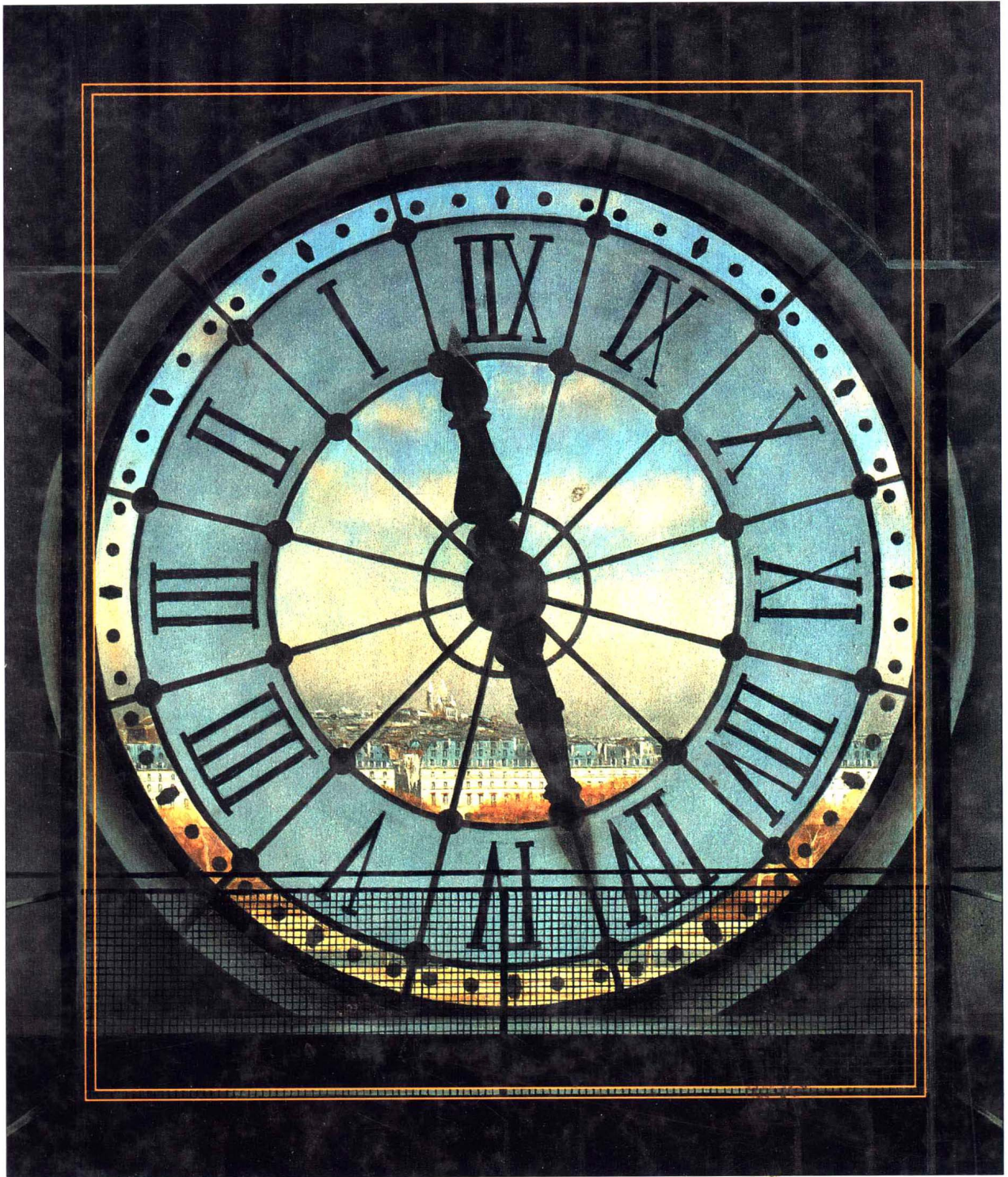


COST ACCOUNTING



LANE K. ANDERSON • DONALD K. CLANCY

COST ACCOUNTING

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We dedicate this book to our spouses,
Dianne Anderson and Diana Denchfield Clancy, and our children.
With their support and encouragement over several years,
we pressed onward to complete this text.



About the Authors

Lane K. Anderson is the Ernst & Young Professor of Accounting at Texas Tech University. He received both an M.B.A and a Ph.D. in Accounting at the University of Wisconsin–Madison, and a Master of Accountancy at Brigham Young University. He is a CMA, having been awarded a Robert Beyer Gold medal in the CMA examination, and is a holder of a CPA certificate in Utah. Professor Anderson is a member of the National Association of Accountants, the American Institute of Certified Public Accountants, the American Accounting Association, and the National Contract Management Association.

Professor Anderson has many years of business experience with CPA firms, government, and industry. He was a staff auditor with Arthur Andersen & Company and a special consultant in the government contract services practice of Ernst & Young. He also served for four years on the staff of the Cost Accounting Standards Board (CASB), three of those years as an assistant director of the CASB staff. Professor Anderson continues active consulting with major aerospace and defense contractors on cost accounting matters related to government contracts.

In addition to active participation in the business community, Professor Anderson is an experienced teacher and has been honored as an outstanding teacher by several student organizations. He has taught graduate and undergraduate courses in cost and managerial accounting and accounting systems at Texas Tech University, the University of Maryland, and Brigham Young University. He conducts training programs in cost accounting subjects for major corporations and CPA firms, and instructs a number of professional continuing education courses. With over 20 years of teaching experience, he is acutely sensitive to student needs and knows how to help students maximize their learning experiences.

Professor Anderson is an active writer. His articles appear in the *Journal of Accountancy*, *Management Accounting*, the *Journal of Accounting Education*, and in a number of other journals. In addition, he authored *Accounting for Government Contracts: Cost Accounting Standards* and is editor for *Accounting for Government Contracts: Federal Acquisition Regulation*.

Donald K. Clancy is the Peat Marwick Faculty Fellow and a Professor of Accounting at Texas Tech University. In addition, he holds an appointment as Adjunct Professor of Health Care Organization Management with the Texas Tech School of Medicine. He received the M.B.A and Ph.D. degrees in Accounting at Pennsylvania State University. He has taught cost accounting and accounting systems for 20 years at Pennsylvania State University, the University of New Mexico, and Texas Tech University.

Professor Clancy has had several years experience as a cost analyst in industry and as a staff auditor in public accounting. He has also been a consultant to industry and service organizations, especially health care organizations, on the design of internal management accounting systems. Professor Clancy was recently the president of the

management accounting section of the American Accounting Association, which is an international organization of over 1,500 professors interested in teaching and research in the field of managerial accounting. He is active with the *Journal of Management Accounting Research* as a reviewer of contributions on current research in the field of management accounting. He coedited, with Robert Capettini, *Cost Accounting, Robotics, and the New Manufacturing Environment* and prepared the reference work *Annotated Management Accounting Readings* for the Management Accounting Section. He is currently serving on the Council of the American Accounting Association.

Professor Clancy has written over 25 articles that have appeared in such journals as *Management Accounting*, *Cost and Management, Accounting, Organizations, and Society*, *Abacus*, *Journal of Accounting and Business*, *Advances in Accounting*, *Journal of Systems Management*, *Accounting and Business Research*, *Financial Analysts Journal* and *International Journal of Management*.



Preface

Cost Accounting is about change and taking risks. It reflects the current and foreseeable environment of companies of all sizes struggling to become more competitive in price, quality, and service. The marketplace is fluid, and management cannot successfully battle the ebb and flow of worldwide markets without the appropriate applications of cost accounting principles and practices. Accountants are spending more of their time in identifying activities that generate costs, in designing cost systems that better trace costs to products and services, in assisting managers in cost management, and in developing traditional, as well as new, performance measures. *Cost Accounting* is not radically different, but it identifies where, how, and why accountants should apply cost accounting principles and practices within current and future operations.

APPROACH

Four fundamental building blocks form the foundation of *Cost Accounting*. Each one is important in its own right, but together they have helped shape this text into a powerful learning tool.

Conceptual Framework

Each subject area is set in a framework that shows you where the pieces fit and why each one is important. In this context, an identification of the *what*, *how*, and *why* flows logically from concept to application. Each topic covers important systems design aspects and appropriate computer applications, and identifies how management at various levels plays a role. This means you will have the conceptual framework to understand why you are doing certain work, rather than merely applying procedures.

Cost Systems Design

Cost accounting literature and industry leaders are calling for a move from internal accounting systems designed around external requirements to multiple cost systems and ultimately to integrated cost systems. We hear of *activity costing* as the new wave in better costing of products and services. Activity costing is extolled as the means of establishing performance measures that will lead to improvement in quality and customer service. *Cost Accounting* emphasizes the important design concepts that implement activity costing in the appropriate areas, although the term *activity costing* is not always mentioned. This systems design material is not intended to substitute for a complete course in accounting systems.

Applications across Industries and Organizations

Although cost accounting finds its origin in a manufacturing setting, the concepts are applicable to a broad spectrum of companies and organizations. Applications in manufacturing, service, merchandising, and not-for-profit organizations are interwoven throughout each chapter and the assignments. To bring breadth to your education, we include real-world illustrations in the chapters and real-world problems in the end-of-chapter material that explore cost accounting issues in a wide variety of industries and geographical locations. In addition, you will learn the importance of cost accounting concepts as they relate to careers in public accounting, service-oriented businesses, manufacturing companies, merchandising companies, and not-for-profit organizations.

Integration of Materials

Cost Accounting covers the major issues affecting cost accounting systems, such as cost drivers, activity costing, the international marketplace, and human behavioral implications. Instead of compartmentalizing such issues in an individual chapter, they are interwoven with the concepts to which they apply. For example, although activity costing is covered in Chapters 8 and 25, it is also a part of the concepts discussed in a number of the other chapters. Therefore, we discuss significant issues in the dual context of understanding both the concepts and the implementation concerns.

CONTENT AND ORGANIZATION

Overall Organization

Cost Accounting consists of 26 chapters and 13 teaching appendixes. These materials are organized into seven parts to provide greater flexibility for selecting and organizing topic coverage.

Part I: Basic Concepts. The four chapters in Part I are the essential or core materials that support the remaining chapters. These topics bring perspective to cost accounting and serve as a foundation for appropriately applying later materials.

Part II: Accounting for Production Costs. Part II provides the characteristics that differentiate a job order and process cost system and a description of changes in the production environment. It also covers the accounting issues related to the three major cost elements: materials, labor, and overhead.

Part III: Accounting for Specialized Production Environments. The three chapters in Part III look at special situations and their related concerns. Here, process costing and joint production are discussed in depth. Although the accounting community is pressing for the elimination of non-value added activities that generate waste and scrap, spoilage and defective units, the costs of such activities must be accounted for. Those concerns are addressed here.

Part IV: Planning and Control of Activities. Part IV builds on the earlier parts as it discusses standard costs and budgeting systems. The budgeting area is somewhat unique in that it provides the planning process in terms of how entities should organize for budgeting activities within the master budget framework. Special emphasis is placed on the estimation and planning of cash flows.

Part V: Performance Measurement and Investigation. This part brings together six areas that relate to performance evaluation and control topics. The materials on variance investigation and models for process control are unique to a cost accounting course.

Part VI: Decision Support Processes. Part VI covers the short- and long-term decision making. The short-term operational decisions are presented in a traditional manner. We hope to bring a new perspective to long-term capital budgeting decisions by introducing you to a number of techniques for including uncertainty in developing estimates for investments and future cash flows.

Part VII: Concepts for Designing Costs Systems. This part covers specific areas of cost systems design. Chapter 25 handles the concepts and issues of cost allocation that apply to determining costs for products and services, identifying costs in planning and decision making, and the use of costs in control and performance evaluation. Chapter 26 is unique and unlike material in other cost accounting textbooks. It is integrative, pulling together most of the text from the perspective of the management accounting systems design responsibility of the chief financial officer functioning as a member of the management team.

Glossary. The end-of-book glossary will help you look up meanings of terms without having to find the chapters where they are discussed. In addition, each term has a chapter indication if you want to go to that chapter for additional discussion.

Chapter Highlights

Each chapter has been carefully structured to make learning easier. The major elements of this structure follow:

Business Problem. Each chapter begins with a realistic business situation or problem that focuses on material covered in the chapter. In many chapters, this problem is the central illustration throughout the chapter, and in others it becomes the problem for review at the end of the chapter.

Learning Objectives. Learning objectives identify the chapter contents and what you should be able to do upon completing the end-of-chapter materials. They serve as a guide to your study.

Summary. A brief synopsis of each chapter helps you organize, review, and integrate key concepts.

Summary of Formulas. A summary of formulas used in such chapters as cost-volume-profit analysis is presented at the end of the chapter for quick reference.

Problem for Review. Problems with suggested solutions enable you to test your knowledge of chapter material and obtain immediate feedback regarding appropriate answers.

Key Terms and Concepts. Important terms and concepts are defined and set in bold type throughout each chapter. They are also listed at the end of the chapter and referenced by page.

Additional Readings. This text is a survey of the topics in cost and managerial accounting. Should you desire to pursue refinements or expand beyond the text, a list of additional reading material is provided at the end of each chapter.

Appendixes. There are 13 teaching appendixes in the book. In some cases, the appendix includes review topics that are taught in other courses, but which may complement this text's material. Other appendixes discuss advanced topics that can easily be integrated with the basic topic coverage. Each appendix is organized as a self-contained teaching and learning unit: learning objectives, questions, exercises, and problems.

End-of-Chapter Materials

The assignment material at the end of each chapter permits you to review and apply the concepts of the chapter. This material includes review questions, discussion questions, exercises, problems, and extended applications.

Because you may be preparing for professional examinations, several problems within appropriate chapters are taken from the Certified Management Accounting (CMA) and CPA examinations, with more material from the CMA examination because it has a broader emphasis on cost and managerial accounting issues.

Review Questions. Review questions provide a review of the chapter concepts in simple implementation situations.

Discussion Questions. Thought-provoking questions relate to chapter content but include complexities not discussed in the chapter. They are intended to stimulate thinking about issues related to the subject matter. These questions can be used to spark class discussion or provide the themes for written reports.

Exercises. Exercises are usually one or two simple concepts with basic computations. They provide a good review of chapter materials without a lot of complexity.

Problems. Problems include either more than one issue, challenging situations, or complex computations. Each problem is based on a real-life type of situation. Personal computers with spreadsheet capabilities are required to complete some problems.

Extended Applications. Extended applications have still greater depth and complexity. They are designed to help students integrate various concepts within the chapter and across chapters. The extended applications require creativity in arriving at solutions to help students develop their skills in using computer spreadsheets or in report writing.

Flowchart of Chapter Relationships

Although considerable flexibility exists for sequencing chapters for study, there is an order based on prerequisite text and problem materials. The flowchart on the next page shows those chapters that must come before others.

SUPPLEMENTS

Supporting materials are required for both the instructor and student. The following ancillary materials are available.

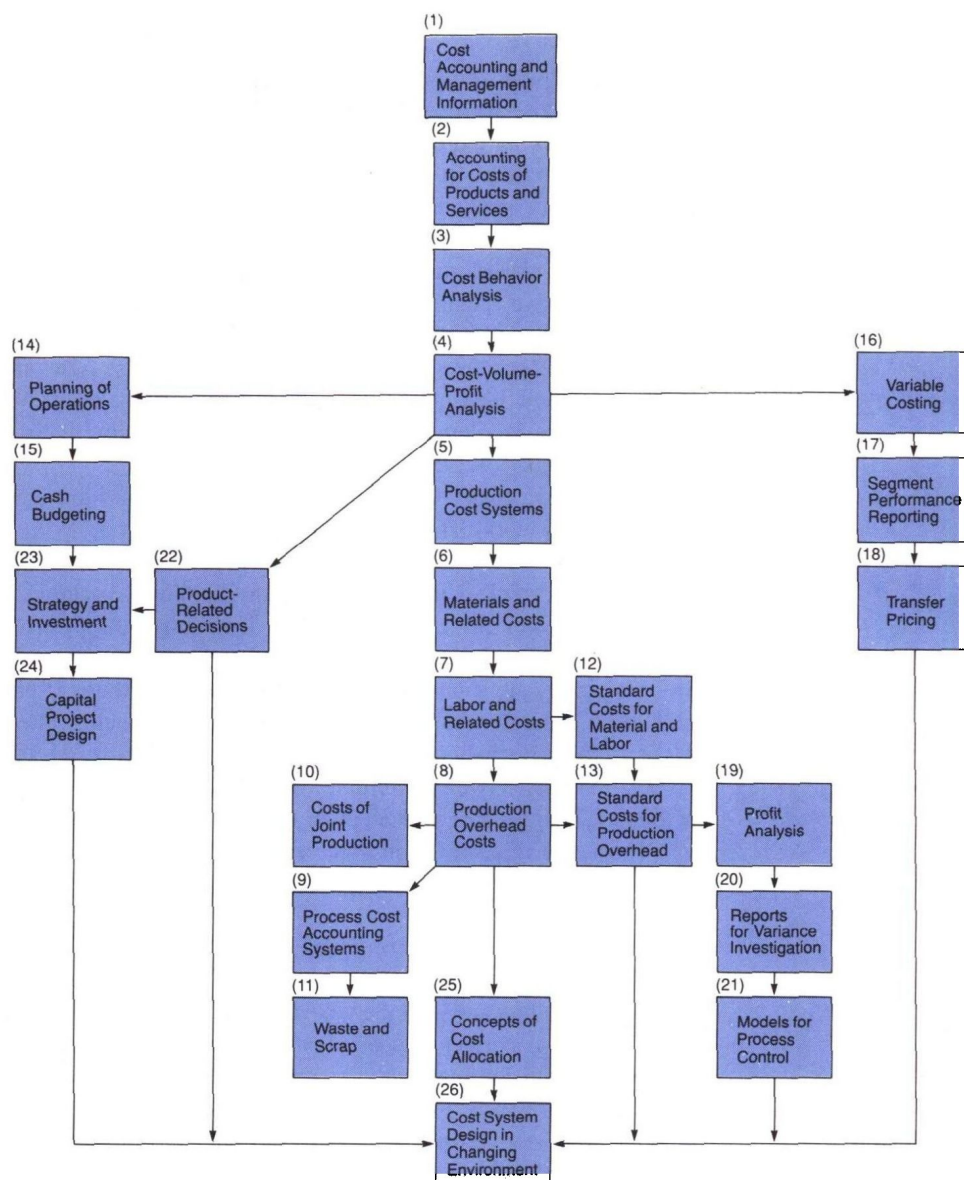
For the Instructor

Instructor's Resource Guide. This important guide serves several purposes. It gives suggestions for presenting the concepts in a logical flow, and guides the selection of exercise and problem material by providing expected completion times and levels of difficulty. It helps extend the topical material beyond the basic chapter content. The resource guide was prepared by Professor Jay S. Holmen of the University of Wisconsin, Eau Claire.

Solutions Manual. The solutions manual contains solutions to all review and discussion questions, exercises, problems, and extended applications. Additional clarifying notes and suggestions are presented where appropriate.

Solutions Transparencies. These transparencies include selected exercises, problems, and extended applications.

Test Bank. A test bank includes a variety of questions and short problems. The questions within each category range from simple to complex to provide several alternative combinations to select from. The test bank was prepared by Professor Jay S. Holmen and has been designed to assure that test questions are compatible and consistent with the text material.



CompuTest. This is a computerized version of the test bank that permits individualizing each examination to your own circumstances.

For the Student

Study Guide. A study guide assists you in reviewing each chapter's content, in checking your progress in understanding concepts, and in preparing for examinations. The study guide was prepared by Professor Lamont F. Steedle of Towson State University.

Spreadsheet Applications Template Software (SPATS). Approximately 60 problems have templates prepared for electronic spreadsheets, eliminating the long setup time usually required for a complex problem. The problems involved are keyed in the margin with the following spreadsheet symbol:



ACKNOWLEDGMENTS

This text was completed with the input and assistance of many people. To list by name all of those who provided insights, improvements, or encouragement would be an impossible task as there were many who were influential. We owe a debt of gratitude and feel it important to recognize some special people, even with the risk that we may have forgotten someone.

First, we thank the hundreds of students at Texas Tech University, who used the manuscript in classes over a two-year period. Their response demonstrated that the text is comprehensive, clearly written, has an even-handed approach, and is appropriate for the level intended. They gave innumerable suggestions for improving clarity, reorganizing for better understanding, and for illustrating concepts. Also, there are the many students who contributed ideas for exercise and problem material. We have recognized those students whose problem ideas were adapted by showing their names in parentheses next to the exercise or problem.

Second, we thank the many reviewers who provided comments that enhanced the quality of this work. These reviewers include:

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We are indebted to those people at Richard D. Irwin, Inc., who provided editorial, development, and production assistance. We thank John Black, the acquisitions editor who got us moving and kept the yoke on us over the years as we moved toward completion. Then, a special person gets our thanks because she pushed us through the final stages and helped with the inevitable frustrations of completion. She is Diane Van Bakel, our developmental editor. Finally, we thank Lynne Basler in production, who worked all the fine details of converting manuscript to final print.

Permission has been received from the Institute of Certified Management Accountants of the National Association of Accountants to use questions and/or unofficial answers from past Certificate in Management Accounting (CMA) examinations. Also, our appreciation is extended to the American Institute of Certified Public Accountants for permission to use (or to adapt) selected problems from their examinations. These problems bear the notations CMA and CPA, respectively.

A FINAL COMMENT

This textbook is meant to be helpful to instructors and students of cost accounting. We certainly welcome any suggestions from you that will enhance future editions of the text. We welcome comments, either written or by telephone. We can be reached at the Area of Accounting, College of Business Administration, Texas Tech University, Lubbock, Texas 79409: (806) 742-3181.

Lane K. Anderson
Donald K. Clancy

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