming overly technical. I believe that this text provides students with a working knowledge of computer-related data processing skills that can be used in subsequent computer courses or in the performance of their jobs. I would like students to think of this text as a reference that they can turn to when faced with a data-processing-oriented question or task. I have tried to make this text, as well as the learning of data processing skills, an enjoyable experience.

Additional Materials **Study Guide**

For some students, lectures and repeated readings of the text are not sufficient. The material under discussion must be reinforced through additional review and self-testing. For these students, the Study Guide has been written. In this separate guide, the contents of each chapter receives special treatment. The student is provided with a restatement of the chapter's learning objectives, a brief summary of the material covered, 10 multiple-choice questions, 15 true-false questions, and approximately 30 self-study questions. This array of questions offers students sufficient opportunity to test themselves on their mastery of the chapter.