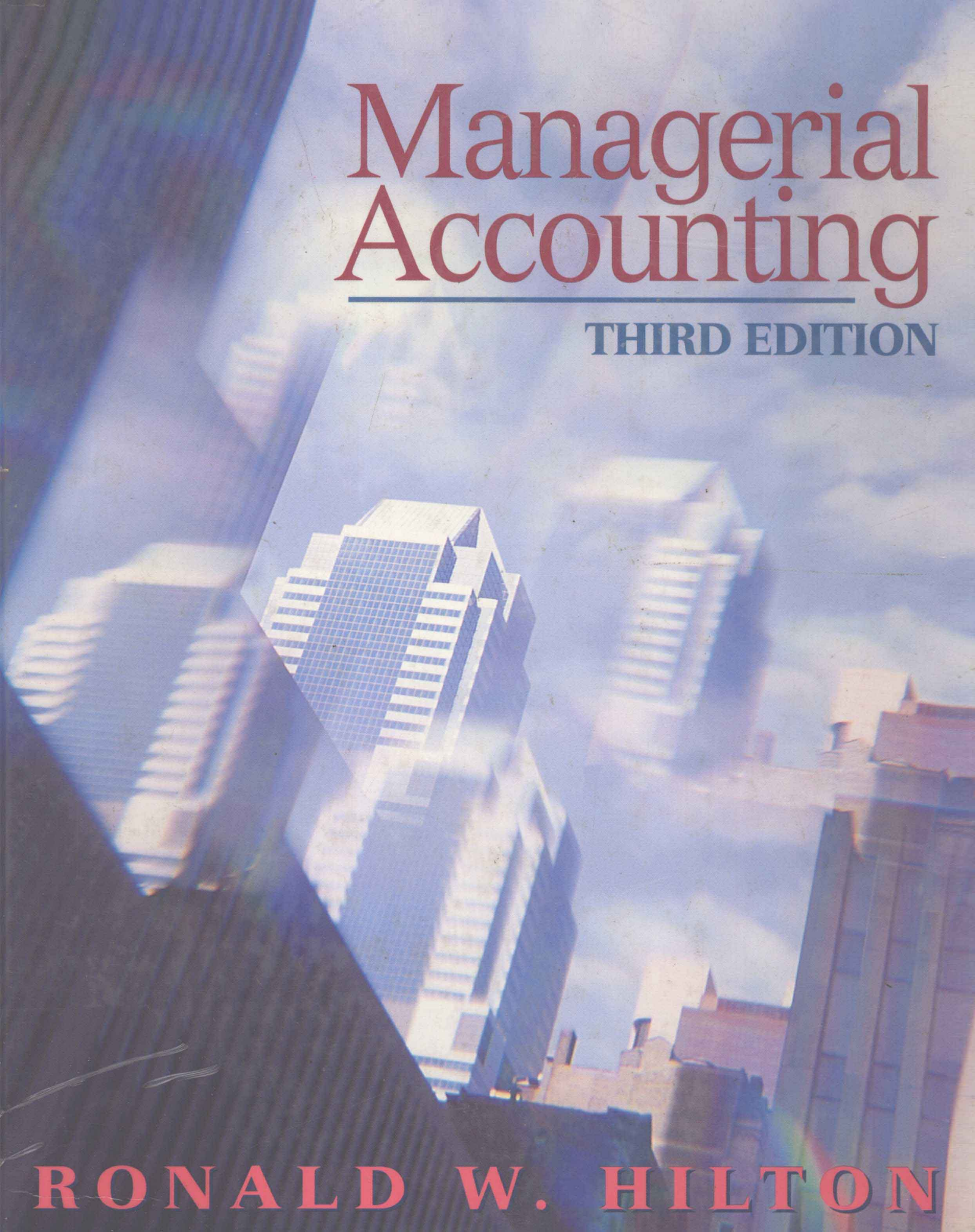




Managerial Accounting

THIRD EDITION

RONALD W. HILTON

MANAGERIAL ACCOUNTING

THIRD EDITION

Ronald W. Hilton

Cornell University

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MANAGERIAL ACCOUNTING

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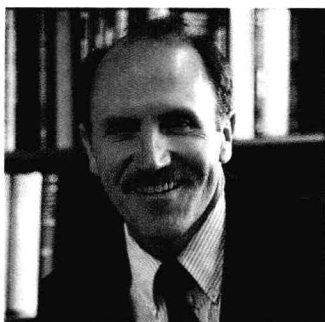


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Ronald W. Hilton is a Professor of Accounting at Cornell University. With bachelor's and master's degrees in accounting from The Pennsylvania State University, he received his Ph.D. from The Ohio State University.

A Cornell faculty member since 1977, Professor Hilton also has taught accounting at Ohio State and the University of Florida, where he held the position of Walter J. Matherly Professor of Accounting. Prior to pursuing his doctoral studies, Hilton worked for Peat, Marwick, Mitchell and Company and served as an officer in the United States Air Force.

Professor Hilton is a member of the Institute of Management Accountants and has been active in the American Accounting Association. He has served as associate editor of *The Accounting Review* and as a member of its editorial board. Hilton currently serves on the editorial board of the *Journal of Management Accounting Research*. He has served on the resident faculties of both the Doctoral Consortium and the New Faculty Consortium sponsored by the American Accounting Association.

With wide-ranging research interests, Hilton has published articles in many journals, including the *Journal of Accounting Research*, *The Accounting Review*, *Management Science*, *Decision Sciences*, *The Journal of Economic Behavior and Organization*, and *Contemporary Accounting Research*. He also has published a monograph in the AAA *Studies in Accounting Research* series, is a co-author of *Budgeting: Profit Planning and Control*, and is a co-author of *Cost Accounting: Concepts and Managerial Applications*. Professor Hilton's current research interests focus on contemporary cost management systems and international issues in managerial accounting. In recent years, he has toured manufacturing facilities and met with practicing managerial accountants in North America, Europe, Asia, and Australia.

**To my wife, Meg, and our sons,
Brad and Tim.**

Preface

Managers in all types of organizations rely heavily on managerial accounting information for decision making, planning, and control. The goal of this text is to acquaint students of management with the fundamentals of managerial accounting. The emphasis throughout the book is on *using* accounting information in managing an organization. *Managerial Accounting* is intended to be used by students after they have completed a basic course in financial accounting. Most of the material in the text can be covered in one semester or one and one-half quarters. The book includes enough material, however, to allow an instructor some choice of topics when designing the course.

In preparing the third edition of *Managerial Accounting*, many features of the first two editions were retained. However, several improvements and changes have been made based on the comments of the reviewers, instructors, and students who have used the text. This preface provides a summary of the text's key features and the changes in the third edition.

■ KEY FEATURES OF THIS TEXTBOOK

Conveying the importance of managerial accounting and stimulating students' interest

Each chapter is built around one major illustration, in which all aspects of the chapter's coverage are addressed. The illustration is used consistently throughout the chapter, allowing students to gain a deeper understanding of all dimensions of the topic. Each illustration has a management case flavor, with enough descriptive background to involve students in the scenario. These illustrations are built around realistic situations with plausible decisions and believable people. The types of illustrations vary widely across chapters. Although these major chapter illustrations are based on fictitious organizations, they are generally based on real-world situations. As a result the illustrations, though not real, are extremely realistic.

The text includes frequent descriptions of the actual managerial-accounting practices of real-world organizations. These *illustrations from management accounting practice* are highlighted to catch the students' attention and are dispersed throughout the book. Among the many organizations represented in these real-world scenarios are Aetna Casualty and Life; American Can; American Express; British Airways; B. F. Goodrich; Caterpillar; Chrysler; City of Charlotte, North Carolina; Cornell University; Corning Glass Works; Cummins Engine, Daihatsu; Deere & Company; Dow Chemical; Dutch Pantry; Federal Express; Firestone Tire & Rubber; General Electric; Harley Davidson; Hewlett-Packard; Honeywell; H. J. Heinz; ITT; Ingersoll-Rand; J. C. Penney; McDonald's; Motorola; a public school district in suburban Rochester, New York; Rockwell International; Southwest Airlines; Toyota; United Parcel Service; and Wal-Mart.

Balanced coverage of managerial accounting topics in manufacturing, retail, nonprofit, and service-industry settings

A large percentage of the students pursuing studies in management will choose careers in nonmanufacturing environments. It is important that students realize the applicability of managerial accounting to a variety of organizations. Some managerial accounting topics are integrally related to the manufacturing sector; others are just as applicable in nonmanufacturing settings. The major illustrations, around which the chapters in this text are built, are drawn from a wide variety of enterprises. As the chapter outline on the front endpaper shows, seven of the illustrations are set in the manufacturing sector, seven illustrations involve service-industry firms, four illustrations are built around retail companies, and three illustrations involve nonprofit or governmental settings.

Flexible sequence of chapters written in modular style

Since managerial accounting instructors often have differing views on the optimal chapter sequence, flexibility in usage was a paramount objective in writing the text. Each chapter is a module, which can be assigned out of sequence if the instructor desires. For example, some instructors might prefer to cover cost behavior and estimation (Chapter 7) and cost-volume-profit analysis (Chapter 8) before delving into cost-accumulation issues. Other instructors may wish to cover these two topics in the section of the course on decision making. In this text, Chapter 7 and 8 can be assigned as early as immediately after Chapter 2, or as late as just prior to Chapter 14. The decision-oriented chapters (14, 15, 16, and 17) can be moved up to an earlier point in the course if the instructor prefers. These four chapters could be assigned any time after the students have completed Chapters 1, 2, 7, and 8. Chapter 18 covers the details of cost allocation for service-departments and joint products. These two modules in Chapter 18 could be covered along with the cost accumulation chapters (3, 4, and 5) if the instructor prefers. Chapters 12 and 13, which cover a variety of issues pertaining to responsibility accounting and decentralization, can be assigned later in the course if desired.

Instructors' preferences vary widely with respect to the best place in the course for the topic of variable versus absorption costing. Some instructors prefer to cover the topic immediately after cost-volume-profit analysis (covered in Chapter 8). Others prefer to cover the topic after standard costing and overhead variances, so that the effect of the fixed-overhead volume variance can be included in the discussion. To satisfy both approaches, Chapter 12 is formally divided into two parts, with one of these parts covering variable and absorption costing. This part of the chapter is a stand-alone module and can be covered immediately after Chapter 8 (CVP) by instructors who want to emphasize the connection between CVP relationships and variable costing. Alternatively, instructors who wish to cover the fixed-overhead volume variance (in Chapter 11) first, can cover variable costing as a normal part of Chapter 12. The effect of the volume variance on the variable versus absorption costing issue is examined in the Appendix to Chapter 12.

In short, the instructor has a great deal of flexibility in course design and topical sequence when using *Managerial Accounting*.

Blend of traditional material and up-to-date coverage of emerging topics in managerial accounting

There is no doubt that managerial accounting is undergoing a revolution in thought and practice. Much of this change is due to recent changes in manu-

facturing technology and philosophy. Such innovations as just-in-time inventory systems, flexible manufacturing, and computer-integrated manufacturing systems are dramatically changing the manufacturing environment. As a result, managerial accounting systems are changing as well. New concepts and procedures have been devised, and many traditional approaches have been challenged.

Managerial Accounting provides thorough coverage of these contemporary issues. Two complementary approaches are taken. First, these emerging issues are thoroughly integrated throughout the text. Virtually every chapter includes major coverage of some aspect of contemporary cost management systems and the new manufacturing environment. This provides for continual reinforcement of these topics throughout the course, and also allows students to study the issues in a variety of organizational contexts.

Second, Chapters 5 and 6 are devoted entirely to contemporary cost management systems. Issues such as cost drivers, activity-based costing, activity-based management, non-value-added costs, and costing systems for just-in-time production environments are covered in these chapters. By covering many of these topics together, in the context of a particular company, students are better able to understand how these diverse issues are interrelated.

Breadth and depth of coverage

This textbook is thoroughly comprehensive in that it includes all topics of relevance for an introductory managerial accounting course. Moreover, the book provides enough depth to give students an appreciation for the relationship of each topic to the management process. When appropriate, the behavioral implications of managerial accounting information and procedures are explored. For a thorough understanding of managerial accounting, students should not only be able to produce accounting information, but also understand how managers are likely to use and react to the information.

Pedagogical features designed to enhance the learning process

To help students learn managerial accounting and gain an appreciation for its importance, *Managerial Accounting* includes a wide range of pedagogical features.

- **Learning Objectives.** Each chapter begins with a list of learning objectives to help students identify the most important issues in the chapter.
- **Comprehensive Illustrations with a Real-World Flavor.** As noted previously, each chapter is built around a major illustration that progresses throughout the chapter. These diverse illustrations include enough background to add realism to the presentation and stimulate the students' interest in the topic.
- **Photos.** A photograph at the beginning of each chapter and a logo for each organization add to the realism of the presentation. In addition, numerous photos from practice are included throughout each chapter. These photos are intended to enhance the students' interest and emphasize key points.
- **Clarity and Step-by-Step Presentation.** Great care was taken to write this text in a clear, readable, and lively style. Extensive review by managerial accounting instructors coupled with classroom testing have helped in achieving this goal. The text contains numerous exhibits, graphs, tables, and step-by-step instructions to help students master the material.
- **Illustrations from Management Accounting Practice.** As noted previously, the managerial accounting practices of well-known, real-world or-

ganizations are highlighted in these numerous illustrations. They are intended to stimulate student interest and provide a springboard for classroom discussion.

- **Review Problems.** Most chapters include a review problem along with its solution to provide students with a vehicle for testing their understanding of the material.
- **Key Terms.** Each chapter includes a list of key terms with page references. A complete glossary is included at the end of the text.
- **Review Questions, Exercises, Problems, and Cases.** Each chapter includes a wide selection of assignment material. This end-of-chapter material, which has been classroom tested, is comprehensive in covering the points in the chapter. The assignment material exhibits a wide range of difficulty, and the *Instructor's Guide* provides guidance for the instructor on the difficulty level and time required for each problem. Numerous adapted CMA and CPA problems are included in the text. In many cases, these problems were very heavily adapted to preserve the essence of the problems while ensuring that they were pitched at a level appropriate for the text.

■ CHANGES IN THE THIRD EDITION

The key features of the first and second editions have been retained. However, several changes have been made to improve on those strengths. Some of the more significant changes are described here.

Expanded pedagogical material

In responding to the comments of adopters and reviewers of the second edition, new pedagogical material has been added where indicated. For example, at the suggestion of a reviewer, a time-line diagram was added in Chapter 3 to help students understand the differences between budgeted, applied, and actual overhead.

Reorganization of process-costing coverage

Chapter 4, which covers process costing, has been reorganized as follows:

- **Main part of Chapter 4:** Covers general concepts of process costing, such as equivalent units, and the *weighted-average* process-costing method in a *single production department*.
- **Appendix A to Chapter 4:** Covers the *first-in, first-out (FIFO)* process-costing method in a *single production department*.
- **Appendix B to Chapter 4:** Covers process costing in *sequential production departments* (both weighted-average method and FIFO method).

These changes in the process-costing coverage were made to provide instructors with the maximum flexibility in course design. Instructors who wish to cover only the weighted-average method may assign only the main chapter, excluding both appendixes. Coverage of both weighted-average and FIFO process costing can be accomplished by assigning the chapter and Appendix A. An instructor who prefers to cover only the weighted-average method, but with sequential production departments, may assign the chapter and the first part of Appendix B, stopping when the FIFO coverage begins (and skipping Appendix A). Finally, all aspects of process costing are covered by assigning the chapter and both appendixes. The end-of-chapter material clearly indi-

cates whether an exercise, problem, or case is dependent on the material in either appendix.

Expansion and reorganization of material on contemporary cost management systems

In the first two editions, Chapter 5 covered contemporary cost management systems and the new manufacturing environment. In the third edition, this chapter has been reformatted into two chapters, 5 and 6, with coverage as follows:

Chapter 5. Traditional manufacturing process and plant layout; Activity-based costing; Differences between traditional, volume-based product costing, and activity-based costing; Product cost distortion; Selection of cost drivers; Indicators that a new product-costing system is needed; Identification of non-value-added costs; Activity-based costing in the service industry.

Chapter 6. Implications of advanced manufacturing technology for managerial accounting; Just-in-time (JIT) inventory and production management systems; Cost management systems; Two-dimensional activity-based costing; Activity-based management; Eliminating non-value-added activities and costs; Target costing; Kaizen costing; Continuous improvement; Keys to successfully implementing ABC and ABM.

Aerotech Corporation, the same illustration used in Chapter 5 of the first two editions, now runs throughout Chapters 5 and 6. Chapter 5 now focuses on activity-based *costing*. Chapter 6 is devoted more to activity-based *management*. In general, Chapter 5 is more quantitative while Chapter 6 is more qualitative. In this edition, the two chapters follow the natural evolution of a new cost management system from focusing primarily on cost assignment to impacting management of the organization's activities.

Chapters 5 and 6 make up a module on cost management systems. In general, Chapters 5 and 6 should be covered consecutively. However, the two-chapter module can be shifted around in the design of a course; they could be covered at either the beginning or end of the course.

Further integration of material on cost management systems and the new manufacturing environment

In the third edition, virtually every chapter includes significant coverage of various emerging topics in managerial accounting. Some of the topics covered in various chapters are as follows:

Chapter 1. Cost management systems; just-in-time production and inventory management; strategic cost analysis and the value chain; and the impact of the global economy.

Chapter 2. Cost drivers; volume-based versus operations-based cost drivers.

Chapter 3. Discussion and exhibits covering two-stage cost allocation and departmental overhead rates.

Also in Chapter 3 is an introduction to activity-based costing. The main part of the chapter includes a conceptual introduction to ABC, without getting into the details. Then the Appendix to Chapter 3 provides follow-up material with a straightforward numerical illustration. The ap-

pendix briefly shows the effects on product costs of the following three alternative approaches to product costing: plantwide overhead rate, departmental overhead rates, and activity-based costing.

The ABC coverage in Chapter 3 is intended for those instructors who prefer to introduce activity-based costing early in the course, without getting into a lot of details about ABC systems. A much more in-depth treatment of ABC is given in Chapter 5.

Chapter 4. Hybrid product-costing systems and operation costing; implications of JIT for weighted-average versus FIFO process costing.

Chapter 5. As in the first and second editions, this chapter provides an in-depth treatment of activity-based costing and cost management systems. This edition includes many pedagogical devices to help students understand how an activity-based costing system works, and how ABC reduces product cost distortion. To make room for the expanded pedagogical material, several topics have been moved to other chapters. This has increased the integration of the material on contemporary cost management systems throughout the text.

Chapter 6. This chapter covers activity-based management and the new manufacturing environment. Topical coverage includes the implications of advanced manufacturing technology for managerial accounting, just-in-time inventory and production management systems, two-dimensional activity-based costing, activity-based management, elimination of non-value-added costs, target costing, kaizen costing, continuous improvement, and the keys to successful implementation of ABC and ABM.

Chapter 7. Shifting cost structure in the new manufacturing environment; volume-based versus operations-based cost drivers.

Chapter 8. The implications of activity-based costing for CVP analysis; impact on CVP relationships of labor intensive production systems versus advanced manufacturing systems; and the implications of JIT and flexible manufacturing systems.

Chapter 9. Budgeting product life-cycle costs; and JIT versus EOQ views of inventory planning (appendix).

In addition, this chapter includes a considerable amount of pedagogical material to help students understand the linkage between production and purchasing, and how cash receipts and cash disbursements are budgeted.

Chapter 10. Performance measurement in the new manufacturing environment; limitations of standard costing; and relationships between ABC and standard costing.

Chapter 11. Implications of activity-based costing and contemporary cost management systems for flexible budgeting; controlling quality costs.

Chapter 12. Activity-based responsibility accounting.

Chapter 13. International and ethical issues in cost management systems.

Chapter 14. Implications of activity-based costing for relevant cost analysis.

Chapter 15. Pricing based on target costing; pricing implications of activity-based costing; and impact of distorted product costs on cost-based prices.

Chapter 16. Justification of investments in advanced manufacturing systems.

Chapter 17. Real-world capital-budgeting practices, including an international discussion.

Chapter 18. Relationships between service department cost allocation, two-stage allocation, and ABC systems.

Revision of end-of-chapter assignment material

Many new exercises, problems, and cases have been added in the third edition. In addition to the new assignment items, most of the exercises, problems, and cases in the first two editions have been revised. The result is that roughly three-quarters of the items in the third edition are new or revised.

Every chapter in the text includes one or more problems and cases dealing with ethical issues. Moreover, there is an increase in the number of problems and cases that include international issues, critical thinking skills, and written communications requirements.

The assignment material also includes many missing-data problems. These problems help students think through the conceptual linkages in a technique by requiring them to “work backwards” from the information given to reconstruct the missing data. Also, several integrative cases are included, for example, in the budgeting and standard costing chapters.



Many exercises and problems can be solved using the problem-solver software. Logos have been placed in the margins next to these exercises and problems.

Photos from practice

In addition to the chapter-opening photos, additional photos have been added throughout each chapter. These photos, which depict real-world practices and operations, are intended to enhance the students' interest and highlight selected key points.

■ SUPPLEMENTS FOR THE INSTRUCTOR

Solutions Manual (prepared by Ronald W. Hilton, Cornell University). Contains complete solutions to all of the text's end-of-chapter review questions, exercises, problems, and cases.

Key Figures (prepared by Ronald W. Hilton, Cornell University). Provided for end-of-chapter exercises, problems, and cases in the text. Available in class quantities.

Instructor's Manual (prepared by Margaret Hubbert, Cornell University). Contains learning objectives, chapter overviews, chapter outlines, lecture topics, assignment grids for the text's problems and cases, and alternate assignment outlines and suggestions.

Test Bank (prepared by Gregory Lowry, Troy State University). Consists of approximately 1500 test items including multiple-choice questions and short problems. Each question is keyed to the text's learning objectives.

Computerized Test Banks. Available for the IBM and Macintosh computers.

Overhead Transparencies. Solutions to all end-of-chapter exercises, problems, and cases in the text.

Teaching Transparencies (prepared by Margaret Hubbert, Cornell University). Text and nontext enrichment material for classroom use.

Power Point Presentations (prepared by Douglas Cloud, Pepperdine University). A complete set of computerized instructional materials that can be easily projected in class to highlight lectures and stimulate student involvement. Consists of animated illustrations, graphics, demonstration problems, definitions, charts, and more.

Interactive Spreadsheet Software (prepared by Glenn Owen, University of California, Santa Barbara). Using problems from the text, instructors can engage in what-if-scenarios and demonstrate the effects of changing variables (IBM and Macintosh versions).

Videotapes. A series of real-life scenarios illustrating managerial accounting issues in manufacturing, service, retail, and governmental/non-profit enterprises.

■ SUPPLEMENTS FOR THE STUDENT

Study Guide (prepared by Roland Minch, State University of New York, Albany). Consists of learning objectives, overview of the text's main topics in outline form, key words and descriptions, and self-test questions for each chapter. The self-test questions consist of true/false, fill-ins, multiple choice, and short problems.

Executive Woodcraft Co., Print Practice Set (prepared by Ronald W. Hilton, Cornell University). A comprehensive application with an emphasis on product costing. Other topics covered include cost-volume-profit analysis, budgeting, standard costs, responsibility accounting, relevant information, and decision analysis.

The Phish Corporation, A Practice Case in Managerial Accounting (prepared by Mark Zmijewski, University of Chicago; Sanford Gunn, State University of New York, Buffalo; Ronald Huefner, State University of New York, Buffalo; and Robert Derstine, Villanova University). This comprehensive application brings together all of the elements of managerial accounting in a realistic on-the-job environment. Thirteen modules cover such topics as cost classification, product costing, budgeting, standard costs, cost-volume-profit analysis, and special decisions. All assignments are drawn from a common data base for a manufacturing company.

Computerized Practice Set (prepared by John Garlick, Ithaca College). A comprehensive series of problems covering all major topics in the text (for example, process costing, cost-volume-profit analysis, budgeting, variance analysis, and statement analysis). Students are asked to supply needed headings and formulas in spreadsheet outlines to complete the required problems. Quattro and Lotus spreadsheet outlines are available on the disk provided with the package (5 1/4" and 3.5" versions).

Interactive Spreadsheet Software (prepared by Glenn Owen, University of California, Santa Barbara). Students work with problems from the text and observe the effects of changing variables and scenarios (IBM and Macintosh versions).

Interactive Managerial Accounting Lab (prepared by Diane Pattison, University of San Diego; Patrick McKenzie, Arizona State University; and Rick Birney, Arizona State University). A windows-based program giving students a hands-on, highly interactive environment in which to learn managerial accounting. This software includes exercises, activities, and problems on content covered throughout the course.

Managerial Accounting Problem-Solver (prepared by Dilip Kare and Jeffrey Michelman, University of North Florida). Students work problems and exercises from the text using this menu-driven software product. Logos are placed in the text margins for over 100 specific exercises and problems that can be solved with this product.

■ ACKNOWLEDGMENTS

I would like to express my appreciation to several people who have provided assistance in the development of this textbook. First, my gratitude goes to the hundreds of managerial accounting students I have had the privilege to teach over many years. Their enthusiasm, comments, and questions have challenged me to clarify my thinking about many topics in managerial accounting. Second, I express my sincere thanks to the following professors who provided extensive reviews of the manuscript: Peggy de Prophetis, University of Pennsylvania; Joanna Ho, University of California, Irvine; Holly Johnston, Boston University; Robert Lin, California State University, Hayward; Martha Marshall, University of North Carolina, Asheville; Roland Minch, State University of New York at Albany; Susan Rauch, Shippensburg University; Ali Sedaghat, Loyola College in Maryland; Ann Sergeant, Iowa State University; Doug Shin, University of Pittsburgh; and Bente Villadsen, Washington University.

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Ronald W. Hilton

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Contents in Brief

Preface xix
Photo Credits xxviii

PART 1 FUNDAMENTALS AND COST- ACCUMULATION SYSTEMS 1

CHAPTER 1	MANAGERIAL ACCOUNTING: AN OVERVIEW	3
CHAPTER 2	BASIC COST TERMS AND CONCEPTS	31
CHAPTER 3	JOB-ORDER COSTING SYSTEMS	73
CHAPTER 4	PROCESS COSTING AND HYBRID PRODUCT-COSTING SYSTEMS	135
CHAPTER 5	ACTIVITY-BASED COSTING AND COST MANAGEMENT SYSTEMS	189
CHAPTER 6	ACTIVITY-BASED MANAGEMENT AND THE NEW MANUFACTURING ENVIRONMENT	249

PART 2 PLANNING AND CONTROL SYSTEMS 293

CHAPTER 7	COST BEHAVIOR AND ESTIMATION	295
CHAPTER 8	COST-VOLUME-PROFIT ANALYSIS	349
CHAPTER 9	BUDGETING: PROFIT PLANNING AND CONTROL SYSTEMS	403
CHAPTER 10	STANDARD COSTING AND PERFORMANCE MEASURES FOR THE NEW MANUFACTURING ENVIRONMENT	469
CHAPTER 11	FLEXIBLE BUDGETS AND CONTROL OF OVERHEAD COSTS	525
CHAPTER 12	RESPONSIBILITY ACCOUNTING AND INCOME REPORTING	579

CHAPTER 13	INVESTMENT CENTERS AND TRANSFER PRICING 629
------------	---

**PART 3
USING ACCOUNTING INFORMATION
IN MAKING DECISIONS 675**

CHAPTER 14	DECISION MAKING: RELEVANT COSTS AND BENEFITS 677
CHAPTER 15	COST ANALYSIS AND PRICING DECISIONS 741
CHAPTER 16	CAPITAL EXPENDITURE DECISIONS: AN INTRODUCTION 787
CHAPTER 17	FURTHER ASPECTS OF CAPITAL EXPENDITURE DECISIONS 833

**PART 4
SELECTED TOPICS FOR FURTHER
STUDY 881**

CHAPTER 18	COST ALLOCATION: A CLOSER LOOK 883
CHAPTER 19	ANALYZING FINANCIAL STATEMENTS 915
CHAPTER 20	PREPARING THE STATEMENT OF CASH FLOWS 959

Glossary G-1

Indexes I-1