

Production and Operations Management

Eighth Edition

Norman Gaither
● Greg Frazier

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PREFACE

As today's leading organizations become leaner and more agile, they rely heavily on their streamlined operations being reliable and efficient. In this dynamic environment, production and operations management (POM) is more important than ever. As indicated by the cover of this new eighth edition, operations is the critical integrating piece that allows all the functional areas of an organization to work together. The successful integrated organization will meet global competition with quality outputs, outstanding customer service, and effective control of costs.

PRODUCTION AND OPERATIONS MANAGEMENT, 8e, will introduce students to the many POM topics and issues faced by leading manufacturers and service organizations. In revising this edition, we address new developments in the field of POM and new information resources available, such as the Internet, while retaining a strong focus on the fundamental concepts of POM. The goal of this text is to help students gain an understanding of what POM involves, how POM relates to other functional areas in an organization, the types of decisions that arise in POM, and common decision-making approaches.

As with previous editions, students should have completed courses in college algebra and introductory statistics as prerequisites to courses using this textbook. Although the mathematical and statistical concepts in the text are not complex, students with a basic background in these topics tend to perform better.

WHAT'S NEW IN THE EIGHTH EDITION?

With this edition, Norman Gaither introduces his new co-author, Greg Frazier of the University of Texas at Arlington. Professor Frazier brings a wealth of knowledge, solid research background, and practical experience. We are pleased to offer his expertise and fresh perspectives on the pages of this text.

While the basic premise of *PRODUCTION AND OPERATIONS MANAGEMENT* has not changed, the new edition contains a number of important changes and revisions. Almost all of the Industry Snapshot features within the text are new or updated. Examples, tables, references, and suggested readings lists throughout the book have been updated. New features and topical coverage include:

- **New problems and cases.** Over 100 new problems and 14 new cases are included. Where relevant, these new materials encourage use of spreadsheet applications.
- **Internet assignments.** Internet assignments have been added at the end of every chapter. These give students the opportunity to search the vast resources of the Internet for information relevant to topics covered in each chapter. Some of the assignments require written answers that encourage critical thinking and communications skills.
- **World Wide Web addresses.** Where relevant throughout the text and boxed features, Web site URLs are provided for companies and organizations that are discussed. This allows students to further research POM topics in particular organizations.
- **Operations strategy.** The ever-increasing role played by global competition and environmental forces in operations strategy is highlighted in Chapter 2.
- **Supply chain management.** Chapter 15 introduces students to the concept of managing a supply chain. Topics such as purchasing, logistics, and warehousing are presented from the perspective of managing the flow of materials from raw material suppliers to final consumers of finished goods.

- **POM in services.** Service operations are emphasized in this edition. The application of operations strategy, process planning, automation, and quality to service operations is specifically discussed. Examples, problems, and cases are cast in the setting of transportation, retailing and wholesaling, banking, and other service industries. Chapter 13 addresses many of the operational decisions in services.

TEACHING AND LEARNING AIDS

Distinctive features of the eighth edition include:

- **A comprehensive, practical, balanced, and nontheoretical approach to POM.** The text places the student squarely in the production/operations function in a variety of situations: manufacturing and services, small businesses and large corporations, quantitative and managerial approaches, start-up and established businesses, and high-tech and traditional businesses. Many of the problems and examples in the text have been abstracted from actual situations in industry.
- **A problem-solving and decision-making approach.** Each chapter includes examples of POM problems with complete solutions. These examples are solved step by step so readers can follow every detail of the solutions. A strength of the text is its problem sets and cases, which are numerous and can be worked directly from the information in the chapters. The problems exhibit a progression of difficulty as one proceeds through a set. In a continuing effort to keep the problem sets current and effective, over a hundred problems and cases have been replaced in this edition.

Chapters are presented in a framework particularly suitable for learning by students. Students can move from concepts, solved examples, odd-numbered problem assignments with the assistance of answers, and finally even-numbered problem assignments without the assistance of answers. This process builds students' understanding and confidence.

- **An ongoing emphasis on contemporary topics.** This includes:

Global competition, quality management, and customer service. These themes are introduced in Chapter 2. Because global competition, quality management, and customer service affect all facets of POM, their influences are discussed throughout the text. Chapter 17, Quality Management, and Chapter 18, Quality Control, present the overall philosophy and methods of managing quality.

Just-in-Time (JIT) manufacturing. Chapter 14 discusses the philosophy and methods of planning and controlling manufacturing operations. The ways that JIT affects such things as purchasing and materials management, personnel relations and practices, quality control, customer service, and other concepts are integrated throughout the text.

Advanced production technology. Chapter 1 introduces students to automation and related concepts. Chapter 2 discusses the strategic implications of high-tech manufacturing. Chapter 5 discusses the types of automated machines, automated production systems, and related concepts and issues. These topics are described and illustrated from the perspective of the operations manager and how they affect the strategic performance of operations.

- **Industry Snapshots.** Special accounts of industry applications are featured in every chapter, including many new ones in the eighth edition. These Industry Snapshots are visually set apart to indicate their importance to the topics being discussed. Where possible in these narratives, the real names of companies and people and their actual situations are used to demonstrate to students the relevance of what we teach in POM courses.
- **Wrap-Up: What World-Class Producers Do.** This unique feature at the end of each chapter replaces conventional summaries. The discussions apply chapter con-

cepts to the explanations of what the world's best-managed companies are doing in globally competitive markets. By this means, the latest and most advanced thinking about structuring, analyzing, and managing production systems is integrated throughout the text.

ANCILLARY MATERIALS

Several excellent ancillaries accompany the new edition of *PRODUCTION AND OPERATIONS MANAGEMENT*. Contact the ITP Academic Resource Center at 1-800- 423-0563 for more information about these items. Also, check South-Western's decision sciences Web site, <http://quant.swcollege.com>, for additional information and updates about the text and ancillaries.



- **POM Computer Library** (ISBN: 0-538-89139-4) now Microsoft® Windows-based, includes software for solving OM problems and cases provided in the text. These items are identified by a software icon.
- **Instructor's Teaching Manual with Supplemental Problem Sets** (ISBN: 0-538-891327) provides comprehensive teaching materials including chapter outlines and teaching notes, sample exams, answers to end-of-chapter questions, and over 300 supplemental problems and their solutions. The problems and their solutions that were replaced from this and earlier editions have been placed in the *Instructor's Teaching Manual*.
- **Solutions Manual** (ISBN: 0-538-89133-5) consists of complete solutions for all the problems and cases in the text. The solutions are presented in a large typeface so that they can be used as transparency masters.
- **PowerPoint Presentation Slides** (ISBN: 0-538-89135-1) incorporate color and graphics to help instructors create even more stimulating lectures.
- **Videos** (ISBN: 0-538-89138-6) of manufacturing and service operations may be used to reinforce coverage of various topical areas in the text.
- **Test Bank** (ISBN: 0-538-89136-X) includes true/false, multiple choice, and discussion questions, and problems with detailed solutions.
- **Thomson World Class Testing Tools™** (ISBN: 0-324-00057-X) is a fully integrated software suite of test creation, delivery, and classroom management tools.
- **Instructor's Resource Kit on CD-ROM** (ISBN: 0-324-00197-5) includes the files for the various print instructor's ancillaries, as well as the PowerPoint files and Thomson World Class Testing Tools™.
- **Student Lecture Notes** (ISBN: 0-538-89134-3) is a printed version of the PowerPoint slides with room for students to record classroom notes. It may be purchased separately or as a bundle package with the textbook.

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Norman Gaither
Greg Frazier

ABOUT THE AUTHORS

After many years of professional collaboration and friendship, Norman Gaither and Greg Frazier have teamed up for the eighth edition of this successful text.

NORMAN GAITHER

Norman Gaither is Professor Emeritus of Business Analysis and Research at Texas A&M University. He received his Ph.D. and M.B.A. from the University of Oklahoma and his B.S.I.E. from Oklahoma State University. Prior to teaching, Professor Gaither worked at Olin Corporation, where he held the positions of chief industrial engineer, plant manager, and director of a multiplant operation, and at B.F. Goodrich Company as senior industrial engineer.

Professor Gaither's writings on a wide range of POM topics have appeared in *Management Science*, *Decision Sciences*, *International Journal of Production Research*, *Journal of Production and Inventory Management*, *Academy of Management Journal*, *Academy of Management Review*, *Simulation*, *Journal of Purchasing and Materials Management*, *Journal of Operations Management*, *IIE Transactions*, *Journal of Cost Analysis*, and *International Journal of Operations and Production Management*.

He serves on the editorial boards of the *Journal of Production and Inventory Management*, the journal of the American Production and Inventory Control Society (APICS), the *International Journal of Production Research*, *Production and Operations Management*, the journal of the Production and Operations Management Society (POMS), and the *Journal of Operations Management*, the journal of the Operations Management Association (OMS). He is an AACSB Federal Faculty Fellow.

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Dr. Frazier received a BS in mechanical engineering and an MBA from Texas A&M University. His Ph.D. in production and operations management is also from Texas A&M, where Norman Gaither chaired his dissertation committee.

Dr. Frazier's long association with Norman Gaither has resulted in co-authored publications in several journals, including *Journal of Operations Management*, *International Journal of Production Research*, and *Production and Inventory Management Journal*. He has also published in journals such as *International Journal of Production Economics*, *Journal of Productivity Analysis*, and *Business Horizons*.

This book is dedicated to:

**Charles and Lavonne Frazier
Amanda Lynn Frazier**

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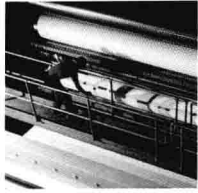
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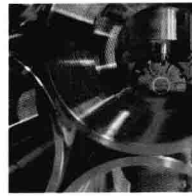
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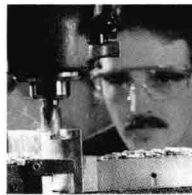
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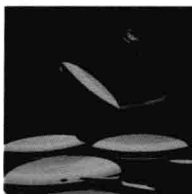
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