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We believe learning opens up opportunities, creates fulfilling careers and hence better lives. We hence collaborate with the best of minds to deliver you class-leading products, spread across the Higher Education and Test preparation spectrum.

Superior learning experience and improved outcomes are at the heart of everything we do. This product is the result of one such effort.

Your feedback plays a critical role in the evolution of our products and you can contact us – reachus@pearson.com. We look forward to it.



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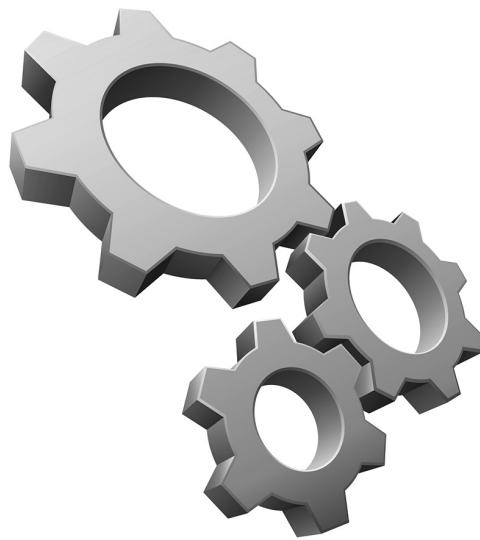
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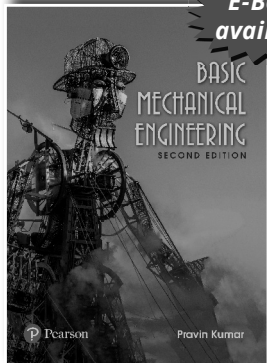
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Mechanical Engineering

BASIC MECHANICAL ENGINEERING

Basic Mechanical Engineering, 2/e



ISBN: 9789386873293

 Pravin Kumar

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ABOUT THE BOOK

Basic Mechanical Engineering continues to fill the need for a textbook that provides the complete overview of several aspects of mechanical engineering—thermal engineering, mechanical design and manufacturing engineering. With lucid exposition of the fundamental concepts along with numerous worked-out examples and well-labeled detailed illustrations, this book provides a holistic understanding of the subject.

FEATURES

- Coverage of important topics such as power plant engineering, non-conventional energy resources, sheet metal work and NC, CNC and DNC machines
- Chapters on Fuels and Combustion and Internal Combustion Engines updated to include recent advancements
- Points to remember and list of important formulae at the end of each chapter for quick recapitulation
- More than 1100 end-of-chapter exercises including multiple-choice questions, theory questions and exercise problems for efficient self-assessment

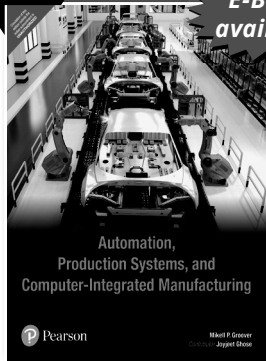
CONTENTS

1. Concepts of Thermodynamics and Properties of Gases
2. Fuels and Combustion
3. Power Plant Engineering and Sources of Energy
4. Properties of Steam and Steam Generators
5. Steam and Gas Turbines
6. Internal Combustion Engines
7. Heat Transfer
8. Refrigeration and Air Conditioning
9. Fluid Mechanics and Hydraulic Machines
10. Air Compressors
11. Centroid and Moment of Inertia
12. Stress and Strain
13. Machine Elements
14. Flywheel and Governors
15. Power Transmission Devices
16. Couplings, Clutches, and Brakes
17. Engineering Materials
18. Mechanical Measurement
19. Machine Tools
20. Casting and Welding
21. Mechanical Working of Metals, Sheet Metal Work, Powder Metallurgy, and Smithy
22. Manufacturing Systems: NC, CNC, DNC, and Robotics
23. Heat Treatment

ABOUT THE AUTHOR

Pravin Kumar obtained his Ph.D. from IIT Delhi and M.Tech. from Institute of Technology (BHU), Varanasi. Presently, he is working as a faculty in the Department of Mechanical Engineering, Delhi Technological University (Formerly Delhi College of Engineering). He has more than 16 years of teaching and research experience. He has been teaching Basic Mechanical Engineering for several years. He has also authored two more books—Industrial Engineering and Management, published by Pearson Education, and Fundamentals of Engineering Economics, published by Wiley India Pvt. Ltd. He has published more than 50 research papers in the National and International Journals and Conferences.

NEW

E-Book
available

ISBN: 9789361592959

 Mikell P. Groover

 864 | © 2024
**ABOUT THE BOOK**

Automation, Production Systems, and Computer-Integrated Manufacturing provides the most advanced, comprehensive, and balanced coverage of the subject of any text on the market. It covers all the major cutting-edge technologies of production automation and material handling, and how these technologies are used to construct modern manufacturing systems. It is appropriate for advanced undergraduate/graduate-level courses in Automation, Production Systems, and Computer-Integrated Manufacturing.

FEATURES

- Automation and Artificial Intelligence, CNC trends and developments and Collaborative Robots added
- Coverage on Robot Kinematics, MRP lot sizing algorithms, and Kanban planning and control models
- Discussion on Productive Performance Metrics has been revised based on the bottleneck model developed by James Solberg
- The coverage of CNC Machining Centers and related machine tools has been significantly revised and expanded
- More than 150 multiple-choice questions added along with several new line drawings

CONTENTS

1. Introduction

Part I: Overview of Manufacturing

2. Manufacturing Operations
3. Manufacturing Metrics and Economics

Part II: Automation and Control Technologies

4. Introduction to Automation
5. Industrial Control Systems
6. Hardware Components for Automation and Process Control
7. Computer Numerical Control

Appendix 7A: Coding for Manual Part Programming

8. Industrial Robotics
9. Discrete Control and Programmable Logic Controllers

Part III: Material Handling and Identification

10. Material Transport Systems
11. Storage Systems
12. Automatic Identification and Data Capture

Part IV: Manufacturing Systems

13. Overview of Manufacturing Systems
14. Single-Station Manufacturing Cells
15. Multi-Station Manufacturing Systems: Manual Assembly Lines

Appendix 15A: Batch-Model and Mixed-Model Lines

16. Multi-Station Manufacturing Systems: Automated Production Lines Multi-Station Manufacturing Systems: Automated Production Lines
- Appendix 16A: Transfer Lines with Internal Storage

17. Automated Assembly Systems

18. Group Technology and Cellular Manufacturing
- Appendix 18A: Opitz Parts Classification and Coding System

19. Multi-Station Manufacturing Systems: Automated For Flexibility

Part V: Quality Control Systems

20. Quality Programs for Manufacturing
- Appendix 20A: The Six Sigma DMAIC Procedure

21. Inspection Principles and Practices

22. Inspection Technologies

Appendix 22A: Geometric Feature Construction

Part VI: Manufacturing Support Systems And Computer-Integrated Manufacturing

23. Product Design and CAD/CAM in the Production System

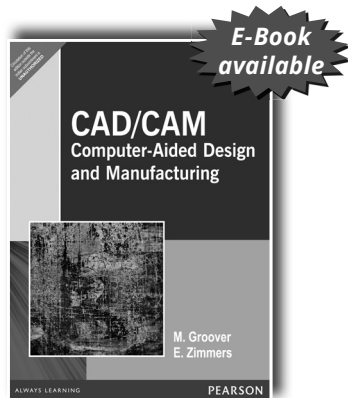
24. Process Planning and Concurrent Engineering

25. Production Planning and Control Systems

26. Just-In-Time and Lean Production

ABOUT THE AUTHOR

Mikell P. Groover is Professor Emeritus of Industrial and Systems Engineering at Lehigh University, where he taught and did research for 44 years. He received his B.A. in Arts and Science (1961), B.S. in Mechanical Engineering (1962), M.S. in Industrial Engineering (1966), and Ph.D. (1969), all from Lehigh. His industrial experience includes several years as a manufacturing engineer before embarking on graduate studies at Lehigh.



ISBN: 9788177584165

CAD/CAM: Computer-Aided Design and Manufacturing

 **M. Groover | E. Zimmers**

 **512 | © 2003**

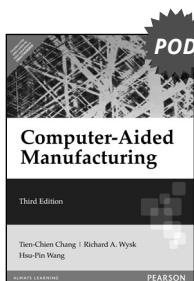
ABOUT THE BOOK

This is a comprehensive survey of the technical topics relating to CAD/CAM including interactive computer graphics, numerical control, computer process control, robotics, group technology, computer integrated production management, and flexible manufacturing systems. This successful book has been designed as a textbook for college course and industry continuing education course in CAD/CAM, as well as for engineers, computer specialists and others who wish to learn about the technology and applications of CAD/CAM.

CONTENTS

1. Computers, the Foundation of Cad/Cam
 2. Computer-Aided Design
 3. Numerical Control, the Beginnings of CAM
 4. Industrial Robots
 5. Group Technology and Process Planning
 6. Computer-Integrated Production Management Systems
 7. Computer Control
 8. Cad/Cam Implementation
-

➡ ALSO AVAILABLE...



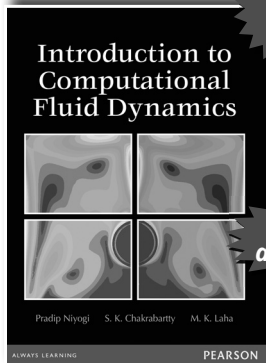
Computer-Aided Manufacturing, 3/e

 **Tien-Chien Chang / Richard A. Wysk / Hsu-Pin Wang**

ISBN: 9788131721643

Pages: 684

Introduction to Computational Fluid Dynamics



POD

E-Book available

ISBN: 9788177587647

 Pradip Niyogi | S. K. Chakrabarty | M.K. Laha

 600 | © 2006

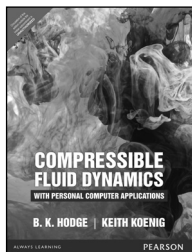
ABOUT THE BOOK

Introduction to Computational Fluid Dynamics is a self-contained introduction to a new subject, arising through the amalgamation of classical fluid dynamics and numerical analysis supported by powerful computers. Written in the style of a text book for advanced level B.Tech, M.Tech and M.Sc. students of various science and engineering disciplines. It introduces the reader to finite-difference and finite-volume methods for studying and analyzing linear and non-linear problems of fluid flow governed by inviscid incompressible and compressible Euler equations as also incompressible and compressible viscous flows governed by boundary-layer and Navier-Stokes equations. Simple turbulence modeling have been presented.

FEATURES

- It is a first course written with the specific background of Indian students in mind, that prepares the student with necessary prerequisites and mathematical foundation.
- It covers the basic concepts of the more important and useful finite-difference and finite-volume methods needed in the application areas of CFD.
- Illustrative computer programs have been provided.
- Illustrative Case Studies have been provided.

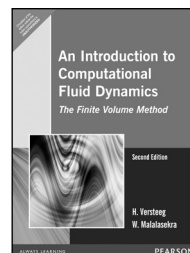
➔ ALSO AVAILABLE...



Compressible Fluid Dynamics

 B.K. Hodge / Keith Koenig

ISBN: 9789332559455
Pages: 648



An Introduction to Computational Fluid Dynamics: The Finite Volume Method, 2/e

 H. Versteeg / W. Malalasekera

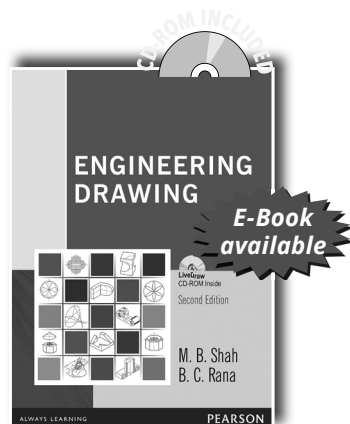
ISBN: 9788131720486
Pages: 518



Engineering Drawing, 2/e

 M. B. Shah | B. C. Rana

 580 | © 2009



ISBN: 9788131710562

ABOUT THE BOOK

Engineering Drawing, 2e continues to cover all the fundamental topics of the field, while maintaining its unique focus on the logic behind each concept and method. Based on extensive market research and reviews of the first edition, this edition includes a new chapter on scales, the latest version of AutoCAD, and new pedagogy.

FEATURES

- Learning goals through Objectives.
 - Overview of the chapter through Introduction.
- Recap of concepts through solved examples.
 - Comes with Live Draw CD.

CONTENTS

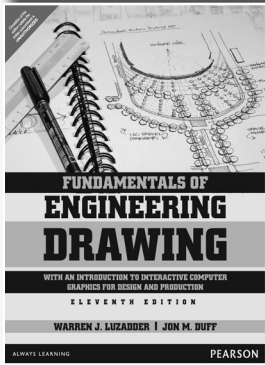
1. Basics of Engineering Drawing
2. Symbolic Lines and Lettering
3. Geometrical Constructions, Loci and Engineering Plane Curves
4. Scales
5. Projections of Points and Lines
6. Projections on Auxiliary Reference Planes
7. Projections of Planes
8. Projections of Solids
9. Sections of Solids
10. Intersection of Surfaces
11. Development of Surfaces
12. Multiview Orthographic Projections
13. Sectional Views
14. Dimensioning
15. Auxiliary Views
16. Reading Orthographic Projections
17. Isometric Projections
18. Oblique Parallel Projections and Perspective Projections
19. Threaded Fasteners
20. Riveted and Welded Joints
21. Computer-aided Drafting

ABOUT THE AUTHOR(S)

M. B. Shah is a professor of mechanical engineering and the principal of Shah and Anchor Kutchhi Engineering College, Mumbai.

B. C. Rana was an assistant professor at Veermata Jijabai Technological Institute.

Fundamentals of Engineering Drawing , 11/e



ISBN: 9789332549982

 Warren J. Luzadder | Jon M. Duff

 704 |  2015

ABOUT THE BOOK

This volume presents a solid fundamental treatment of engineering graphics, geometry, and modeling suitable for engineers and technologists. It reflects the most modern drafting procedures—from the fundamentals (for the beginner), to techniques and practices of drawing in specialized fields. This revision enhances understanding of graphics fundamentals in the era of computer-aided design to better prepare students to use CADD software effectively.

FEATURES

- The Eleventh Edition elaborates on integration of computer graphics through six additional chapters of basic fundamentals; provides two sets of problems to test and reinforce readers' understanding of material; stresses the ability to manipulate three-dimensional geometry—whether on the surface of a drawing or as a solid computer model; and highlights popular CADD products and integrates CADD into each chapter as it naturally occurs.
- The authors cover all topics basic to the preparation of working drawings for both products and systems—e.g., multiview drawing and freehand sketching, spatial geometry, and design and dimensioning practices; and make extensive use of step-by-step illustrations.

CONTENTS

1. Introduction.
2. Drawing Instruments, Computer Drafting Equipment, and Techniques
3. Engineering Geometry
4. The Representation of Space Relationships: Two and Three Dimension
5. Multiview Representation for Design and Product Development
6. Freehand Sketching for Visualization and Communication
7. Sectional Views
8. Auxiliary Views
9. Basic Spatial Geometry for Design and Analysis
10. Developments and Intersections
11. Pictorial Presentation
12. The Design Process and Graphics
13. Dimensions, Notes, Limits, and Geometric Tolerances
14. Fastening and Connecting Methods for Assembly
15. Shop Processes and Tool Drawings
16. Production Drawings and Process Models
17. Computer-Aided Design and Drafting
18. Numerically Controlled Machine Tools and Robots
19. Graphic Methods for Engineering Communication and Computation
20. Graphical Mathematics
21. Design and Selection of Machine Elements: Gears, Cans, Linkages, Springs, and Bearings
22. Electronic Drawings
23. Structural Drawings
24. Topographic and Engineering Map Drawings

ABOUT THE AUTHOR(S)

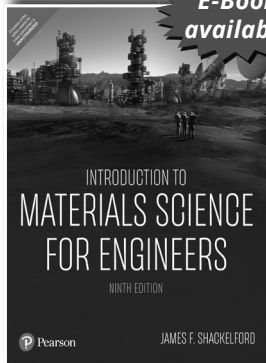
Warren J. Luzadder, Purdue University

Jon M. Duff, Purdue University

Introduction to Materials Science Engineering, 9/e

 James F Shackelford

 692 | © 2023



ISBN: 9789357059978

ABOUT THE BOOK

Introduction to Materials Science for Engineers offers a balanced, current treatment of the full spectrum of engineering materials. The text covers the applications as well as physical and other relevant properties associated with engineering materials. The author explores all major categories of materials while also offering detailed examinations of a wide range of new materials with high-tech applications. The ninth edition has been revised to reflect recent data, trends and information

FEATURES

- Updated coverage on the role of engineering materials in smartphones and tablets, increasingly ubiquitous parts of everyday life
- Enhanced discussion of the nature of optical fibers in telecommunication
- Refreshed and updated discussions of contemporary materials in modern engineering design, including an emphasis on the role of sustainability

CONTENTS

1. Materials for Engineering
- PART I: The Fundamentals
2. Atomic Bonding
 3. Crystalline Structure—Perfection
 4. Crystal Defects and Noncrystalline Structure—Imperfection
 5. Diffusion
 6. Mechanical Behavior
 7. Thermal Behavior
 8. Failure Analysis and Prevention
 9. Phase Diagrams—Equilibrium Microstructural Development
 10. Time—The Third Dimension
- PART II: Materials and Their Applications
11. Structural Materials—Metals, Ceramics, and Glasses
 12. Structural Materials—Polymers and Composites
 13. Electronic Materials
 14. Optical and Magnetic Materials
 15. Materials in Engineering Design

ABOUT THE AUTHOR

James F Shackelford, University of California, Davis

Engineering Materials : Properties and Selection, 9/e

 **Kenneth G. Budinski | Michael K. Budinski**

 **784 | © 2016**



POD

9e

E-Book
available

ISBN: 9789332574045

ABOUT THE BOOK

This introductory text covers theory and industry-standard ion practices, providing students with the working knowledge to make an informed ion of materials for engineering applications and to correctly specify materials on drawings and purchasing documents. Encompassing all significant material systems—metals, ceramics, plastics, and composites—this text incorporates the most up-to-date information

FEATURES

- Features the latest cost and usage data to reflect current worldwide conditions, materials, engineering theories, and practices.
- Recommends a repertoire of materials that meet most design needs.
- Includes critical concepts sections that outline the key concepts of each chapter and give students an opportunity to assess their understanding.
- Unique selection information, developed by the authors, offers students a fresh approach to traditional topics and provides the most timely, complete and accurate coverage of the most recent developments.
- Focuses on the properties of industry-standard materials, teaching students how to specify these materials on engineering drawings and documents.

CONTENTS

1. The Importance of Engineering Materials
2. Forming Engineering Materials from the Elements
3. The Role of Chemical and Physical Properties in Engineering Materials
4. The Role of Mechanical Properties in Engineering Materials
5. The Role of Tribology in Engineering Materials
6. The Role of Corrosion in Engineering Materials
7. Principles of Polymeric Materials
8. Polymer Families
9. Plastic and Polymer Composite Fabrication Processes
10. Selection of Plastic/Polymeric Materials
11. Ceramics, Cermets, Glass, and Carbon Products
12. Steel Products
13. Heat Treatment of Steels
14. Carbon and Alloy Steels
15. Tool Steels
16. Stainless Steels
17. Cast Iron, Cast Steel, and Powder Metallurgy Materials
18. Copper and Its Alloys
19. Aluminum and Its Alloys
20. Nickel, Zinc, Titanium, Magnesium, and Special Use Metals
21. Surface Engineering
22. Nanomaterials
23. The Methodology of Material Selection

ABOUT THE AUTHOR(S)

Kenneth G. Budinski, Bud Labs

Michael K. Budinski, General Motors Corporation

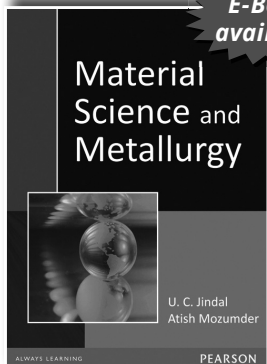
Material Science and Metallurgy



U C Jindal | Atish Mozumder



552 | © 2011



ISBN: 9788131759110

ABOUT THE BOOK

The book is presented in 20 chapters. The language used is user friendly and diagrams are giving the clear view and concept. Solved problems, multiple choice questions and review questions are also integral part of the book.

FEATURES

- A separate chapter highlighting various concepts and applications related to thermal properties and wear of materials.
- Exclusive coverage of different types of processes incorporated during heat treatment of steels.

CONTENTS

1. Atomic Structure
2. Atomic Bonding and Crystal
3. Imperfections in Solids
4. Plastic Deformation in Crystalline Materials
5. Mechanical Properties
6. Diffusion
7. Phase Diagrams
8. Phase Transformations
9. Heat Treatment of Steels
10. Metals and Alloys
11. Organic Materials
12. Ceramic Materials
13. Composite Materials
14. Wears of Materials
15. Corrosion and Oxidation
16. Thermal Properties
17. Electrical Conductivity and Insulating Properties
18. Semiconductors
19. Dielectric Properties
20. Magnetic Properties

ABOUT THE AUTHOR(S)

Dr. U. C. Jindal is former Professor and Head of the Department of Mechanical Engineering, Delhi College of Engineering. For the last 45 years Dr Jindal has been involved in teaching, research and development activities in the mechanics group of subjects – engineering mechanics, strength of materials, machine design, theory of machines and materials science.



ISBN: 9789332584747

Engineering Mechanics: Statics & Dynamics, 14/e (SI Edition)

 R. C. Hibbeler

 1330 | © 2017
**ABOUT THE BOOK**

Engineering Mechanics: Statics & Dynamics excels in providing a clear and thorough presentation of the theory and application of engineering mechanics. Engineering Mechanics empowers students to succeed by drawing upon Prof. Hibbeler's everyday classroom experience and his knowledge of how students learn. This text is shaped by the comments and suggestions of hundreds of reviewers in the teaching profession, as well as many of the author's students.

FEATURES

- NEW! Preliminary Problems are designed to test students' conceptual understanding of the theory and are placed throughout the text before the Fundamentals Problems. Preliminary Problems solutions require little or no calculation and are intended to help students develop a basic understanding of the concepts before they are applied numerically.
- Each chapter is organized into well-defined sections that contain an explanation of specific topics, illustrative example problems, and at the end of the chapter, a set of relevant homework problems.
- Fundamental Problems, selectively located after the example problems, offer students simple applications of the concepts and therefore provide them with the chance to develop their problem-solving skills before attempting to solve any of the standard problems that follow.
- Photos placed throughout the text show how the principles of fluid mechanics apply to real-world situations.

CONTENTS

1. General Principles
2. Force Vectors
3. Equilibrium of a Particle
4. Force System Resultants
5. Equilibrium of a Rigid Body
6. Structural Analysis
7. Internal Forces
8. Friction
9. Center of Gravity and Centroid
10. Moments of Inertia
11. Virtual Work
12. Kinematics of a Particle
13. Kinetics of a Particle: Force and Acceleration
14. Kinetics of a Particle: Work and Energy
15. Kinetics of a Particle: Impulse and Momentum
16. Planar Kinematics of a Rigid Body
17. Planar Kinetics of a Rigid Body: Force and Acceleration
18. Planar Kinetics of a Rigid Body: Work and Energy
19. Planar Kinetics of a Rigid Body: Impulse and Momentum

ABOUT THE AUTHOR

R C Hibbeler currently teaches both civil and mechanical engineering courses at the University of Louisiana, Lafayette. In the past he has taught at the University of Illinois at Urbana, Youngstown State University, Illinois Institute of Technology, and Union College.

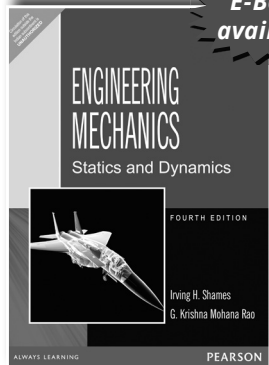
Engineering Mechanics – Statics and Dynamics



Irving H. Shames | G. Krishna Mohana Rao



864 | © 2005



ISBN: 9788177581232

ABOUT THE BOOK

This book is designed to provide a mature, in-depth treatment of engineering mechanics at the undergraduate level and to offer continuity with, and a smooth transition to, upper-level courses. This text focuses on developing a solid understanding of basic principles rather than rote learning of specific methodologies.

FEATURES

- Offers an approach that improves continuity and provides a smooth transition to upper-level courses in other engineering sciences.
- Provides in-depth coverage of Screw Jack and Compound Pendulum.

CONTENTS

Part I (Statics)

1. Fundamentals of Mechanics
2. Elements of Vector Algebra
3. Systems of forces
4. Equivalent Force Systems
5. Equations of Equilibrium
6. Friction Forces
7. Properties of Surfaces
8. Moments and Products of Inertia
16. Vibrations

Part II (Dynamics)

9. Kinematics of a Particle-Simple Relative Motion
10. Particle Dynamics
11. Energy Methods for Particles
12. Methods of Momentum for Particles
13. Kinematics of Rigid Bodies: Relative Motion
14. Kinetics of Plane Motion of Rigid Bodies
15. Energy and Impulse-Momentum Methods for Rigid Bodies

ABOUT THE AUTHOR

Irving H. Shames, George Washington University

➔ ALSO AVAILABLE...



Engineering Mechanics



D P Sharma

ISBN: 9788131732229

Pages: 624



EXPERIMENTAL STRESS ANALYSIS AVAILABLE TITLE



Experimental Stress Analysis

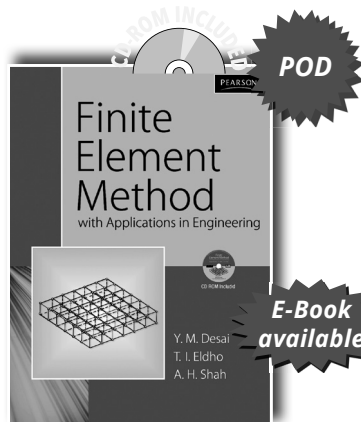


U C Jindal

ISBN: 9788131759103


Pages: 422





ISBN: 9788131724644

Finite Element Method with Applications in Engineering

 Y. M. Desai | T. I. Eldho | A. H. Shah

 492 | © 2011

ABOUT THE BOOK

This book presents a practical understanding of the finite element method with a variety of engineering applications that will aid students, teachers, practicing engineers and researchers. It begins with an introduction to the mathematical modeling of engineering problems and approximate methods of analysis. It then introduces the different approaches in FEM such as direct approach, principle of virtual work, variational principle and method of weighted residual.

FEATURES

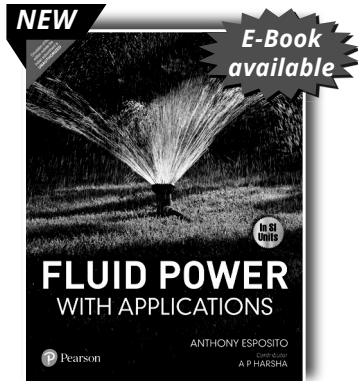
- Separate chapters are devoted to basic mathematical modeling, approximate method of analysis, introduction and different approaches to FEM.
- Comprehensive coverage of FEM interpolation functions.
- Finite element analysis for various problems in 1D, 2D and 3D.

CONTENTS

1. Introduction
2. Approximate Methods of Analysis
3. Finite Element Method—An Introduction
4. Different Approaches in FEM
5. Finite Elements and Interpolation Functions
6. One-Dimensional Finite Element Analysis
7. Two-Dimensional Finite Element Analysis
8. Three-Dimensional Finite Element Analysis
9. Computer Implementation of FEM
10. Further Applications of Finite Element Method

ABOUT THE AUTHOR(S)

Y. M. Desai and T. I. Eldho are professors in department of civil engineering at Indian Institute of Technology Bombay
A. H. Shah is a professor in Department of Civil Engineering at the University of Manitoba, CANADA.



ISBN: 9789357059282

Fluid Power with Applications, Revised 7/e (In SI Units)

 **Anthony Esposito**

 **652** | © **2024**



ABOUT THE BOOK

With Applications continues to provide readers with an in-depth background in the field of fluid power. Emphasizing such subjects as design, analysis, operation, maintenance, and practical applications, this text provides the “how” as well as the “why” of fluid power systems. The revised seventh edition has been completely SI metricated.

FEATURES

- Includes coverage of the use of hydroforming which allows to produce more complex shaped panels and lighter structural parts
- Material on fluid power systems that enhance the use of renewable energy, reflects the increasing emphasis on lowering air pollution levels and reducing green-house gases to minimize global warming
- Many photographs and illustrations are updated to reflect current fluid power technology. This allows the readers to become more aware of the latest advances in fluid power systems and applications
- An extensive array of industrial applications is provided to motivate and simulate students’ interest in the field

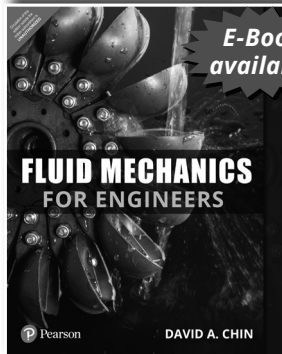
CONTENTS

1. Introduction to Fluid Power
2. Physical Properties of Hydraulic Fluids
3. Energy and Power in Hydraulic Systems
4. Frictional Losses in Hydraulic Pipelines
5. Hydraulic Pumps
6. Hydraulic Cylinders and Cushioing Devices
7. Hydraulic Motors
8. Hydraulic Valves
9. Hydraulic Circuit Design and Analysis
10. Hydraulic Conductors and Fittings
11. Ancillary Hydraulic Devices
12. Maintenance of Hydraulic Systems
13. Pneumatics: Air Preparation and Components
14. Pneumatics: Circuits and Applications
15. Basic Electrical Controls for Fluid Power Circuits
16. Fluid Logic Control Systems
17. Advanced Electrical Controls for Fluid Power Systems

ABOUT THE AUTHOR

Anthony Esposito, Emeritus, Miami University.

Fluid Mechanics for Engineers (In SI Units)



E-Book
available

 David A Chin

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ISBN: 9789357052108

ABOUT THE BOOK

Written and conceived by an author with decades of relevant experience in the fields of fluid mechanics, engineering, and related disciplines, Fluid Mechanics for Engineers effectively introduces engineering students to the principles of fluid mechanics. With the understanding that fluid mechanics is a required core course for most engineering students, the author focuses first and foremost on the most essential topics of the field. Practical applications for several engineering disciplines are considered, with a special focus on civil engineering. Written in a stimulating style, Fluid Mechanics for Engineers fulfills the requirements of a core course while keeping students engaged.

FEATURES

- Emphasizes the fundamentals of fluid mechanics, including fluid properties, fluid statics, basic concepts of fluid flow, and the forms of the governing equations that are useful in solving practical problems.
- Material is presented in a thorough and rigorous fashion, featuring practical examples that apply to several engineering disciplines.
- Quantitative examples and illustrations related to the topics of fluid mechanics are provided throughout.
- The most useful relationships are highlighted to assist in solving practical problems.
- Key equations are listed at the end of each chapter.

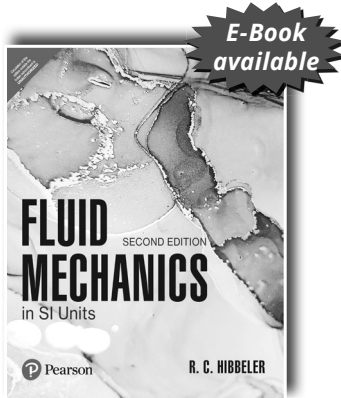
CONTENTS

1. Properties of Fluids
2. Fluid Statics
3. Kinematics and Streamline Dynamics
4. Finite Control Volume Analysis
5. Differential Analysis
6. Dimensional Analysis and Similitude
7. Flow in Closed Conduits
8. Turbomachines
9. Flow in Open Channels
10. Drag and Lift
11. Boundary-Layer Flow
12. Compressible Flow

ABOUT THE AUTHOR

David A Chin, University of Miami.

Fluid Mechanics, 2/e in SI Units



ISBN: 9789354494949

 R C Hibbeler

 916 | © 2022



ABOUT THE BOOK

Fluid Mechanics is intended to provide a comprehensive guide to a full understanding of the theory and many applications of fluid mechanics. The text features many of the hallmark pedagogical aids unique to Hibbeler texts, including its student-friendly clear organization. The text supports the development of student problem-solving skills through a large variety of problems, representing a broad range of engineering disciplines that stress practical, realistic situations encountered in professional practice, and provide varying levels of difficulty.

FEATURES

- The organization and approach of the text presents a structured method for introducing each new definition or concept, and to make the book a convenient resource for later reference and review.
- Procedures for Analysis is a unique feature that provides students with a logical and orderly method for applying theory and building problem-solving skills. The example problems are then solved using this outlined method in order to clarify its numerical application.
- Important Points provide a summary of the most important concepts in a section and highlights the most significant points that should be realized when applying the theory to solve problems.
- Photographs are used throughout the book to explain how the principles of fluid mechanics apply to real-world situations.
- Example Problems illustrate the application of fundamental theory to practical engineering problems and reflect problem-solving strategies discussed in associated Procedures for Analysis.
- Homework Problems depict realistic situations encountered in engineering practice. This realism is intended to both stimulate interest in the subject, and provide a means for developing the skills to reduce any problem from its physical description to a model or symbolic representation to which the principles of fluid mechanics may then be applied.

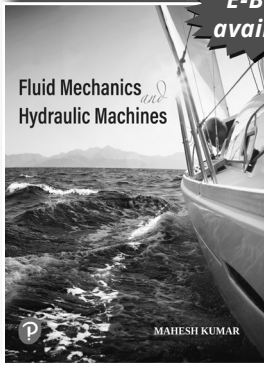
CONTENTS

1. Fundamental Concepts
2. Fluid Statics
3. Kinematics of Fluid Motion
4. Conservation of Mass
5. Work and Energy of Moving Fluids
6. Fluid Momentum
7. Differential Fluid Flow
8. Dimensional Analysis and Similitude
9. Viscous Flow within Enclosed Conduits
10. Analysis and Design for Pipe Flow
11. Viscous Flow over External Surfaces
12. Open-Channel Flow
13. Compressible Flow
14. Turbomachines

ABOUT THE AUTHOR

R C Hibbeler currently teaches both civil and mechanical engineering courses at the University of Louisiana, Lafayette. In the past he has taught at the University of Illinois at Urbana, Youngstown State University, Illinois Institute of Technology, and Union College.

Fluid Mechanics and Hydraulic Machines



E-Book
available

 **Mahesh Kumar**

 **992** | © **2019**



ABOUT THE BOOK

This is an ideal offering for the complete course on Fluid Mechanics and Hydraulic Machines. Written in a simple and lucid style, the book covers the basic principles and its application to the solution of engineering problems. This book is apt for self-study by the students and lays down a strong foundation for problem-solving abilities.

ISBN: 9789353433697

FEATURES

- Emphasis is given on gradual built-up of concepts with numerous illustrations.
- Exhaustive coverage of Hydraulic machines.
- More than 700 solved examples are provided. Most of these are similar to questions asked in university examination.
- A complete solutions manual is provided for the instructors.

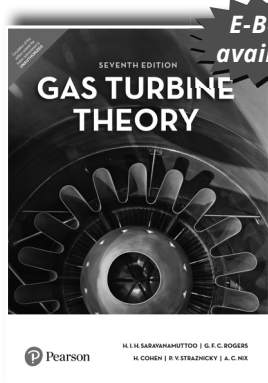
CONTENTS

1. Basic Concepts and Properties of Fluids
2. Fluid Pressure and Its Measurement
3. Hydrostatic Forces on Submerged Surfaces
4. Liquids in Relative Equilibrium
5. Buoyancy and Floatation
6. Fluid Kinematics
7. Fluid Dynamics
8. Vortex Flow
9. Potential Flow (Ideal Fluid Flow)
10. Flow Through Orifices and Mouthpieces
11. Flow Over Notches and Weirs
12. Laminar Flow (Viscous Flow)
13. Turbulent Flow in Pipes
14. Flow Through Pipes
15. Boundary Layer Theory
16. Drag and Lift on Submerged Bodies
17. Compressible Fluid Flow
18. Flow in Open Channels
19. Dimensional Analysis and Model Similitude
20. Impact of Free Jets and Basics of Fluid Machines
21. Pelton Turbine (Impulse Turbine)
22. Francis Turbine (Radial Flow Reaction Turbines)
23. Propeller and Kaplan Turbines (Axial Flow Reaction Turbines)
24. Performances of Hydraulic Turbines
25. Centrifugal Pumps
26. Reciprocating Pumps
27. Hydraulic Systems

ABOUT THE AUTHOR

Mahesh Kumar is an assistant professor at the Department of Mechanical Engineering, Guru Jambheshwar University of Science and Technology, Hisar. He has both B.Tech. and M.E. degrees in Mechanical Engineering from Delhi College of Engineering, Delhi (now Delhi Technological University, Delhi). He was conferred with a Ph.D. in Mechanical Engineering from NIT Kurukshetra. He has published over 55 research articles in both national and international journals and also presented over 25 research papers, both at national and international conferences.

GAS TURBINES AND I.C. ENGINES



**E-Book
available**

ISBN: 9789389342215

Gas Turbine Theory, 7/e



H. Cohen | H.I.H. Saravanamuttoo | G.F.C. Rogers | Paul Straznicky | A.C Nix



628 | © 2019

ABOUT THE BOOK

Gas Turbine Theory is the classic course text on gas turbines, suitable for both undergraduate and graduate students of mechanical and aeronautical engineering. This new seventh edition will also continue to be a valuable reference for practising gas turbine engineers.

FEATURES

- Completely updated to cover current industry requirements and applications.
- Coverage of both aircraft and industrial gas turbines.
- Includes detailed treatment of off-design performance.
- Incorporates in-depth examples throughout.
- Based on the authors' extensive teaching and professional experience.

CONTENTS

1. Introduction
2. Shaft power cycles
3. Gas turbine cycles for aircraft propulsion
4. Centrifugal compressors
5. Axial flow compressors
6. Combustion systems
7. Axial and radial flow turbines
8. Mechanical design of gas turbines
9. Prediction of performance of simple gas turbines
10. Prediction of performance

ABOUT THE AUTHOR(S)

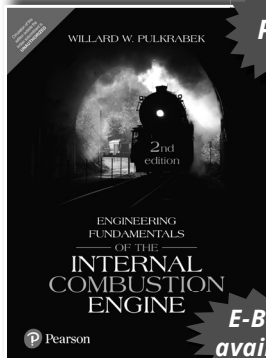
Herb Saravanamuttoo, Professor Emeritus, Department of Mechanical and Aerospace Engineering, Carleton University, Ottawa, Canada, has many years experience in the gas turbine industry on both sides of the Atlantic, and is a Past President of the Canadian Aeronautics and Space Institute.

The late **Gordon Rogers** was Professor Emeritus of Engineering Thermodynamics at the University of Bristol. He was author, with YR Mayhew, of Engineering Thermodynamics Work and Heat Transfer, 4th edition.

The late **Henry Cohen** was formerly University Lecturer and Director of Studies in Engineering at Queens' College, Cambridge. Paul Straznicky is Professor Emeritus of Mechanical and Aerospace Engineering at Carleton University and has many years of experience as a mechanical design engineer.

Andrew Nix is an Assistant Professor of Mechanical and Aerospace Engineering at West Virginia University and has extensive experience in gas turbine design and durability, with a focus on turbine heat transfer and cooling.

Engineering Fundamentals of the Internal Combustion Engine, 2/e



POD

E-Book available

ISBN: 9789332549494

 Willard W. Pulkrabek

 496 | © 2015

ABOUT THE BOOK

This applied thermoscience text explores the basic principles and applications of various types of internal combustion engines, with a major emphasis on reciprocating engines. It covers both spark ignition and compression ignition engines—as well as those operating on four-stroke cycles and on two stroke cycles—ranging in size from small model airplane engines to the larger stationary engines.

FEATURES

- NEW - Added and expanded topics—i.e., variable valve control; fuel injection; hydrogen fuel; fuel cells; and noise pollution.
- NEW - Real data from actual engines.
- NEW - Over 50 new worked example and review problems—Combine with open-ended design problems in each chapter.
- NEW - Added and improved figures throughout.
- NEW - Added historical notes.
- Use of both SI units and English units—With a conversion tables of SI and English units of common parameters used in engine work found in the Appendix.

CONTENTS

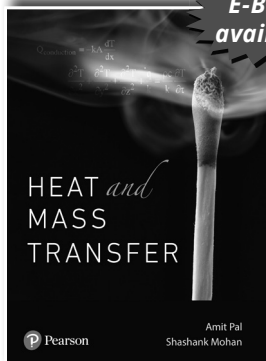
1. Introduction.
2. Operating Characteristics.
3. Engine Cycles.
4. Thermochemistry and Fuels.
5. Air and Fuel Induction.
6. Fluid Motion within Combustion Chamber.
7. Combustion.
8. Exhaust Flow.
9. Emissions and Air Pollution.
10. Heat Transfer in Engines.
11. Friction and Lubrication.

ABOUT THE AUTHOR

Willard W. Pulkrabek, University of Wisconsin - Platteville

HEAT & MASS TRANSFER

Heat and Mass Transfer



E-Book available

ISBN: 9789353439736

 Amit Pal | Shashank Mohan

 874 | © 2019

ABOUT THE BOOK

The First edition of HEAT AND MASS TRANSFER has been published to serve undergraduate students concerning with this extremely important domain of engineering science. The book is written to gradually build up the concepts and inculcate mathematical abilities in students to solve real life problems in Heat and Mass Transfer analysis. Book has been designed to make it student friendly, interesting and engaging with special focus to provide a meaningful, correct and lucid explanation of the underlying concepts.

FEATURES

- Building up stepwise concepts with proper interlinking and apt illustrations.
- Exhaustive and In-depth coverage of subject.
- Plethora of Solved Examples, Multiple Choice Questions and Review Questions.
- Coverage of Competitive and University Exam questions.

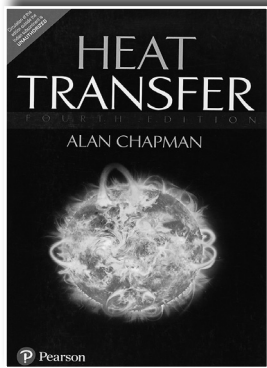
CONTENTS

1. Introduction to Heat Transfer
2. Fundamentals of Conduction and Governing Equations
3. Unsteady State Conduction
4. Numerical Approach for Solving Heat Conduction Problems
5. Heat Transfer from Extended Surfaces
6. Fundamentals of Convection
7. Heat Transfer by Forced Convection
8. Heat Transfer by Free Convection
9. Boiling and Condensation
10. Heat Exchangers
11. Mass Transfer
12. Thermal Radiations: Process and Properties
13. Radiation Heat Exchange Between Surfaces

ABOUT THE AUTHOR(S)

Amit Pal, Department of Mechanical Engineering, Delhi Technological University, Delhi.

Shashank Mohan, Department of Mechanical Engineering, KIET Group of Institutions, Ghaziabad, Uttar Pradesh.



ISBN: 9789332575066

Heat Transfer, 4/e

 Alan Chapman

 624 | © 2016

ABOUT THE BOOK

This text on heat transfer offers basic graduate engineering students a solid foundation in the subjects of conduction, convection, radiation, and phase-change, in addition to the related topic of heat transfer. It presents the fundamental concepts in a fairly rigorous manner, while showing how to analytically obtained facts can be applied with meaningful results to a real physical problem.

FEATURES

- Worked out examples are included throughout the work and numerous problems for student exercises are supplied with most chapters.
- The solution of problems involving the combined modes of conduction, convection and radiation has been discussed in detail.
- Appendix material is provided on certain mathematical techniques of heat conduction.
- Modern applications such as space radiators, heat pipes and solar collectors are explained in detail.

ABOUT THE AUTHOR

Alan Chapman, Rice University

➔ ALSO AVAILABLE...



Fundamentals of Heat and Mass Transfer

 M. Thirumaleshwar

ISBN: 9788177585193

Pages: 800

MACHINE DESIGN



ISBN: 9789357058995

Machine Design, 2/e

 U. C. Jindal

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ABOUT THE BOOK

Machine Design, 2e explains the design of machine elements and provides a comprehensive survey of machine elements and their analytical design methods. Besides explaining the fundamentals of the tools and techniques necessary to facilitate design calculations, the text also includes extensive data on various aspects of machine elements, manufacturing considerations and materials. The extensive pedagogical features make the text student friendly and provide pointers for fast recapitulation.

FEATURES

- Chapter Objectives set the lesson plan for students and instructors by providing precise information about the chapter
- An excellent selection of more than 300 solved problems which go much beyond the simple formulae substitution examples
- More than 600 detailed line diagrams of machine parts to enable visualization and elucidation of the concepts
- Practical Applications lists the real-life applications of key machine elements
- Case Studies structured as a set of design projects to aid readers in the design of components used in the industry, such as line shafting, plumber block, screw jack, coupling on shaft, multi-throw crankshaft, etc. with ease

CONTENTS

Part I: General Topics

1. Introduction
2. Engineering Materials
3. Mechanics of Solids
4. Manufacturing Considerations
5. Introduction to Pressure Vessels
6. Levers
7. Struts and Columns
8. Springs

Part II: Joints

9. Threaded Fasteners
10. Pipes and Pipe Joints
11. Riveted Joints

12. Welded Joints
13. Cotter and Knuckle Joints

Part III: Power Transmission

14. Keys and Couplings
15. Shafts
16. Power Screws
17. Sliding Contact Bearings
18. Rolling Bearings
19. Flywheel

Part IV: Friction Drive

20. Flat Belt Drive
21. V-Belt Drive

- 22. Friction Clutches
- 23. Brakes
- 24. Rope Drive

Part V: Gear Drive

- 25. Gears
- 26. Helical Gears

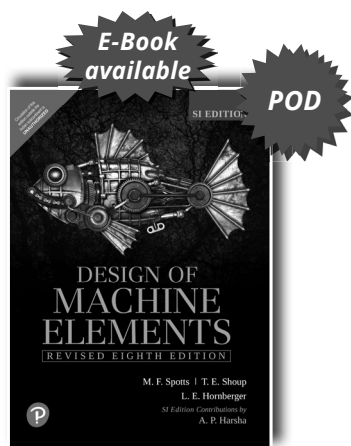
- 27. Straight Bevel Gears
- 28. Worms and Worm Wheel Set
- 29. Gear Box

Part VI: Miscellaneous Topics

- 30. Chain Drive
- 31. Seals, Packings and Gaskets

ABOUT THE AUTHOR

Dr U. C. Jindal is former Professor and Head of the Department of Mechanical Engineering, Delhi College of Engineering. He completed his MTech from IIT Kanpur and did his PhD on Experimental Stress Analysis from the University of Delhi. For the last 45 years Dr Jindal has been involved in teaching, research and development activities in the mechanics group of subjects—engineering mechanics, strength of materials, machine design, theory of machines and materials science.



ISBN: 9789353433130

Design of Machine Elements, Revised 8/e (SI Edition)

 **M F Spotts | Terry E. Shoup | L. E. Hornberger**

 **736 | © 2019**

ABOUT THE BOOK

Now in its revised eighth edition, the book has been completely SI metricated. This classic textbook on machine-design text contains 12 self-contained chapters covering the fundamental principles of this important branch of mechanical engineering. The material is drawn from a variety of sources and makes extensive use of structured computational examples to illustrate design applications.

FEATURES

- A chapter devoted to form-synthesis of machine parts to enable the reader to critique existing machine assemblages with a view toward creating improved designs.
- The book website contains 54 Microsoft Excel spreadsheet modules to assist with the implementation of complex design tasks. Most of these modules now feature drop-down menus, as well as dual-unit capabilities.
- A review of the fundamentals of the strength of materials.
- Independent chapters that can be studied in any order to accommodate a variety of learning modes.

CONTENTS

- | | |
|--|------------------------------------|
| 1. Fundamental Principles | 7. Welded and Riveted Connections |
| 2. Working Stresses and Failure Theories | 8. Lubrication |
| 3. Design of Shafts | 9. Ball and Roller Bearings |
| 4. Springs | 10. Spur Gears |
| 5. Screws | 11. Helical, Bevel and Worm Gears |
| 6. Belts, Clutches, Brakes, and Chains | 12. Miscellaneous Machine Elements |

ABOUT THE AUTHOR(S)

M. F. Spotts, Professor Emeritus of Mechanical Engineering Department Northwestern University.

T. E. Shoup Department of Mechanical Engineering Santa Clara University

L. E. Hornberger, Department of Mechanical Engineering Santa Clara University.

A P Harsha - Professor at Department of Mechanical Engineering at IIT BHU, Varanasi.

Machine Design, 5/e



ISBN: 9789353062408

 **Robert L. Norton**

 **1092** | © **2018**



ABOUT THE BOOK

Machine Design, 5e presents the subject matter in an up-to-date and thorough manner with a strong design emphasis. This textbook emphasizes failure theory and analysis as well as the synthesis and design aspects of machine elements. The book points out the commonality of the analytical approaches needed to design a wide variety of elements and emphasizes the use of computer-aided engineering as an approach to the design and analysis of these classes of problems.

FEATURES

- **NEW** - New sections covering the fundamentals of kinematics have been added to Chapter 3. These will be of value in those curricula where kinematics has been added to the machine design course syllabus.
- **Case Studies** - The text is structured around a series of ten case studies that represent realistic design problems. These case studies present different aspects of the same design problem in successive chapters. The case studies provide a series of machine design projects throughout the

book that contain various combinations of the elements normally dealt with in this type of text. The assemblies contain some collection of elements such as links subjected to combined axial and bending loads, column members, shafts in combined bending and torsion, gearsets under alternating loads, return springs, fasteners under fatigue loading, rolling element bearings, etc.

- **NEW** - Over 90 problems are added or revised with all being in SI units.

CONTENTS

Part I Fundamentals

1. Introduction to Design
2. Materials and Processes
3. Kinematics and Load Determination
4. Stress, Strain, and Deflection
5. Static Failure Theories

Part II Machine Design

9. Design Case Studies
10. Shafts, Keys, and Couplings
11. Bearings and Lubrication
12. Spur Gears
13. Helical, Bevel, and Worm Gears

6. Fatigue Failure Theories
7. Surface Failure
8. Finite element Analysis

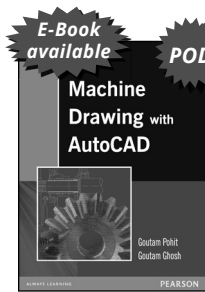
14. Spring Design
15. Screws and Fasteners
16. Weldments
17. Clutches and Brakes

ABOUT THE AUTHOR

Robert L. Norton earned undergraduate degrees in both mechanical engineering and industrial technology at Northeastern University and an MS in engineering design at Tufts University.

MACHINE DRAWING

MACHINE DRAWING AVAILABLE TITLES



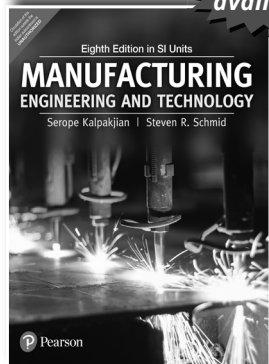
Machine Drawing with AutoCAD

 Goutam Pohit / Goutam Ghosh

ISBN: 9788131706770

Pages: 496

MANUFACTURING TECHNOLOGY/PRODUCTION TECHNOLOGY



ISBN: 9789357052450

Manufacturing Engineering & Technology, 8/e by Kalpakjian

 Serope Kalpakjian | Steven R. Schmid

 1316 | © 2023



ABOUT THE BOOK

In Manufacturing Engineering and Technology, 8th Edition in SI Units, the authors continue their efforts to present a comprehensive, balanced, and most importantly, an up-to-date coverage of the science, engineering, and technology of manufacturing. It places an emphasis on the interdisciplinary nature of every manufacturing activity, including complex interactions between materials, design, process, and manufacturing process and operations. With comprehensive coverage of all relevant topics and superior graphics, this text provides a solid background for manufacturing students and serves as a valuable reference text for professionals.

FEATURES

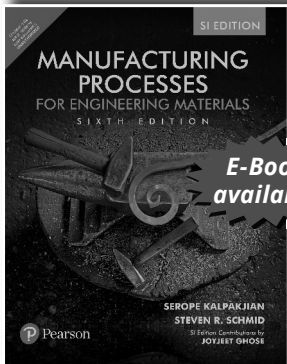
- Updated Chapter 20 on Additive Manufacturing now includes mass customization; distributed manufacturing; composite AM; projection stereolithography; continuous liquid interface production (CLIPS); wire and arc AM; bioprinting; architectural applications of AM; conformal cooling; expanded section on design for AM.
- Several new case studies on topics like High-strength steels in automobiles, Tesla automobile design and manufacture, A die-cast magnesium litigate, Single-point incremental forming, Implications of powder reuse, Machining aerospace parts from monolithic aluminum, Gear grinding with engineered abrasives, Flexible Arduino and AM of athletic shoes have been added to help give students a perspective on real-world applications.
- Part IX: Manufacturing in a Competitive Environment of the book is thoroughly updated with new topics like microcontrollers; cloud computing; cybersecurity; gain scheduling; cobot; design considerations; cloud storage; expansion of ERP and MES; ass customization; Internet of Things; digital twin; life-cycle engineering; energy use in manufacturing.

CONTENTS

1. General Introduction:
- Part I: Fundamentals of Materials: behavior and Manufacturing Properties
 2. The Structure of Metals
 3. Mechanical Behavior, Testing, and Manufacturing Properties of Materials
 4. Physical Properties of Materials
 5. Metal Alloys: Their Structure and Strengthening by Heat Treatment
 6. Ferrous Metals and Alloys: Production, General Properties, and Applications
 7. Nonferrous Metals and Alloys: Production, General Properties, and Applications
 8. Polymers: Structure, General Properties, and Applications
 9. Ceramics, Glass, Graphite, Diamond, and Nanomaterials: Structure, General Properties, and Applications
 10. Composite Materials: Structure, General Properties, and Applications
- PART II: Metal-casting Processes and Equipment
 11. Fundamentals of Metal Casting
 12. Metal-casting Processes and Equipment
 13. Metal Casting: Design, Materials, and Economics
- PART III: Forming and Shaping processes and Equipment
 14. Metal-rolling Processes and Equipment
 15. Metal-forging Processes and Equipment
 16. Metal Extrusion and Drawing Processes and Equipment
 17. Sheet-Metal Forming Processes and Equipment
 18. Powder Metal Processes and Equipment
 19. Ceramics, Glasses, and Superconductors: Processing and Equipment
 20. Plastics and Composite Materials: Forming and Shaping
 21. Additive Manufacturing
- PART IV: Machining Processes And machine Tools
 22. Fundamentals of Machining
 23. Cutting-Tool Materials and Cutting Fluids
 24. Machining Processes: Turning and Hole Making
 25. Machining Processes: Milling, Broaching, Sawing, Filing, and Gear Manufacturing
 26. Machining Centers, Machine-tool Structures, and Machining Economics
 27. Abrasive Machining and Finishing Operations
 28. Advanced Machining Processes
- PART V: Micromanufacturing Andfabrication of Microelectronic Devices
 29. Fabrication of Microelectronic Devices
 30. Fabrication of Microelectromechanical Devices and Systems and Nanoscale Manufacturing
- PART VI: Joining Processes Andequipment
 31. Fusion Welding Processes
 32. Solid-State Welding Processes
 33. Brazing, Soldering, Adhesive-bonding, and Mechanical Fastening Processes
- PART VII: Surface Technology
 34. Surface Roughness and Measurement; Friction, Wear, and Lubrication
 35. Surface Treatments, Coatings, and Cleaning
- PART VIII: Engineering Metrology, instrumentation, and Quality Assurance
 36. Surface Treatments, Coatings, and Cleaning
 37. Quality Assurance, Testing, and Inspection
- PART IX: Manufacturing in Acompetitive Environment
 38. Automation of Manufacturing Processes and Operations
 39. Computer-aided Manufacturing
 40. Computer-integrated Manufacturing Systems
 41. Product Design and Manufacturing in a Competitive Environment

ABOUT THE AUTHOR(S)

Serope Kalpakjian is Professor emeritus of Mechanical and Materials Engineering, at the Illinois Institute of Technology
Steven R. Schmid is professor of Aerospace and Mechanical Engineering, at the University of Notre Dame.



ISBN: 9789353062910



Serope Kalpakjian | Steven R. Schmid



1136 | © 2018



ABOUT THE BOOK

Manufacturing Processes for Engineering Materials, 6e (SI Units) addresses advances in all aspects of manufacturing, clearly presenting comprehensive, up-to-date, and balanced coverage of the fundamentals of materials and processes.

With the Sixth Edition, students will learn to properly assess the capabilities, limitations, and potential of manufacturing processes and their competitive aspects. The numerous examples and case studies throughout the book help to develop a perspective on the real-world applications of the topics described in the book. As in previous editions, this text maintains the same number of chapters while continuing to emphasize the interdisciplinary nature of all manufacturing activities, including the complex interactions among materials, design, and manufacturing processes.

FEATURES

- Chapter and Content Updates include:
 - Economic multiplier; technology readiness level; case study on three-dimensional printing of guitars; expansion of general trends in manufacturing.
 - Advanced high-strength steels; 3rd generation steels; expansion of discussion on magnesium; chromium; rare-earth metals.
 - Environmentally-friendly lubricants; validation of products and processes.
 - Strip casting; mold ablation; design of ribs in castings; computer modeling of casting; a new case study.
 - Servo presses; electrically-assisted forging; the Hall process; a new case study.
- Single-point incremental forming; age forming; hot stamping.
- Electrically-conductive polymers; big-area additive manufacturing; laser engineered net shaping; friction stir modeling; the Maker movement; design for additive manufacturing.
- Expansion of metal injection molding; dynamic compaction of powders; combustion synthesis; pseudo-isostatic pressing; roll densification; graphene.
- Expansion of friction welding; case study on Blinks.
- The Questions, Problems, and Design problems at the end of each chapter have been significantly expanded.

CONTENTS

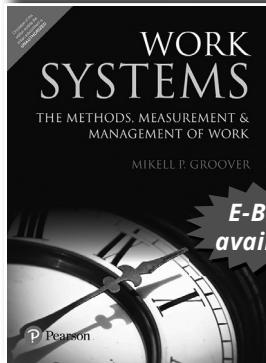
1. Introduction
2. Fundamentals of the Mechanical Behavior of Materials
3. Structure and Manufacturing Properties of Metals
4. Tribology, Metrology and Product Quality
5. Casting Processes and Heat Treatment
6. Bulk Deformation Processes
7. Sheet-Metal Processes
8. Machining Processes
9. Material-Removal Processes
10. Polymer Processing and Additive Manufacturing
11. Powder Metallurgy and Processing of Ceramics and Glasses
12. Joining and Fastening Processes
13. Micro- and Nanomanufacturing
14. Automation of Manufacturing Processes and Operations
15. Computer-Integrated Manufacturing Systems
16. Competitive Aspects of Product Design and Manufacturing

ABOUT THE AUTHOR(S)

Serope Kalpakjian is professor emeritus of mechanical and materials engineering at the Illinois Institute of Technology. He is the author of Mechanical Processing of Materials and co-author of Lubricants and Lubrication in Metalworking Operations (with E.S. Nachtman); both of the first editions of his textbooks Manufacturing Processes for Engineering Materials and Manufacturing Engineering and Technology have received the M. Eugene Merchant Manufacturing Textbook Award. He has conducted research in various areas of manufacturing, is the author of numerous technical papers and articles in handbooks and encyclopedias, and has edited several conference proceedings. He also has been editor and co-editor of various technical journals and has served on the editorial board of Encyclopedia Americana.

Steven R. Schmid is professor of Aerospace and Mechanical Engineering at the University of Notre Dame, where he teaches and conducts research in the general areas of manufacturing, machine design, and tribology. He received his B.S. degree from Illinois Institute of Technology (with Honors) and Master's and Ph.D. degrees from Northwestern University, all in mechanical engineering. He has received numerous awards, including the John T. Parsons Award from SME, the Newkirk Award from ASME, the Kaneb Center Teaching Award (three times), and the Ruth and Joel Spira Award for Excellence in Teaching.

Work Systems: The Methods, Measurement & Management of Work



ISBN: 9789332581241

 Mikell P. Groover

 820 | © 2017



ABOUT THE BOOK

Divided into two major areas of study - work systems, and work methods, measurement, and management - this guidebook provides up-to-date, quantitative coverage of work systems and how work is analyzed and designed. Thorough, broad-based coverage addresses nearly all of the traditional topics of industrial engineering that relate to work systems and work science.

FEATURES

- Work systems discussion - Includes topics such as worker-machine systems, assembly lines, service operations, office work, projects, and material handling.
- Work methods, measurement, and management coverage - Addresses methods engineering, operations analysis, facilities planning, time study, ergonomics, lean production, six sigma quality programs, work organization, and compensation systems.
- Thirty chapters are organized into six parts - Work Systems and How They Work; Methods Engineering and Layout Planning; Time Study and Work Measurement; New Approaches in Process Improvement and Work Management; Ergonomics and Human Factors in the Workplace, and Traditional Topics in Work Management.
- Unique historical notes - Provide a valuable perspective on the various techniques and topics discussed.
- Emphasis on the management aspects of work - Covers topics such as organization theory, wage administration, worker motivation, and job evaluation.
- Broadened scope of time and motion study - Addresses the systems

CONTENTS

1. Introduction

Part I Work Systems and How They Work

2. Manual Work and Worker-machine Systems
3. Work Flow, Batch Processing, and Work Cells
4. Manual Assembly Lines
5. Logistics Operations
6. Service Operations and Office Work
7. Projects and Project Management

Part II Methods Engineering and Layout Planning

8. Introduction to Methods Engineering and Operations Analysis
9. Charting and Diagramming Techniques for Operations Analysis
10. Motion Study and Work Design
11. Facility Layout Planning and Design

Part III Time Study and Work Measurement

12. Introduction to Work Measurement
13. Direct Time Study
14. Predetermined Motion Time Systems
15. Standard Data Systems
16. Work Sampling
17. Computerized Work Measurement and Standards Maintenance
18. The Economics and Applications of Time Standards
19. Learning Curves

PART IV New Approaches in Process Improvement and Work Management

20. Lean Production
21. Six Sigma and Other Quality Programs

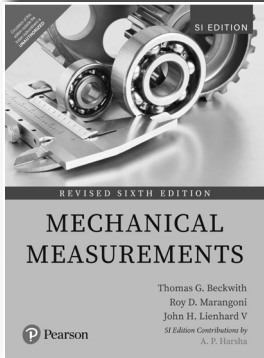
Part V Ergonomics and Human Factors in the Workplace

22. Introduction to Ergonomics and Human Factors
23. Physical Ergonomics: Work Physiology and Anthropometry
24. Cognitive Ergonomics: the Human Sensory System and Information Processing
25. The Physical Work Environment
26. Occupational Safety and Health

Part VI Traditional Topics in Work Management

27. Work Organization
28. Worker Motivation and the Social Organization at Work
29. Job Evaluation and Performance Appraisal
30. Compensation Systems

Mechanical Measurements, Revised 6/e (SI Edition)



ISBN: 9789353945633

 **Thomas G. Beckwith | John H. Lienhard V | Roy D. Marango**

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ABOUT THE BOOK

Pearson introduces the Revised Sixth Edition of Mechanical Measurements in SI Units. This much-anticipated revision of the text continues to set the standard. Emphasizing precision and clarity, the authors cover fundamental issues common to all areas of measurement in Part One, then present individual chapters on applied areas of measurement in Part Two. The text's modular format makes it accessible to undergraduate students of most engineering disciplines, particularly mechanical engineering, aerospace engineering, and engineering technology.

FEATURES

- SI Units - The text is now completely SI metricated.
- Flexible presentation - Fits several different course formats and accommodates a wide variety of skill levels.
- Separate areas of applied measurements - Help students see the relevance of mechanical measurement to their own field of interest and offer motivation by addressing real-world measurement problems

CONTENTS

Part 1: Fundamentals of Mechanical Measurement

- | | |
|---|--|
| 1. The Process of Measurement: An Overview | 5. The Response of Measuring Systems |
| 2. Standards and Dimensional Units of Measurement | 6. Sensors |
| 3. Assessing and Presenting Experimental Data | 7. Signal Conditioning |
| 4. The Analog Measure and: Time-Dependent Characteristics | 8. Digital Techniques in Mechanical Measurements |
| | 9. Readout and Data Processing |

Part 2: Applied Mechanical Measurements

- | | |
|---|-------------------------------|
| 10. Measurement of Count, EPUT, Time Interval, and Frequency Measurement of Count, Events per Unit Time, Time Interval, and Frequency | 14. Measurement of Pressure |
| 11. Displacement and Dimensional Measurement | 15. Measurement of Fluid Flow |
| 12. Strain and Stress: Measurement and Analysis | 16. Temperature Measurements |
| 13. Measurement of Force and Torque | 17. Measurement of Motion |
| | 18. Acoustical Measurements |

Part 3: Appendices

- | | |
|--|---|
| A Standards and Conversion Equations | E.3 Variation in Shear Stress with Direction |
| B Theoretical Basis for Fourier Analysis | E.4 Shear Stress on Principal Planes |
| C Number Systems | E.5 General Stress Equations in Terms of Principal Stresses |
| D Some Useful Data | E.6 Mohr's Circle for Stress |
| E Stress and Strain Relationships | E.7 Strain at a Point |
| E.1 The General Plane Stress Situation | F Statistical Tests of Least Squares Fits |
| E.2 Direction and Magnitudes of Principal Stresses | Answers to Selected Problems |

ABOUT THE AUTHOR(S)

Thomas G. Beckwith, University of Pittsburgh
Roy D. Marangoni, University of Pittsburgh
John H. Lienhard, V, Massachusetts Institute of Technology Mechanical Engineering

SI Edition contributions by

A. P. Harsha, Department of Mechanical Engineering, Indian Institute of Technology (BHU), Varanasi

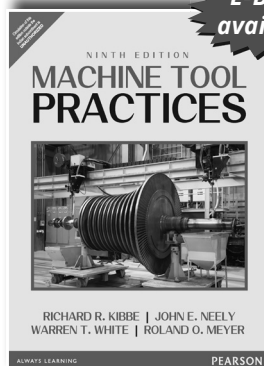
Machine Tool Practices, 9/e



Richard R. Kibbe | John E. Neely | Warren T. White | Roland O. Meyer



820 | © 2015



ISBN: 9789332550032

ABOUT THE BOOK

This text was developed to provide a richly illustrated, intensely visual treatment of basic machine tool technology and related subjects, including measurement and tools, reading drawings, mechanical hardware, hand tools, metallurgy, and the essentials of CNC. Covering introductory through advanced topics, Machine Tool Practices is formatted so that it may be used in a traditional lab-lecture program or a self-paced program. The book is divided into major sections that contain many instructional units. Each unit contains listed objectives, self tests with answers, and boxed material covering shop tips, safety, and new technologies.

FEATURES

NEW TO THIS EDITION

- Heavily illustrated throughout including 80% new artwork in this edition!
 - 600 new photos!
 - 1,500 revised line drawings!
- Expanded/Updated CNC content.
- Additional CAM coverage.

HALLMARK FEATURES

- Comprehensive approach presents the major core subject areas needed by today's machinists.
- Includes hundreds of photos of actual machining operations.
- Graphic explanations highlight important concepts and common errors and difficulties encountered by machinists.
- Many units are designed around specific projects that provide performance experience for the student.
- Self tests at the end of most units help students evaluate their own progress and understanding of the text material.

CONTENTS

SECTION A

Introduction

1. Shop Safety
2. Mechanical Hardware
3. Reading Drawings

SECTION B

Hand Tools

1. Arbor and Shop Presses
2. Work-Holding and Hand Tools
3. Hacksaws
4. Files
5. Hand Reamers
6. Identification and Uses of Taps
7. Tapping Procedures
8. Thread-Cutting Dies and Their Uses
9. Off-Hand Grinding

SECTION C

Dimensional Measurement

1. Systems of Measurement
2. Using Steel Rules
3. Using Vernier, Dial, and Digital Instruments for Direct Measurements
4. Using Micrometer Instruments
5. Using Comparison Measuring Instruments
6. Using Gage Blocks
7. Using Angular Measuring Instruments
8. Tolerances, Fits, Geometric Dimensions, and Statistical Process Control

SECTION D

Materials

1. Selection and Identification of Steels
2. Selection and Identification of Nonferrous Metals

3. Hardening, Case Hardening, and Tempering
4. Annealing, Normalizing, and Stress Relieving
5. Rockwell and Brinell Hardness Testers

SECTION E

Layout

1. Basic Semiprecision Layout Practice
2. Basic Precision Layout Practice

SECTION F

Preparation for Machining Operations

1. Machinability and Chip Formation
2. Speeds and Feeds for Machine Tools
3. Cutting Fluids
4. Using Carbides and Other Tool Materials>

SECTION G

Sawing Machines

1. Using Reciprocating and Horizontal Band Cutoff Machines
2. Abrasive and Cold Saws
3. Preparing to Use the Vertical Band Machine
4. Using the Vertical Band Machine

SECTION H

Drilling Machines

1. The Drill Press
2. Drilling Tools
3. Hand Grinding of Drills on the Pedestal Grinder
4. Operating Drilling Machines
5. Countersinking and Counterboring
6. Reaming in the Drill Press

SECTION I

Turning Machines

1. The Engine Lathe
2. Toolholders and Toolholding for the Lathe
3. Cutting Tools for the Lathe
4. Lathe Spindle Tooling
5. Operating the Machine Controls
6. Facing and Center Drilling
7. Turning between Centers
8. Alignment of the Lathe Centers
9. Other Lathe Operations
10. Sixty-Degree Thread Information and Calculations
11. Cutting Unified External Threads
12. Cutting Unified Internal Threads
13. Cutting Tapers

14. Using Steady and Follower Rests
15. Additional Thread Forms
16. Cutting Acme Threads on the Lathe

SECTION J

Vertical Milling Machines

1. Vertical Spindle Milling Machines
2. Cutting Tools and Cutter Holders for the Vertical Milling Machine
3. Setups on the Vertical Milling Machine
4. Vertical Milling Machine Operations
5. Using the Offset Boring Head

SECTION K

Horizontal Spindle Milling Machines

1. Horizontal Spindle Milling Machines
2. Types of Spindles, Arbors, and Adapters
3. Arbor-Driven Milling Cutters
4. Work-Holding Methods and Standard Setups
5. Machine Setup and Plain Milling
6. Using Side Milling Cutters
7. Using Face Milling Cutters on the Horizontal Milling Machine

SECTION L

Grinding and Abrasive Machining Processes

1. Selection and Identification of Grinding Wheels
2. Truing, Dressing, and Balancing of Grinding Wheels
3. Grinding Fluids
4. Horizontal Spindle Reciprocating Table Surface Grinders
5. Work Holding on the Surface Grinder
6. Using the Surface Grinder
7. Problems and Solutions in Surface Grinding
8. Center-Type Cylindrical Grinders
9. Using the Cylindrical Grinder
10. Universal Tool and Cutter Grinder

SECTION M

Computer Numerical Control and Other Advanced Machining Processes

1. CNC Machine Tool Programmable Axes and Position Dimensioning Systems
2. CNC Programming
3. CNC Tooling
4. Other Advanced Machining Processes

ABOUT THE AUTHOR(S)

Richard R. Kibbe served his apprenticeship in the shipbuilding industry and was graduated as a journeyman marine machinist. He holds an Associate in Arts degree in applied arts from Yuba Community College with an emphasis in machine tool technology. He also holds Bachelor's and Master's degrees from the California State University with an emphasis in machine tool manufacturing technology.

Roland O. Meyer spent the first 20 years of his career in the metal-working industry as a tool and die maker, machinist and worked in machine design and manufacturing. He completed his apprenticeship as a tool and die maker at Siemens in Germany and continued there as a journeyman building progressive punching dies.

John E. Neely grew up in the Pacific Northwest and entered the Army to serve in World War II. The life John E. Neely is characterized by hard work, a variety of successes, and mentoring many others who became a part of his life.

Warren White apprenticed as an Optical Instrument Maker with Land-Air, Inc. After military service with the Army Air Defense Board he obtained a graduate degree in Psychology at Clark University. His interest in both learning theory and machine tools led to employment at Foothill College in the Engineering Department.



ISBN: 9789357052849

Mechatronics, 7/e

 **William Bolton**

 **704** | © **2023**



ABOUT THE BOOK

The integration of electronic engineering, mechanical engineering, control and computer engineering – Mechatronics – lies at the heart of the innumerable gadgets, processes and technology without which modern life would seem impossible. From auto-focus cameras to car engine management systems, and from state-of-the-art robots to the humble washing machine, Mechatronics has a hand in them all. This book presents a clear and comprehensive introduction to the area. Practical and applied, it helps you to acquire the mix of skills you will need to comprehend and design mechatronic systems. It also goes much deeper, explaining the very philosophy of mechatronics, and, in doing so, provides a truly interdisciplinary and integrated approach to engineering.

FEATURES

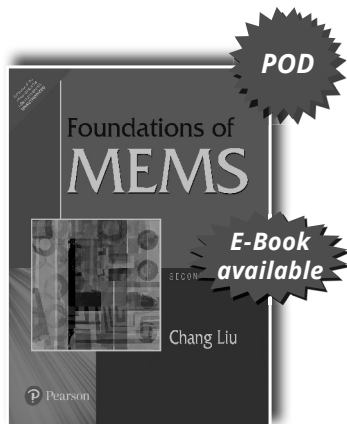
- Updated coverage of mechatronic system components, including extended coverage of encoders, position sensitive detectors and force sensitive resistors.
- New material on Atmega microcontrollers including applications and programming examples.
- Topical discussion and examples of fuzzy logic and neural control systems.
- Applications and case studies have been revised across the book, with fascinating examples including automated guided vehicles, artificial hands, fuzzy logic washing machines, to help gain a modern and practical understanding.

CONTENTS

- | | |
|--|------------------------------------|
| 1. Introducing mechatronics | 13. Input/output systems |
| 2. Sensors and transducers | 14. Programmable logic controllers |
| 3. Signal conditioning | 15. Communication systems |
| 4. Digital signals | 16. Fault finding |
| 5. 5.Digital logic | 17. Basic system models |
| 6. Data presentation systems | 18. System models |
| 7. Pneumatic and hydraulic actuation systems | 19. Dynamic responses of systems |
| 8. Mechanical actuation systems | 20. System transfer functions |
| 9. Electrical actuation systems | 21. Frequency response |
| 10. Microprocessors and microcontrollers | 22. 22 Closed-loop controllers |
| 11. Assembly language | 23. Artificial intelligence |
| 12. C language | 24. Mechatronic systems |

ABOUT THE AUTHOR

William Bolton was formerly a Consultant to the Further Education Unit, Head of Research and Development and Monitoring at BTEC and a UNESCO consultant.



ISBN: 9788131764756

Foundations of MEMS, 2/e

 **Chang Liu**
 **576** | © **2011**


ABOUT THE BOOK

Foundations of MEMS is an entry-level text designed to systematically teach the specifics of MEMS to an interdisciplinary audience. Liu discusses designs, materials, and fabrication issues related to the MEMS field by employing concepts from both the electrical and mechanical engineering domains and by incorporating evolving microfabrication technology—all in a time-efficient and methodical manner. A wealth of examples and problems solidify students' understanding of abstract concepts and provide ample opportunities for practicing critical thinking.

FEATURES

Concise background information from several engineering domains:

- Makes students conversant with unfamiliar concepts and practices that are needed to solve MEMS problems.
- Presents exciting new opportunities for a student and practitioner of MEMS to become involved in specific application domains, such as bioengineering, chemistry, nanotechnology, optical engineering, power and energy, and wireless communication.
- Systematic teaching of materials, design, and fabrication issues, in an ascending and widening spiral introduces topics in an ordered and logical progression.
- Critical-thinking challenges foster a deeper understanding of the subject matter and show students how to think like engineers.
- Extensive examples and homework problems help teachers explain difficult concepts and assist students in practicing these concepts.
- Current data and up-to-date materials keep students and researchers abreast of the latest technologies.

CONTENTS

- | | |
|---|---|
| 1. Introduction | 9. Summary of Sensing and Actuation Methods |
| 2. First-Pass Introduction to Microfabrication | 10. Bulk Micromachining and Silicon Anisotropic Etching |
| 3. Review of Essential Electrical and Mechanical Concepts | 11. Surface Micromachining |
| 4. Electrostatic Sensing and Actuation | 12. Process Synthesis: Putting It all Together |
| 5. Thermal Sensing and Actuation | 13. Polymer MEMS |
| 6. Piezoresistive Sensors | 14. Micro Fluidics Applications |
| 7. Piezoelectric Sensing and Actuation | 15. Case Studies of Selected MEMS Products |
| 8. Magnetic Actuation | |

ABOUT THE AUTHOR

Chang Liu received his M.S. and Ph.D. degrees from the California Institute of Technology in 1991 and 1995, respectively. His Ph.D. thesis was titled Micromachined sensors and actuators for fluid mechanics applications. In January 1996, he joined the Microelectronics Laboratory of the University of Illinois as a postdoctoral researcher. In January 1997, he became an assistant professor with major appointment in the Electrical and Computer Engineering Department and joint appointment in the Mechanical and Industrial Engineering Department. In 2003, he was promoted to the rank of Associate Professor with tenure. In 2007, Chang Liu joined Northwestern University (Evanston, Illinois) as a full professor of engineering. He established the MedX Laboratory to conduct advanced engineering research for medicine and health care.



E-Book available

Operations Research, 2/e

 **A. M. Natarajan | P. Balasubramani | A. Tamilarasi**

 **744 | © 2014**

ABOUT THE BOOK

Operations research is the study of optimization techniques. Designed to cater to the syllabi requirements of Indian universities, this book on operations research reinforces the concepts discussed in each chapter with solved problems. A unique feature of this book is that with its focus on coherence and clarity, it hand-holds students through the solutions, each step of the way.

ISBN: 9789332526471

FEATURES

- Graphical solution to linear programming problems discussed by means of appropriate examples.
- Economic interpretation of dual variables explained and various computational techniques elucidated.
- Applications of the simulation model in practical business problems illustrated.
- Detailed analysis of the critical path method (CPM) and the project evaluation review technique (PERT).
- Non-linear programming problems, quadratic programming and separable programming highlighted along with their applications.

CONTENTS

- | | |
|---|-------------------------------|
| 1. Basics of Operations Research | 8. Theory of Games |
| 2. Linear Programming Problem (LPP) | 9. Sequencing Models |
| 3. Advanced Topics in Linear Programming | 10. Replacement Models |
| 4. The Transportation Problem | 11. Inventory Models |
| 5. Assignment Problem | 12. Queuing Models |
| 6. Dynamic Programming | 13. Network Models |
| 7. Decision Theory and Introduction to Quantitative Methods | 14. 14 Simulation |
| | 15. 15 Non-Linear Programming |

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P. Balasubramani is Professor, Department of Computer Science and Engineering Kongu Engineering College Perundurai, Erode, Tamil Nadu

A. Tamilarasi is Professor, Department of Computer Science and Engineering Kongu Engineering College Perundurai, Erode, Tamil Nadu

➔ ALSO AVAILABLE...



E-Book available

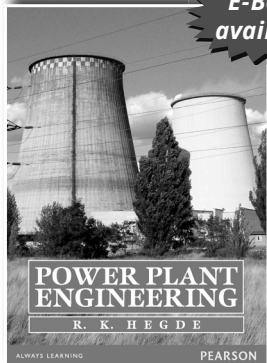
POD

Operations Research: An Introduction

 **P Mariappan**

ISBN: 9788131799345

Pages: 525



ISBN: 9789332534100

Power Plant Engineering

 R. K. Hegde

 912 |  2015



ABOUT THE BOOK

Power Plant Engineering has been written to cater to the needs of budding mechanical engineers in their undergraduate study. Supplemented by clear illustrations and solved examples, the book provides a comprehensive coverage of topics at the required depth to students gain a firm foothold in the subject.

FEATURES

- Information on contemporary topics in power plant technology such as super critical boiler technology.
- Practical approach to delineate complex topics with visual aids and representational schemes.
- Exhaustive coverage of power generation from non-conventional sources of energy.
- Ample solved examples, multiple-choice and exercise questions for practice.

CONTENTS

1. Introduction to Power Plants
2. Fuels and Combustion
3. Fuel-Handling Systems
4. Steam Power Plant
5. Steam Generator
6. Fluidized Bed Combustion
7. Draught System
8. Feed Water Treatment
9. Flow Through Nozzles
10. Steam Turbines
11. Steam Condenser and Circulating Water Systems
12. Gas Turbine Power Plant
13. Diesel Engine Power Plant
14. Power from Non-Conventional Sources
15. Hydroelectric Power Plant
16. Nuclear Power Plants
17. Power Plant Economics
18. Environmental Aspects of Power Station
19. Instrumentation and Equipments in Power Station

ABOUT THE AUTHOR

R. K. Hegde is Professor, Department of Mechanical Engineering in Srinivas Institute of Technology, Mangalore, Karnataka. The author has more than 20 years of rich industrial and academic experience. Earlier he was involved in power plant operation and maintenance, handling high pressure FBC boilers, Babcock-Wilcox boilers, turbines and pumps. He worked in a power plant in maintenance and is also an authorized boiler operation engineer.

NEW

E-Book
available

REFRIGERATION AND AIR CONDITIONING



ISBN: 9789361595912

Refrigeration and Air Conditioning

 **Manoj Kumar Gupta**

 **644** | © **2024**

ABOUT THE BOOK

Refrigeration and Air Conditioning is a complete offering on the subject area with comprehensive treatment of the basic principles as well as the applications. With lucid exposition of the fundamental concepts along with numerous worked-out examples, well-labeled detailed illustrations, this book provides a holistic understanding of the subject.

FEATURES

- Exhaustive coverage on Vapour Compression and Vapour Absorption Refrigeration Systems
- Detailed discussion on air conditioning systems and latest refrigerants
- Dedicated chapter on Applications and Appliances
- More than 200 detailed line diagrams to enable visualization and elucidation of the concepts
- More than 550 solved and unsolved problems to provide ample practice

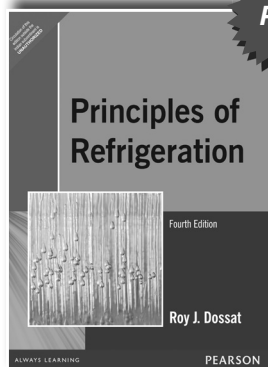
CONTENTS

1. Introduction
 2. Air Cycle and Aircraft Refrigeration Systems
 3. Vapour Compression Refrigeration System (VCRS)
 4. Vapour Compression Refrigeration System Components
 5. Refrigerants
 6. Multi-Pressure VCR Systems
 7. Vapour Absorption Refrigeration System (VARs)
 8. Jet Ejector Refrigeration System
 9. Other Refrigeration Methods
 10. Psychrometry
 11. Design Conditions
 12. Psychrometry of All-air Air Conditioning Systems
 13. Cooling and Heating Load Calculations
 14. Air Conditioning Systems
 15. Transmission and Distribution of Air
 16. Applications and Appliances
- Appendix A: Answers to Numerical Problems,
Appendix B: Thermodynamic Properties Tables,
Appendix C: P-h Charts and Psychrometric Chart

ABOUT THE AUTHOR

Manoj Kumar Gupta, Dean Academic, Professor and Ex HOD, Department of Mechanical Engineering, Ujjain (Government) Engineering College, Ujjain, Madhya Pradesh

Principles of Refrigeration, 4/e



ISBN: 9788177588811



Roy J. Dossat



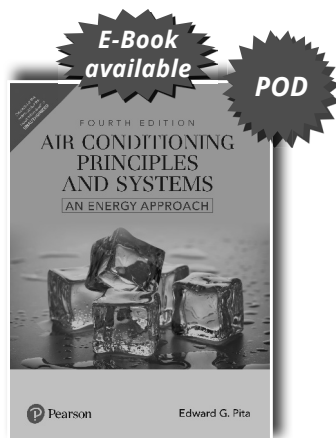
512 | © 2006

ABOUT THE BOOK

Classic presentation of the principles, applications, and design of refrigeration systems and equipment. No special background in thermodynamics, physics, or calculus is required, as the essential concepts are reviewed in the first five chapters.

CONTENTS

1. Pressure, Work, Power, Energy
2. Matter, Internal Energy, Heat, Temperature
3. Ideal Gas Processes
4. Saturated and Superheated Vapors
5. Psychrometric Properties of Air
6. Refrigeration and the Vapor Compression Systems
7. Cycle Diagrams and the Simple Saturated Cycle
8. Actual Refrigerating Cycles
9. Survey of Refrigeration Applications
10. Cooling Load Calculations
11. Evaporators
12. Performance of Reciprocating Compressors
13. System Equilibrium and Cycling Controls
14. Condensers and Cooling Towers
15. Fluid Flow, Centrifugal Liquid Pumps, Water and Brine Piping
16. Refrigerants
17. Refrigerant Flow Controls
18. Compressor Construction and Lubrication
19. Refrigerant Piping and Accessories
20. Defrost Methods—Low Temperature, Multiple Temperature, and Absorption Refrigeration Systems
21. Electric Motors and Control Circuits



ISBN: 9789352866724

Air Conditioning Principles and Systems, 4/e

 **Edward G Pita**

 **584** | © **2018**

ABOUT THE BOOK

This text explores the fundamental concepts of air conditioning and their application to systems—explaining all concepts in a clear, practical manner, and focusing on problems and examples typically encountered on the job. It covers the latest, yet practical methods of load calculations, psychometrics, system design, and equipment description and performance.

FEATURES

- Describes energy codes and standards, and examines each topic from an energy conservation viewpoint which is essential for all future work in the air conditioning field.
- Covers indoor air quality; air pollution from combustion; and the environmental requirements on refrigerants.
- Exhaustive Coverage of HVAC equipment description, performance, selection and specifications.
- Include example projects which provide students with hands-on learning experiences that require them to analyze how the system functions and is essential for installation, operation, and service as well as design.

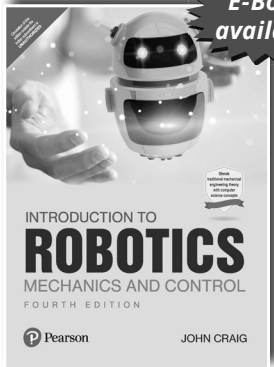
CONTENTS

An Air Conditioning Fable.

1. The Scope and Uses of Air Conditioning.
2. Physical Principles.
3. Heating Loads.
4. Furnaces and Boilers.
5. Hydronic Piping Systems and Terminal Units.
6. Cooling Load Calculations.
7. Psychometrics.
8. Fluid Flow in Piping and Ducts.
9. Piping, Valves, Ducts, and Insulation.
10. Fans and Air Distribution Devices.
11. Centrifugal Pumps, Expansion Tanks, and Venting.
12. Air Conditioning Systems and Equipment.
13. Refrigeration Systems and Equipment.
14. Automatic Controls.
15. Energy Utilization and Conservation.
16. Instrumentation, Testing, and Balancing.
17. Planning and Designing the HVAC System.
18. Solar Heating and Cooling Systems.

ABOUT THE AUTHOR

Edward G. Pita was Professor Emeritus and Adjunct Professor in the Environmental Control Technology Department at New York City Technical College of the City University of New York. He received a B.S. degree from Purdue University, an M.S. degree from Columbia University, and a Ph.D. degree from the University of Maryland, all in mechanical engineering. He is a member of the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) and is a registered professional engineer.



ISBN: 9789356062191

Introduction to Robotics, 4/e

 **John J. Craig**

 **456** |  **2022**

ABOUT THE BOOK

Since its original publication in 1986, Craig's *Introduction to Robotics: Mechanics and Control* has been the leading textbook for teaching robotics at the university level. Blending traditional mechanical engineering material with computer science and control theoretical concepts, the text covers a range of topics, including rigid-body transformations, forward and inverse positional kinematics, velocities and Jacobians of linkages, dynamics, linear and non-linear control, force control methodologies, mechanical design aspects, and robotic programming.

The 4th Edition features a balance of application and theory, introducing the science and engineering of mechanical manipulation—establishing and building on foundational understanding of mechanics, control theory, and computer science. With an emphasis on computational aspects of problems, the text aims to present material in a simple, intuitive way.

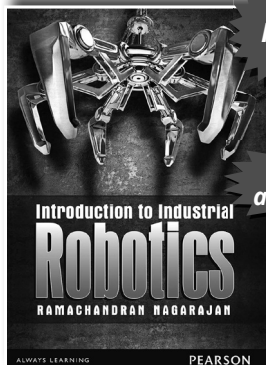
FEATURES

- Real-world applications present underlying theories in simple, understandable ways. This practicality helps students learn how to write algorithms to perform required computations.
- End-of-chapter exercises feature “difficulty grades” so instructors can assign to students and easily implement a grade-point plan.
- Programming Assignments at the end of each chapter emphasize concepts from a software perspective.
- A balanced approach presents robotics concepts from mechanical, control theory, and computer science subdisciplines.
- NEW! Additional exercises have been added to the end of each chapter.
- UPDATED! New references, materials, and figures account for changing technology and reflect today's robotics landscape.
- REVISED! More than 100 minor typos have been corrected throughout the text.
- NEW! Two sections have been added, including Section 8.9 on optical encoders and Section 10.9 on adaptive control.

CONTENTS

- | | |
|---|---|
| 1. Introduction | 8. Mechanical Design of Robots |
| 2. Spatial Transformations | 9. Linear Control |
| 3. Forward Kinematics | 10. Non-Linear Control |
| 4. Inverse Kinematics | 11. Force Control |
| 5. Velocities, Static Forces, and Jacobians | 12. Programming Languages and Systems |
| 6. Dynamics | 13. Simulation and Off-Line Programming |
| 7. Trajectory Planning | |

Introduction to Industrial Robotics



POD

E-Book
available

ISBN: 9789332544802

 Ramachandran Nagarajan

 320 | © 2016

ABOUT THE BOOK

Robotics is the branch of technology that deals with the design, construction, operation, and application of robots. It is a subject offered to the students of mechanical engineering in their final year. This book is written to cover the needs of a budding engineer at the undergraduate level.

This book emphasizes on building the fundamental concepts along with necessary mathematical analysis and graphical representation. Numerical problems are also present for better understanding the topics.

FEATURES

- A detailed listing of chronological development of Robots Technology.
- Composite transformation matrix, Object manipulations and wrist articulations are explained with detailed examples.
- Lucid coverage of grippers and tools with self explanatory figures.
- Detailed coverage of Robot applications in industries.

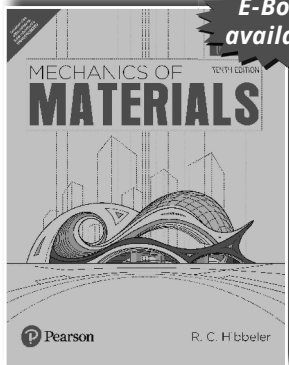
CONTENTS

1. Introduction to Robotics
2. Grippers and tools of Industrial robots
3. Coordinate transformation
4. Kinematics
5. Robot sensors
6. Robot control
7. Robot Programming and work cell
8. Robot Vision
9. Robot applications
10. Robot trajectory planning
11. Economic analysis of Robots
12. Artificial Intelligence
13. Robot Dynamics
14. FLC of Robot Joints
15. Medical applications of Robots
16. Helping the visually impaired for their autonomous navigation

ABOUT THE AUTHOR

Ramachandran Nagarajan was Former Professor in Robotics, School of Engineering, Universiti Malaysia Perlis, Malaysia

Mechanics of Materials, (SI Edition)



ISBN: 9789354492259

 R C Hibbeler

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ABOUT THE BOOK

Mechanics of Materials clearly and thoroughly presents the theory and supports the application of essential mechanics of materials principles. Professor Hibbeler's concise writing style, countless examples, and stunning four-color photorealistic art program — all shaped by the comments and suggestions of hundreds of colleagues and students — help students visualize and master difficult concepts. The Tenth Edition retains the hallmark features synonymous with the Hibbeler franchise, but has been enhanced with the most current information, a fresh new layout, added problem solving, and increased flexibility in the way topics are covered in class.

FEATURES

- Well-defined sections are part of each chapter and contain explanations of specific topics, illustrative example problems, and a set of homework problems. The topics within each section are placed into subgroups, defined by titles, which present a structured method for introducing each new definition or concept and making the book convenient for later reference and review.
- A full-page illustration begins each chapter and indicates a broad-range application of the chapter material.
- Chapter Objectives are then provided to give a general overview of the material that will be covered.
- Thorough End-of-Chapter Reviews include the Important Points, accompanied by relevant equations and art.
- Appendixes provide a source for review and a listing of tabular data. Appendix A covers information on the centroid and the moment of inertia of an area. Appendixes B and C list tabular data for structural shapes, and the deflection and slopes of various types of beams and shafts.

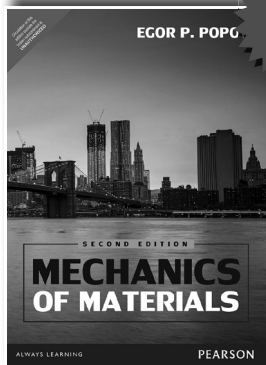
CONTENTS

1. Stress
 2. Strain
 3. Mechanical Properties of Materials
 4. Axial Load
 5. Torsion
 6. Bending
 7. Transverse Shear
 8. Combined Loadings
 9. Stress Transformation
 10. Strain Transformation
 11. Design of Beams and Shafts
 12. Deflection of Beams and Shafts
 13. Buckling of Columns
 14. Energy Methods
- Appendix
Solutions and Answers for Preliminary Problems
Fundamental Problems Partial Solutions and Answers
Selected Answers
Index

ABOUT THE AUTHOR

Professor Hibbeler currently teaches both civil and mechanical engineering courses at the University of Louisiana–Lafayette. In the past, he has taught at the University of Illinois at Urbana, Youngstown State University, Illinois Institute of Technology, and Union College.

Mechanics of Materials, 2/e



POD

ISBN: 9789332559547

 Egor P. Popov

 608 | © 2016

ABOUT THE BOOK

This volume stresses fundamental principles of mechanics of materials, and introduces applications from various fields of engineering.

FEATURES

- Includes numerous solved examples.
- Uses English and SI units throughout.

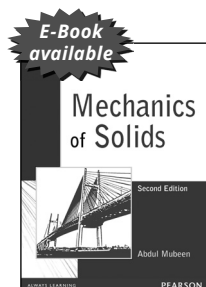
CONTENTS

1. Abbreviations and Symbols
2. Stress—Axial Loads
3. Strain—Hooke's Law—Axial Load Structural
4. Torsion
5. Axial Force—Shear—and Bending Moment
6. Pure Bending of Beams
7. Shearing Stresses in Beams
8. Compound Stresses
9. Analysis of Plane Stress and Strain
10. Transformation of Moments of Inertia of Areas to Different Axes
11. Combined Stresses—Pressure Vessels—Failure Theories
12. Design of Members by Strength Criteria
13. Deflection of Beams
14. Statically Indeterminate Problems
15. Columns.
16. Structural Connections
17. The Energy Methods
18. Thick-Walled Cylinders

ABOUT THE AUTHOR

Egor P. Popov, University of California, Berkeley.

➔ ALSO AVAILABLE...



E-Book available

Mechanics of Solids, 2/e

 Abdul Mubeen


ISBN: 9788131758885
Pages: 668



E-Book available

POD

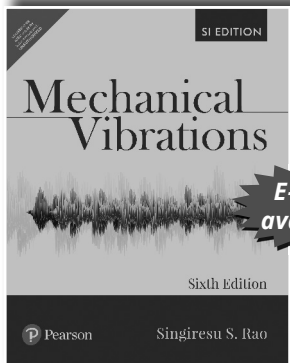
Strength of Materials

 P. Purushothama Raj / V. Ramasamy

ISBN: 9788131768549
Pages: 488

THEORY OF VIBRATIONS/MECHANICAL VIBRATIONS

Mechanical Vibrations, 6/e



E-Book available

ISBN: 9789353062569

 **Singiresu S Rao**

 **1152** | © **2018**



ABOUT THE BOOK

Retaining the style of previous editions, this sixth SI edition of Mechanical Vibrations effectively presents theory, computational aspects, and applications of vibration in a lucid manner. With an emphasis on computer techniques of analysis, it gives expanded explanations of the fundamentals, focusing on physical significance and interpretation that build upon students' previous experience.

In this edition, several additions and revisions have been made—including new examples, problems, and illustrations—with the goal of making coverage of concepts both more comprehensive and easier to follow.

FEATURES

- Each topic is self-contained, with all concepts explained fully and the derivations presented with complete details.
- Computational aspects are emphasized throughout the book. MATLAB-based examples as well as several general purpose MATLAB programs with illustrative examples are given in each chapter.
- The description and formulation of vibration problems in several different systems of units is considered to obtain the same response of the physical system.
Pedagogy includes:
 - 34 design-project-type problems
 - 55 MATLAB programs
 - 252 illustrative examples
 - 988 review questions
 - 1214 problems

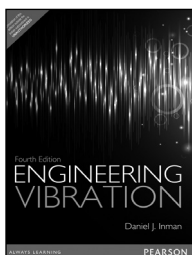
CONTENTS

1. Fundamentals of Vibration
2. Free Vibration of Single-Degree-of-Freedom Systems
3. Harmonically Excited Vibration
4. Vibration Under General Forcing Conditions
5. Two-Degree-of-Freedom Systems
6. Multidegree-of-Freedom Systems
7. Determination of Natural Frequencies and Mode Shapes
8. Continuous Systems
9. Vibration Control
10. Vibration Measurement and Applications
11. Numerical Integration Methods in Vibration Analysis
12. Finite Element Method
13. Nonlinear Vibration
14. Random Vibration

ABOUT THE AUTHOR

Singiresu S Rao University of Miami

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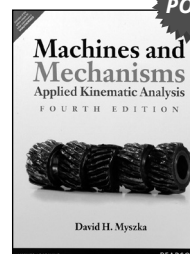


Engineering Vibrations, 4/e

 **Daniel J Inman** **E-Book available**

ISBN: 9789332518483

Pages: 705

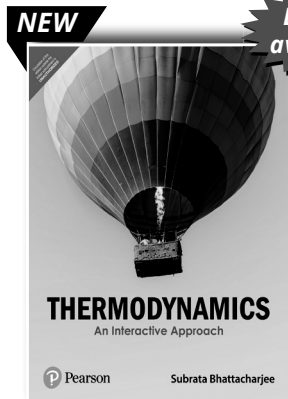


POD
**Machines & Mechanisms:
Applied Kinematic
Analysis, 4/e**

 **David H. Myszka**

ISBN: 9789332555204

Pages: 384



E-Book available

Thermodynamics : An Interactive Approach

 **Subrata Bhattacharjee**

 **724** | © **2024**

ISBN: 9789361599873

ABOUT THE BOOK

Thermodynamics: An Interactive Approach employs a layered approach that introduces the important concepts of mass, energy, and entropy early, and progressively refines them throughout the text. To create a rich learning experience for today's thermodynamics student, this book melds traditional content with the web-based resources and learning tools of TEST: The Expert System for Thermodynamics. TEST is an interactive platform that offers smart thermodynamic tables for property evaluation and analysis tools for mass, energy, entropy, and exergy analysis of open and closed systems.

FEATURES

- Throughout this book physical arguments are used to simplify concepts, support mathematical arguments, and explain numerically derived conclusions
- Examples present opportunities to apply analysis, offer detailed solutions, and What-If scenarios
- Did You Know? section offers interesting and helpful facts about materials and engineering concepts
- Problems at the end of each chapter apply concepts and refine engineering analysis
- Property Tables allow for quick reference of material properties, as well as saturation and vapor tables, for many elements and compounds

CONTENTS

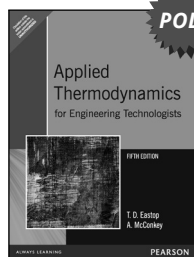
Introduction Thermodynamic System and its Interactions with the Surroundings

1. Description of a System: States And Properties
2. Development of Balance Equations for Mass, Energy, and Entropy: Application to Closed-Steady Systems
3. Evaluation of Properties: Material Models
4. Mass, Energy, and Entropy Analysis of Open-Steady Systems
5. Mass, Energy, and Entropy Analysis of Unsteady Systems
6. Exergy Balance Equation: Application to Steady and Unsteady Systems
7. Reciprocating Closed Power Cycles
8. Open Gas Power Cycle
9. Open Vapor Power Cycles
10. Refrigeration Cycles
11. Evaluation of Properties: Thermodynamic Relations
12. Psychrometry
13. Combustion
14. Equilibrium
15. Gas Dynamics

ABOUT THE AUTHOR

Subrata Bhattacharjee, San Diego State University

THERMODYNAMICS AVAILABLE TITLES

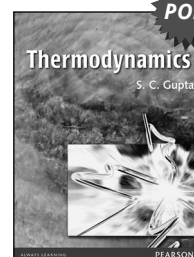


Applied Thermodynamics for Engineering Technologists, 5/e

 **T. D. Eastop / A. McConkey**

ISBN: 9788177582383

Pages: 736



Thermodynamics

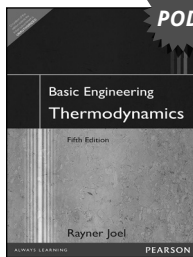
 **S C Gupta**

ISBN: 9788131717950

Pages: 552

E-Book available





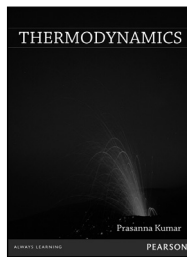
POD

Basic Engineering Thermodynamics, 5/e

Rayner Joel

ISBN: 9788131718889

Pages: 660



Thermodynamics

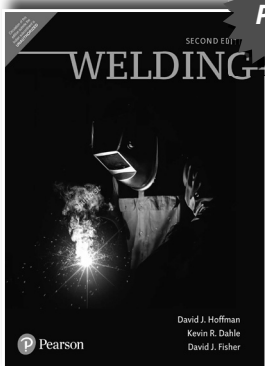
Prasanna Kumar

ISBN: 9788131771853

Pages: 616

E-Book available

WELDING



POD

Welding, 2/e

David J. Hoffman | Kevin R. Dahle | David J. Fisher

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ABOUT THE BOOK

An easy-to-read and highly visual “diameter of electrodes” approach to welding. Most textbooks do not cover smaller diameter electrodes well. Welding does. With over 50 years combined experience, the authors have created a book that is both reference-friendly and incredibly engaging to students and professionals alike. With setups for every important weld and step-by-step procedures and photos for every step, this is the only book on welding you will ever need.

Welding provides readers with cleanly designed and concise chapters. Essential coverage of safety, theory, key skills, easy-to-read reference charts and tables, detailed step-by-step procedures, and a strong emphasis on the diameter of electrodes is covered in a simple, yet comprehensive way. After an introduction to welding and to welding safety, each major welding process is presented in its own chapter so they can easily be discussed in the classroom. Following the weld processes, chapters focus on critical topics such as codes, destructive and non-destructive weld testing, welding symbols, welding metallurgy, welding ferrous and nonferrous alloys, and welding power sources.

The Second Edition has been updated to include a new chapter on pipe welding and techniques, a new macro look at metallurgy, and a more procedural approach to welding alloys. Welding codes and testing have also been split into two separate chapters, for accessibility and ease of use.

FEATURES

- NEW! Welding codes and testing can now be found in two separate chapters: Welding Codes (Chapter 14) and Weld Testing (Chapter 15). This logical division makes information easier to find and aids instructors in course design.
- Detailed, step-by-step procedures break down the entire process of weld setups and techniques. Using descriptions and photographs to walk readers through procedures from start to finish, this method builds both mastery and confidence.
- Logical, consistent organization in all welding chapters and introductions—safety information and tables; power source and peripherals coverage; setup; step-by-step procedures; technique features; information on modes of metal transfer, electrodes, and shielding gases; and finally, chapter questions—supports easier understanding and quicker, more efficient reference.
- A spacious one-column design, with great summary tables and charts, makes this an open and inviting textbook that is extremely accessible to students.

CONTENTS

1. Welding Jobs and Employment Skills
2. Safety in Welding
3. Shielded Metal Arc Welding
4. Gas Metal Arc Welding
5. Flux Cored Arc Welding
6. Gas Tungsten Arc Welding
7. Pipe Welding
8. Other Welding Processes
9. Cutting Processes
10. Metals and Welding Metallurgy
11. Welding Ferrous Alloy
12. Welding Nonferrous Alloys
13. Welding Symbols
14. Welding Codes
15. Weld Testing
16. Power Sources

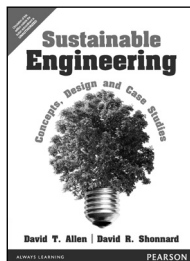
ABOUT THE AUTHOR(S)

Kevin Dahle has twenty years of experience teaching as a welding instructor at the Associate Degree and Vocational Diploma levels. In addition, he has taught welding apprentices, as well as related welding courses for transportation technology students and agriculture students. Kevin has been involved in training for industry and responsible for overseeing welder and procedure qualifications as an AWS Certified Welding Inspector.

David Fisher Member, American Welding Society Certified Welding Inspector Fox Valley Technical College David Fisher has five years of experience teaching as a welding/metal fabrication instructor at the Associate Degree and Vocational Diploma levels. In addition, he has taught welding apprentices, as well as related welding courses for transportation technology students and agriculture students. David has been involved in training for industry and responsible for overseeing welder and procedure qualifications as an AWS Certified Welding Inspector.

David Hoffman Member, American Welding Society Certified Welding Inspector Certified CRAW Technician Fox Valley

GENERAL ENGINEERING

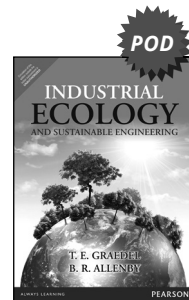


Sustainable Engineering: Concepts, Design and Case Studies

 Allen / Shonnard

ISBN: 9789332556577

Pages: 240

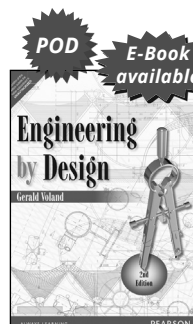


Industrial Ecology and Sustainable Engineering

 Graedel / Allenby

ISBN: 9789332556959

Pages: 428 



Engineering by Design, 2/e

 Gerald Volland

ISBN: 9789332535053

Pages: 496

Introduction to Combustion Engineering



ISBN: 9789357053129



Amitava Sarkar | P K Mondal



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ABOUT THE BOOK

Introduction to Combustion Engineering focuses on the gradual transition from understanding of the basics of combustion science to its applications. The laws of thermodynamics and the principle of conservation equations, which are the prerequisites for understanding the basic concepts of combustion are dealt with before discussing the major topics around combustion technologies, flames and fuels. It includes numerous tables featuring practical data and formulas that support the design focus, and chapters that include solved examples and problems.

FEATURES

- Detailed coverage of non-premixed and premixed combustion
- Dedicated chapter on Combustion-generated Emissions
- Elementary discussion on Laser diagnostics of combustion processes
- Mathematical methods are presented, along with qualitative descriptions of their use, which are supported by numerous tables with practical data and formulae
- Solutions provided for selected numerical problems

CONTENTS

1. Chapter 1 Application of First Law of Thermodynamics to Combustion
2. Chapter 2 Application of Second Law of Thermodynamics to Combustion
3. Chapter 3 Reaction Kinetics
4. Chapter 4 Mass Transfer
5. Chapter 5 Structure of Hydrocarbons and Their Oxidation
6. Chapter 6 Transport Properties
7. Chapter 7 Conservation Equations
8. Chapter 8 Non-premixed Combustion
9. Chapter 9 Premixed Combustion
10. Chapter 10 Flame Hydrodynamics
11. Chapter 11 Combustion-generated Emissions
12. Chapter 12 Flame Structure

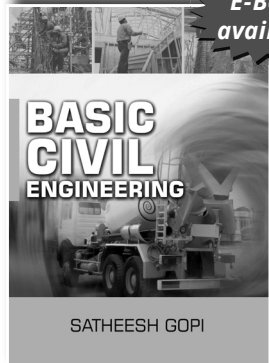
ABOUT THE AUTHOR(S)

Amitava Sarkar: Currently visiting faculty at NIT Silchar, Formerly, professor of Mechanical Engineering at Jadavpur University.

Pranab Kumar Mondal: Department of Mechanical Engineering, IIT Guwahati.



**Civil
Engineering**



ISBN: 9788131729885

Basic Civil Engineering

 **Satheesh Gopi**

 348 | © 2009

ABOUT THE BOOK

Basic Civil Engineering is designed to enrich the preliminary conceptual knowledge about civil engineering to the students of non-civil branches of engineering. The coverage includes materials for construction, building construction, basic surveying and other major topics like environmental engineering, geo-technical engineering, transport traffic & urban engineering, irrigation & water supply engineering and CAD.

FEATURES

- Quality and standard of Materials along with cost effectiveness.
- Modern field procedures for surveying such as Total Station, GPS and digital levels.
- Building services like air conditioning, fire protection systems, lifts, escalators etc. and also repair and maintenance of structures.
- A chapter on CAD highlighting its importance in civil engineering.

CONTENTS

1. Materials for Construction
2. Building Construction
3. Basic Surveying
4. Other Major Topics in Civil Engineering

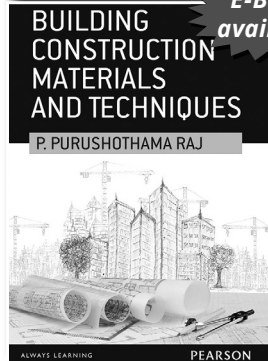
ABOUT THE AUTHOR

Satheesh Gopi has over 19 years of experience as a hydrographer and over five years of experience as a civil engineer and is currently the deputy director in the Hydrographic Survey Wing of the Kerala Port Department.

Building Construction Materials and Techniques

 **P. Purushothama Raj**

 **624** | © **2016**



**E-Book
available**

ISBN: 9789332544796

ABOUT THE BOOK

Building construction materials and techniques is a subject offered to the students of civil engineering in their second year. This book is written to cover the subject in universities where it is offered as two different subjects as well as universities where it is offered as a combined single subject at the undergraduate level. Of the 32 chapters in this book, 19 are dedicated to building construction while the remaining 13 focus on building materials. Each chapter is supplemented with numerous self-explanatory illustrations for easy comprehension.

FEATURES

- Lucid coverage of various building materials.
- Elaborate coverage of concrete and precast concrete units.
- Adequate detailing on masonry construction.
- Highly illustrated with line diagrams, cash-flow diagrams, bar diagrams, line graphs to make the book interactive and easy to understand.

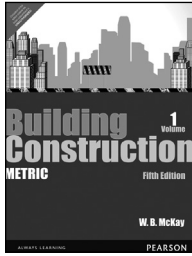
CONTENTS

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|----------------------------------|-------------------------------------|--|
| 1. Construction materials | 13. Other building materials | 24. Structural steel works |
| 2. Building Stones | 14. Planning of buildings | 25. Roofs and roof coverings |
| 3. Bricks | 15. Foundations | 26. Plastering and pointing |
| 4. Tiles and ceramic materials | 16. Masonry construction | 27. Essential services in buildings |
| 5. Lime | 17. Walls | 28. Special services in buildings |
| 6. Cement | 18. Framed structures | 29. Protection of buildings |
| 7. Mortar | 19. Arches and Lintels | 30. Maintenance of buildings |
| 8. Concrete | 20. Doors, Windows and ventilators | 31. Construction planning and scheduling |
| 9. Precast concrete units | 21. Stairs and elevators | 32. Construction equipments |
| 10. Wood and wood-based products | 22. Temporary supporting structures | |
| 11. Metals and alloys | 23. Floorings | |
| 12. Building finishes | | |


ABOUT THE AUTHOR

P. Purushothama Raj was Former Director, Adhiparasakthi Engineering College. He has over 30 years of teaching experience and has published journals in several national and international journals.

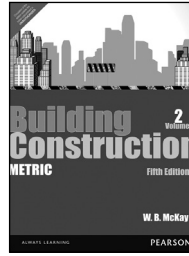
➔ EXCLUSIVE TO MEHUL BOOKS




**Building Construction,
Metric Volume-1, 5/e**

 W. B. Mc Kay

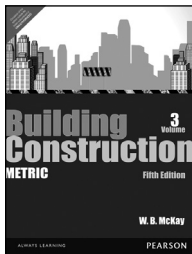
**ISBN: 9789332508231
Pages: 178**



**Building Construction,
Metric Volume-2, 4/e**

 W. B. Mc Kay

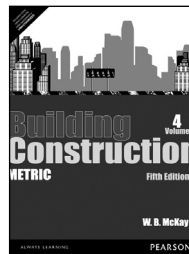
**ISBN: 9789332509344
Pages: 152**



**Building Construction,
Metric Volume-3, 5/e**

 W. B. Mc Kay

**ISBN: 9789332508248
Pages: 172**



**Building Construction,
Metric Volume-4, 4/e**

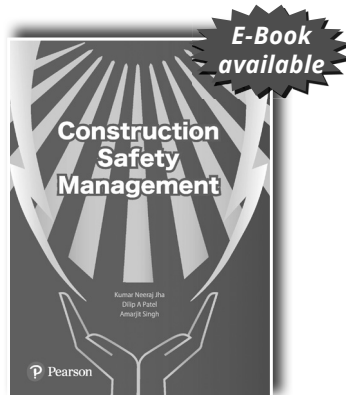
 W. B. Mc Kay

**ISBN: 9789332508255
Pages: 283**

Construction Safety Management

 **Kumar Neeraj Jha | Dilip A. Patel | Amarjit Singh**

 **448 | © 2022**



ISBN: 9789356060449

ABOUT THE BOOK

The subject of construction safety is so vast that it takes everything from an enlightened management approach to good supervisors, trained workers, good technology, and a sincere dedication to safety. Indeed, there is no other way to roll back the 22,000 deaths and 74 lakh injuries a year on Indian construction projects that cost the country ₹117,000 crores a year, which is too many lives and too much money to throw away. Thus, a new safety culture is necessary that gives paramount importance to safety. This book on Construction safety management is designed to help construction safety professionals, as well as serve as a textbook for students learning construction safety management.

FEATURES

- Delves into essential topics such as measuring and reporting accidents, and their investigation and causes.
- Elaborates on identifying hazards, evaluating risks, implementing effective safety policies, and creating appropriate budgets.
- Discusses safety acts and regulations, and the responsibilities of stakeholders in ensuring zero accidents.

CONTENTS

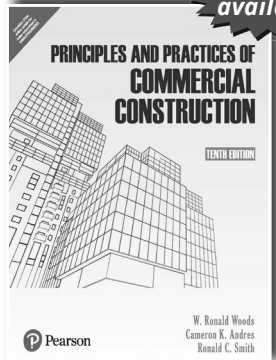
- Preface
- Acknowledgments
- About the Authors
- 1. Construction Overview and Safety Status
- 2. Fatalities and Injuries in the Construction Industry
- 3. Accident Costs
- 4. Accident Causation Theories
- 5. Safety Principles, Climate, and Behaviour
- 6. Hazard Identification and Risk Assessment
- 7. Evaluating Risks of a Construction Activity
- 8. Policies for an Effective Safety and Health Management Programme
- 9. Safety Budget and Incentives
- 10. Measurement of Safety Performance
- 11. Safety Audit System
- 12. Accident Investigation and Analysis Methods
- 13. Accident Prevention Programmes
- 14. Safety Acts and Regulations
- 15. Responsibilities of Stakeholders
- 16. Safety in Demolition Operations and Traffic Work Zones
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ABOUT THE AUTHOR(S)

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Dilip A. Patel, Associate Professor, Department of Civil Engineering, Sardar Vallabhbhai National Institute of Technology, Surat, India

Amarjit Singh, Professor, Department of Civil and Environmental Engineering, University of Hawai'i at Manoa, USA



ISBN: 9789390168293

Principles and Practices of Commercial Construction, 10/e



Cameron K. Andres | Ronald C. Smith | W. Ronald Woods



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ABOUT THE BOOK

Principles and Practices of Commercial Construction provides a practical, well-rounded approach to modern construction principles and practices and teaches students how to apply design theory to the construction process. Its flexible organization gives instructors the option of teaching each chapter on a standalone basis in a range of construction, architecture, and engineering courses.

The 10th edition expands its discussion of practical applications in structural design projects and adds practice opportunities preparing students for licensing exams.

FEATURES

- The text contextualizes each phase of the construction process through well-organized coverage of tasks ranging from site evaluation and layout, to interior design and building finishes.
- Basic structural framing materials such as wood, steel, and concrete are discussed in detail to emphasize their requirements, strengths, and limitations.
- Illustrations have been updated throughout the text to reflect changes in construction equipment and to illuminate current construction practices.
- Hundreds of chapter ending review questions reinforce concepts and provide extensive practice.
- Several chapters now incorporate new accepted practices or building code influences, with a continued emphasis on sustainable (“green”) building.

CONTENTS

1. The Practice of Commercial Construction
2. Site Evaluation and Layout
3. Site Development and Services
4. Excavations and Excavating Equipment
5. Foundations
6. Formwork
7. Concrete Work
8. Reinforced Concrete Frame
9. Structural Timber Frame
10. Structural Steel Frame
11. Floor Systems and Industrial Flooring
12. Roof Systems and Industrial Roofing
13. Masonry Construction
14. Curtain Wall Construction
15. Building Insulation
16. Finishing

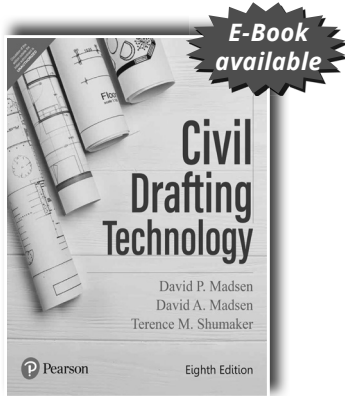
ABOUT THE AUTHOR(S)

Cameron K. Andres graduated from the University of Manitoba (1966) with a B Sc in Civil Engineering and then worked as a structural design engineer in Western Canada for nine years (1966 to 1975).

Ronald C. Smith

W. Ronald Woods, University of North Florida.

Civil Drafting Technology, 8/e



ISBN: 9789353948108



David P Madsen | Terence M Shumaker



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ABOUT THE BOOK

This text provides complete coverage of the design and drafting principles and practice used in the civil drafting field, and a working knowledge of the basic topics of mapping-in a workbook format. Created with input from civil engineering industry professionals and educators and content-tested in the classroom, *Civil Drafting Technology* is a unique, comprehensive guide to civil drafting in a clear workbook approach. Designed with the goal of providing a foundation of work done by civil engineering companies and a broad education in the civil drafting field, the book acquaints students with the civil drafting discipline, mapping, computer-aided design and drafting (CADD), surveying, locations, distances, angles, directions, contour lines, site plans, horizontal alignments, profiles, earthwork, detail drawings, and geographic information system (GIS).

FEATURES

- A unique, broad, highly useful range of content not found in other texts.
- Motivating, easy-to-read and understand, and supported with quality illustrations.
- Presents CADD content and applications throughout.
- Reinforces learning using examples and by reviewing and applying chapter content.

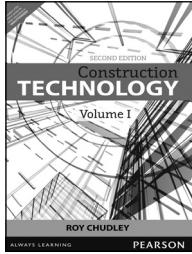
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1. Introduction to Civil Drafting Technology
2. Computer-Aided Design and Drafting (CADD)
3. Map Scales
4. Map Symbols
5. Introduction to Surveying
6. Locations and Distances
7. Angles and Directions
8. Contour Lines
9. Site Plans
10. Horizontal Alignments
11. Profiles
12. Earthwork
13. Detail Drawings
14. Introduction to Geographic Information System (GIS)

ABOUT THE AUTHOR

David P. Madsen is the president of Engineering Drafting & Design, Inc. and the vice president of Madsen Designs Inc. (www.madsendesigns.com). He provides drafting and design consultation and training for all disciplines, he has been a professional design drafter since 1996, and he has extensive experience in a variety of drafting, design, and engineering disciplines.

CONSTRUCTION TECHNOLOGY EXCLUSIVE TO MEHUL BOOK

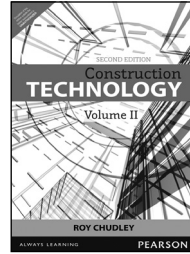


**Construction
Technology - Volume-1, 2/e**


 **Roy Chudley**

ISBN: 9789332542051

Pages: 264

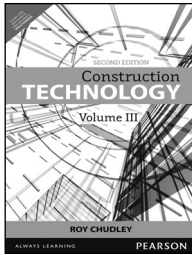


**Construction
Technology - Volume-2, 2/e**

 **Roy Chudley**

ISBN: 9789332542068

Pages: 248

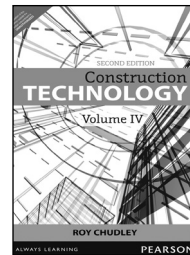


**Construction
Technology - Volume-3, 2/e**

 **Roy Chudley**

ISBN: 9789332542075

Pages: 256



**Construction
Technology - Volume-4, 2/e**

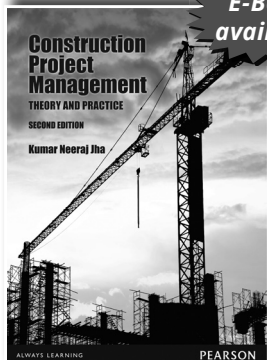
 **Roy Chudley**

ISBN: 9789332542082

Pages: 302

CONSTRUCTION PROJECT MANAGEMENT

Construction Project Management Theory and Practices, 2/e



E-Book
available

ISBN: 9789332542013

 Kumar Neeraj Jha

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ABOUT THE BOOK

The revised second edition of *Construction Project Management* discusses the various facets of construction project management with a special emphasis on the fundamental concepts. The major principles of project management are explained with the help of real-life case studies. Simple examples are used to facilitate the better understanding of basic concepts before complex problems are discussed.

FEATURES

- Computer applications (Primavera and MS Project) are used to explain planning, scheduling, resource leveling, monitoring and reporting.
- Line diagrams, cash-flow diagrams, bar diagrams and line graphs make the book interactive and easy to understand.
- Real-life examples from the construction sites of the Delhi Metro, the Delhi International Airport construction, etc.
- Case studies on the preparation of documents for ISO 9001:2000, construction disputes, accidents in the construction industry, and preparation of estimates for live projects.
- Additional solved problems in PERT and CPM (NEW).
- Introduction to earthworks and concreting equipment (NEW).
- Chapters on Linear programming and Transportation and Transshipment and Assignment problems (NEW).

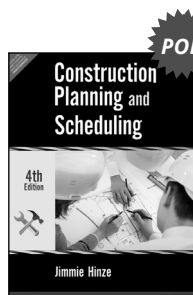
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1. Introduction
2. Project Organization
3. Construction Economics
4. Client's Estimation of Project Cost
5. Construction Contract
6. Construction Planning
7. Project Scheduling and Resource Levelling
8. Contractor's Estimation of Cost and Bidding Strategy
9. Construction Equipment Management
10. Construction Accounts Management
11. Construction Material Management
12. Project Cost and Value Management
13. Construction Quality Management
14. Risk and Insurance in Construction
15. Construction Safety Management
16. Project Monitoring and Control System
17. Construction Claims, Disputes, and Project Closure
18. Computer Applications in Scheduling, Resource Levelling, Monitoring, and Reporting
19. Factors Behind the Success of a Construction Project
20. Linear programming
21. Transportation, transshipment and assignment problems

ABOUT THE AUTHOR

Kumar Neeraj Jha, is Professor of civil engineering at Indian Institute of Technology, Delhi.

➔ ALSO AVAILABLE...



POD

Construction Planning and Scheduling, 4/e

 Jimmie Hinze

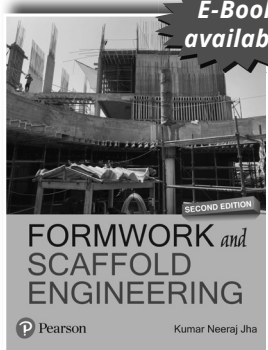
ISBN: 9789332505735

Pages: 264

Formwork and Scaffold Engineering, 2/e

 **Kumar Neeraj Jha**

 **616** | © **2023**



ISBN: 9789356066274

ABOUT THE BOOK

Formwork and Scaffold Engineering, 2e: A Comprehensive Guide across 18 chapters, starting with formwork essentials, materials, and design basics. Dives into specialized techniques for foundations, walls, columns, slabs, beams, special, structures, and bridge. Flying formwork and slipform methods are also covered in depth. Chapters 12 and 13 delve into formwork supports and scaffolds. Chapter 14 intricately examines precast concrete formwork. Uncovers formwork management intricacies of pre- and post-award with case studies in Chapters 15 and 16. Chapters 17 and 18 dissect formwork failure and multi-story construction challenges. Concluding the journey is a glossary of vital formwork terms, providing an essential resource for

navigating the intricacies of formwork.

FEATURES

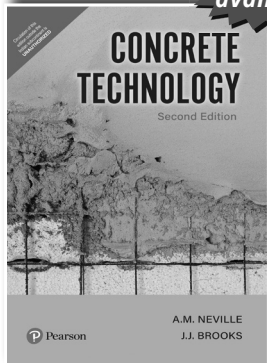
- Simplified explanation of formwork theory and practices, enriched with schematic diagrams and real-life photographs.
- Real project examples elucidated in easily understandable language.
- Adherence to SI units of measurement for clarity.
- Abundant solved examples for solidifying conceptual understanding.
- Comprehensive description of formwork products/systems by leading manufacturers.
- Inclusion of references to Indian Standards, major Standard Code of Practices, and research literature for practical use by practitioners and researchers.
- Chapter-wise review questions, both objective and subjective, for assessing comprehension of learned concepts.

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- | | |
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| 1. Introduction | 11. Slipform |
| 2. Formwork Materials | 12. Formwork Supports |
| 3. Formwork Design Concepts | 13. Scaffold |
| 4. Formwork for Foundations | 14. Formwork for Precast Concrete |
| 5. Wall Formwork | 15. Pre-Award Formwork Management Issues |
| 6. Column Formwork | 16. Post-Award Formwork Management Issues |
| 7. Slab and Beam Formwork | 17. Formwork Failure |
| 8. Formwork for Special Structures | 18. Formwork Issues in Multi-Story Building Construction |
| 9. Formwork for Bridge Structures | |
| 10. Flying Formwork | |

ABOUT THE AUTHOR

Kumar Neeraj Jha, Professor, Department of Civil Engineering, Indian Institute of Technology Delhi, New Delhi



ISBN: 9789353436551

Concrete Technology, 2/e

 **A M. Neville | J.J. Brooks**

 **466 | © 2019**

ABOUT THE BOOK

The classic textbook and reference guide to concrete is updated to include the latest standards and developments. This book gives students a thorough understanding of all aspects of concrete technology from first principles. An excellent coursebook for all students of Civil Engineering, Structural Engineering and Building at degree or diploma level, Concrete Technology will also be a valuable reference book for practising engineers in the field.

FEATURES

- New sections on: fillers in the cementitious material waterproofing and anti-bacterial admixtures recycled concrete aggregate self-consolidating concrete
- It covers concrete ingredients, properties and behaviour in the finished structure with reference to national standards and recognised testing methods.
- Examples and problems are given throughout to emphasise the important aspects of each chapter.

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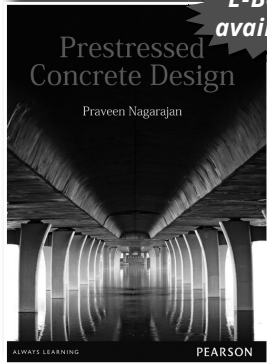
1. Concrete As A Structural Material.
2. Cement.
3. Normal Aggregate.
4. Quality Of Water.
5. Fresh Concrete.
6. Strength Of Concrete.
7. Mixing, Handling, Placing And Compacting Concrete.
8. Admixtures.
9. Temperature Problems In Concreting.
10. Development Of Strength.
11. Other Strength Properties.
12. Elasticity And Creep.
13. Deformation And Cracking Independent Of Load.
14. Permeability And Durability.
15. Resistance To Freezing And Thawing.
16. Testing.
17. Compliance With Specifications.
18. Lightweight Concrete.
19. Mix Design.
20. Special Concretes.

ABOUT THE AUTHOR(S)

A. M. Neville, Senior Lecturer in Civil Engineering Materials, University of Leeds

J.J. Brooks, Civil Engineering Consultant, Vice-President of the Royal Academy of Engineering, formerly Principal of the University of Dundee

Prestressed Concrete Design



ISBN: 9789332513754

 **Praveen Nagarajan**

 **350** | © **2013**

ABOUT THE BOOK

This book is suited for a first course in *prestressed concrete design* offered to senior undergraduate students in civil engineering and postgraduate students in structural engineering. The book focuses on the behaviour of the prestressed concrete structural elements, with emphasis on clarity and precision in its discussions. Carefully chosen worked examples are included to delineate the design aspects while pointed chapter-end questions enable effortless recapitulation of the subject. This book, while being useful to both the students and teachers, will also serve as an invaluable reference for practising engineers.

FEATURES

- The code provisions in IS: 1343 are critically analyzed and articulated.
- Design methods for torsion and the strut-and-tie method for bursting forces in anchorage zones are elucidated.
- Design of special structures such as pipes, water tanks and composite beams are unravelled.
- A step-by-step approach of problem-solving is adopted.

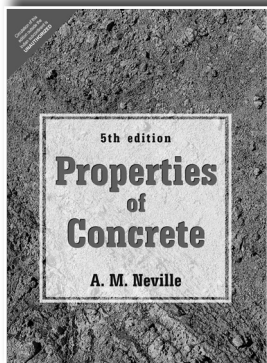
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2. Materials
3. Limit State Design
4. Losses in Prestress
5. Analysis of Sections
6. Shear and Torsion
7. Anchorage Zones
8. Deflections
9. Design of Members
10. Composite Materials
11. Intermediate Structures
12. Slabs

ABOUT THE AUTHOR

Prof Praveen Nagarajan, is Assistant Professor, Department of civil engineering at National Institute of Technology, Calicut. He has published his papers in several national and international journals. He has over 10 years of teaching experience.

Properties of Concrete, 5/e



ISBN: 9788131791073

 **A. M. Neville**

 **872** | © **2012**

ABOUT THE BOOK

Since its first publication in 1963, Properties of Concrete has been internationally acclaimed as the definitive work of reference on the subject for both the professional and the student engineer. The book has been translated into 12 languages and has sold well over half a million copies.

FEATURES

- New material includes such topics as self-compacting (self-consolidating) concrete, recycled concrete aggregate, thaumasite sulfate attack, compactability test, and delayed ettringite formation.
- Standards, both American (ASTM) and British/European updated to 2010 are used.
- Both SI and American (Imperial) units are used throughout.
- Includes 1500 full references to the world's literature on concrete and its constituents.
- An extensive subject index containing over 6000 entries provides excellent ease of reference.

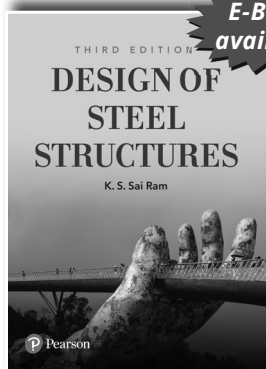
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1. Portland Cement
2. Cementitious materials of different types
3. Properties of aggregate
4. Fresh concrete
5. Admixtures
6. Strength of concrete
7. Further aspects of hardened concrete
8. Temperature effects in concrete
9. Elasticity, shrinkage, and creep
10. Durability of concrete
11. Effects of freezing and thawing and of chlorides
12. Testing of hardened concrete
13. Concretes with particular properties
14. Selection of concrete mix proportions (mix design)

ABOUT THE AUTHOR

Adam Neville is a renowned international authority on concrete and author or co-author of nine other books, the latest of which are Neville on Concrete and Concrete: Neville's Insights and Issues, as well as over 250 research and technical papers.

DESIGN OF STEEL STRUCTURES



ISBN: 9789353945213

Design of Steel Structures, 3/e

 **K. S. Sai Ram**

 **624** |  **2020**



ABOUT THE BOOK

This book on the design of steel structures uses the limit state method and follows the latest BIS code. With a perfect mix of theory and relevant applications, Design of Steel Structures discusses the most recent design methodologies in the subject, thus making it an excellent offering for students and practising engineers.

FEATURES

The text has been updated as per latest IS codes. A single chapter on connections is presented with the inclusion of End plate connection, Fin plate connection and Extended end plate connections which became popular in recent years. Inclusion of

multi-storey steel buildings with two new examples, on multi-storey steel buildings and Industrial steel building. Coverage of Truss girder bridges.

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 2. Structural Steel Fasteners
 3. Tension Members
 4. Compression Members
 5. Beams
 6. Gantry Girder
 7. Welded Plate Girder
 8. Beam-Columns
 9. Column Splices and Bases
 10. Connections

11. Light Gauge Steel Sections
12. Composite Construction
13. Steel Buildings
14. Steel Bridges

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ABOUT THE AUTHOR

Dr K. S. Sai Ram was graduated in Civil Engineering from the College of Engineering, Andhra University, Visakhapatnam, in the year 1983. After working for a few months with Unitech Consultants Pvt. Ltd., he joined IIT Bombay and obtained his M.Tech. degree in Aerospace Structures. In 1986, he joined as a lecturer in the Department of Civil Engineering, R. V. R. & J. C. College of Engineering, Guntur, where he is currently working as a Professor. He obtained his Ph.D. in the year 1992 from IIT Kharagpur in the field of Fibre Reinforced Plastic Composite Materials. Dr Sai Ram has published twenty research papers in international/national journals and presented fifteen research papers in international/national conferences. He has guided three candidates towards their Ph.D. degrees and has also supervised twenty one M.Tech. dissertations. He has been teaching the design of steel structures for the last 30 years to undergraduate and postgraduate students of Civil Engineering

ENVIRONMENTAL ENGINEERING



E-Book available

Introduction to Environmental Engineering and Science, 3/e



Gilbert M. Masters | Wendell P. Ela



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ISBN: 9789332549760

ABOUT THE BOOK

Balanced coverage of all the major categories of environmental pollution, with coverage of current topics such as climate change and ozone depletion, risk assessment, indoor air quality, source-reduction and recycling, and groundwater contamination.

FEATURES

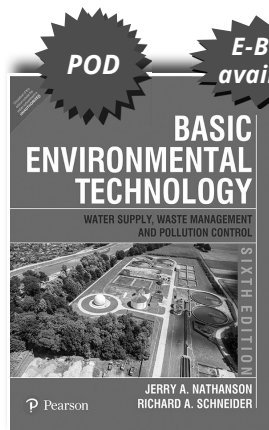
- Risk Assessment (Chapter 4) - separated from hazardous substance legislation and is complete chapter in itself.
- Explores urgent environmental issues that have become the focus of much of the environmental attention in recent years.
 - Global Climate Change
 - Risk Assessment
 - Stratospheric Ozone Depletion
 - Greenhouse effect
 - Indoor air quality
 - Groundwater contamination
 - Acid Deposition
 - Hazardous Waste
- Numerous examples of each quantitative concept - Worked examples in each quantitative section.
- Numerous problems at the end of each chapter.
- Chapter covering Solid Waste Management and Resource Recovery - This chapter focuses on pollution prevention and product stewardship.
- Expanded coverage of water resources and Groundwater remediation - including challenges posed by subsurface contamination of nonaqueous-phase liquids.
- Covers the treatment of hazardous wastes and descriptions of the key pieces of environmental legislation that regulate hazardous substances.

CONTENTS

1. Mass and Energy Transfer
2. Environmental Chemistry
3. Mathematics for Growth
4. Risk Assessment
5. Water Pollution
6. Water Quality Control
7. Air Pollution
8. Global Atmospheric Change
9. Solid Waste Management and Resource Recovery

ABOUT THE AUTHORS

Gilbert M. Masters, Stanford University
Wendell P. Ela, University of Arizona



ISBN: 9789332575134

Basic Environmental Technology, 6/e

 Jerry A Nathanson | Richard A Schneider

 456 | © 2016

ABOUT THE BOOK

For introductory civil/construction technology program courses in environmental technology, water supply and pollution control, environmental quality control, environmental and sanitary design, and water/wastewater technology.

The clear, up-to-date, practical, visual, application-focused introduction to modern environmental technology.

Now fully updated, *Basic Environmental Technology, Sixth Edition* emphasizes applications while presenting fundamental concepts in clear, simple language. It covers a broad range of environmental topics clearly and thoroughly, giving students a solid foundation for further study and workplace success. This edition adds new coverage of environmental sustainability, integrated water management, low impact development, green building design, advanced water purification, dual water systems, new pipeline materials, hydraulic fracturing, constructed wetlands, single stream municipal solid waste recycling, plasma gasification of waste, updated EPA standards, and more. Hundreds of clear diagrams and photographs illuminate key concepts; practice problems and review questions offer students ample opportunity to deepen their mastery. Math is applied at a basic level, and all computations are fully explained with example problems; both U.S. and metric units are used. Students with less academic experience will also appreciate this text's review of basic math, and its basic primers on biology, chemistry, geology, hydrology, and hydraulics.

FEATURES

- Fully addresses all facets of environmental technology related to water supply, waste management, and pollution control—preparing students to enter any organization involved with environmental technology.
- Teaches through real-world applications—linking concepts to real-world issues that will be relevant to students.
- NEW! Discusses environmental sustainability, integrated water management, low impact development, and green building design throughout the book—ensuring that students understand the field's most significant trends and opportunities.
- NEW! Covers many significant new topics and trends, including dual water systems, new pipeline materials, environmental impacts of hydraulic fracturing (fracking), constructed wetlands, single stream municipal solid waste recycling, and plasma gasification of solid and hazardous waste—preparing students to participate in cutting-edge projects for many years to come.
- NEW! Contains expanded discussions of environmental education, certification, and employment—giving students up-to-date information and guidance for finding jobs in the field.
- NEW! Introduces LEED green building project certification—showing students how to earn the green building industry's most valuable credentials.

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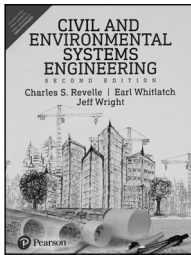
1. Basic Concepts
 2. Hydraulics
 3. Hydrology
 4. Water Quality
 5. Water Pollution
 6. Drinking Water Purification
 7. Water Distribution Systems
 8. Sanitary Sewer Systems
 9. Stormwater Management
 10. Wastewater Treatment and Disposal
 11. Municipal Solid Waste
 12. Hazardous Waste Management
 13. Air Pollution and Control
 14. Noise Pollution and Control
- Appendix A. Environmental Impact Studies and Audits
Appendix B. Education, Employment, Licensing, and Certification
Appendix C. LEED Green Building Project Certification Process
Appendix D. Review of Basic Mathematics, Units, and Unit Conversions
Appendix E. Glossary and Abbreviations
Appendix F. Answers to Practice Problems
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ABOUT THE AUTHOR(S)

Jerry A. Nathanson M.S.,P.E., Professor Emeritus, Union County College, Cranford, NJ

Richard A. Schneider M.S.,P.E., Madison Area Technical College

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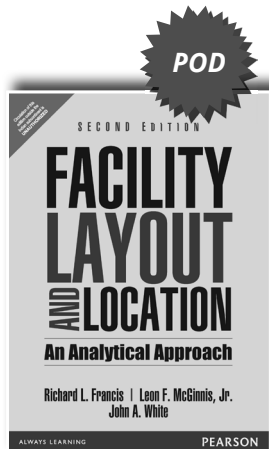
Civil and Environmental Systems Engineering, 2/e



Charles S. Revelle

ISBN: 9789332575752

Pages: 520



ISBN: 9789332551787

Facility Layout and Location: An Analytical Approach, 2/e

 **Richard L. Francis | Lenn F. McGinnis Jr. | John A. White**

 **608 | © 2015**

ABOUT THE BOOK

A comprehensive introduction to quantitative methods for facility layout and location.

FEATURES

- Treats problems of facility layout and location together and views them a “layout problem in the large.”
- Introduces the field’s issues and literature, along with basic tools and methodologies.
- Contains basic design and layout approaches and problem definitions.
- Contains extensive figures and tables, and numerical examples.

CONTENTS

1. Introduction
2. The Plant Layout Problem
3. Computerized Layout Planning
4. Planar Single Facility Location Problems
5. Storage Systems Layout
6. Planar Multifacility Location Problems
7. Network Location Problems
8. Cyclic Network Location Problems
9. Advanced Discrete Location Models

ABOUT THE AUTHOR(S)

Richard L. Francis, University of Florida

John A. White, Georgia Institute of Technology



ISBN: 9789332535008

- NEW - Revised coverage of laterally loaded deep foundations.
- NEW - Expanded discussions of dynamic methods of deep foundation analysis.
- A multidisciplinary approach—Integrates geotechnical, structural, and construction aspects of foundation engineering.
- A strong presentation of basic principles and the underlying assumptions.

NEW TO THIS EDITION

- Expanded coverage of earth retaining structures—Features separate full chapters on cantilever walls and sheet pile walls.
- A chapter on reliability-based design.
- Reorganized chapters on deep foundations.

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I. General Principles

1. Foundations in Civil Engineering
2. Performance Requirements
3. Soil Mechanics
4. Site Exploration and Characterization

II. Shallow Foundation Analysis and Design

5. Shallow Foundations
6. Shallow Foundations—Bearing Capacity
7. Shallow Foundations—Settlement
8. Spread Footings—Geotechnical Design
9. Spread Footings—Structural Design
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11. Deep Foundations
12. Deep Foundations—Structural Integrity
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Analytical Methods

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18. Foundations on Weak and Compressible Soils
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- Earth-Retaining Structures
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 23. Cantilever Retaining Walls
 24. Sheet Pile Walls
- Appendix A: Unit Conversion Factors
Appendix B: Computer Software

Foundation Design: Principles and Practices, 2/e

 Donald P. Coduto

 888 | © 2014

ABOUT THE BOOK

Covers the subject matter thoroughly and systematically, while being easy to read. Emphasizes a thorough understanding of concepts and terms before proceeding with analysis and design, and carefully integrates the principles of foundation engineering with their application to practical design problems.

FEATURES

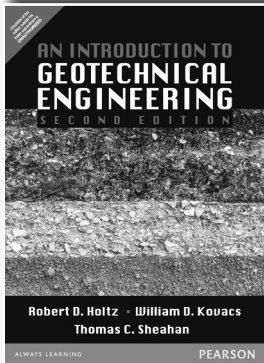
- NEW - Expanded coverage of earth retaining structures—Features separate full chapters on cantilever walls and sheet pile walls.
- New A chapter on reliability-based design, reorganized chapters on deep foundations.
- Practical solutions to real design problems.
- Frequent references to uncertainties and reliability issues.
- Coverage of both geotechnical and structural issues.
- Extensive use of example problems.
- Questions and Practice Problems—Includes numerical problem solving, definitions, and short essay questions.
- Comprehensive problems at the end of each chapter.

- Revised coverage of laterally loaded deep foundations.
- Expanded discussions of dynamic methods of deep foundation analysis.
- More emphasis on the differences between strength requirements and serviceability requirements.


ABOUT THE AUTHOR

Donald P. Coduto, Professor of Civil Engineering, California State Polytechnic University, Pomona

An Introduction to Geotechnical Engineering, 2/e



ISBN: 9789332507616

 Robert D. Holtz | William D. Kovacs | Thomas C. Sheahan

 864 | © 2013

ABOUT THE BOOK

An Introduction to Geotechnical Engineering 2/e, provides a descriptive, elementary introduction to “geotechnical engineering” with applications to civil engineering practice. It focuses on the engineering classification, behavior, and properties of soils necessary for the design and construction of foundations and earth structures. It includes chapters on Geology, Landforms, and the Origin of Geomaterials. The book has been updated to include many new useful engineering property correlations, as well as units on both SI and customary engineering. It also covers an introduction to vibratory and dynamic compaction, the method of fragments, the Schmertmann

procedure for determining field compressibility, secondary compression, liquefaction, and an extensive use of the stress path method.

FEATURES

- Focuses on the engineering classification, behavior, and properties of soils necessary for the design and construction of foundations and earth structures.
- Introduces vibratory and dynamic compaction, the method of fragments, the Schmertmann procedure for determining field compressibility, secondary compression, liquefaction, and an extensive use of the stress path method.

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1. Introduction to Geotechnical Engineering
2. Index and Classification Properties of Soils
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5. Compaction and Stabilization of Soils
6. Hydrostatic Water in Soils and Rocks
7. Fluid Flow in Soils and Rock
8. Compressibility of Soil and Rock
9. Time Rate of Consolidation
10. Stress Distribution and Settlement Analysis
11. The Mohr Circle, Failure Theories, and Strength Testing of Soil And Rocks
12. An Introduction to Shear Strength of Soils and Rock
13. Advanced Topics in Shear Strength of Soils and Rocks

ABOUT THE AUTHOR(S)

Bob Holtz, PhD, PE, D.GE, has degrees from Minnesota and Northwestern, and he attended the Special Program in Soil Mechanics at Harvard under Professor A. Casagrande. Before coming to the UW in 1988, he was on the faculty at Purdue and Cal State-Sacramento. He has worked for the California Dept. of Water Resources, Swedish Geotechnical Institute, NRC-Canada, and as a consulting engineer in Chicago, Paris, and Milano.

William D. Kovacs, F. ASCE, Professor of Civil and Environmental Engineering Professor and former Chairman of the Department of Civil and Environmental Engineering from 1984 to 1990

Thomas C. Sheahan is a Professor and the Senior Associate Dean for Academic Affairs in the Department of Civil and Environmental Engineering at Northeastern University.

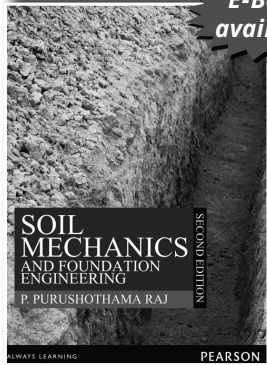
Soil Mechanics and Foundation Engineering, 2/e



P. Purushothama Raj



928 | © 2013



E-Book
available

ISBN: 9788131790816

ABOUT THE BOOK

The principles of soil mechanics and foundation engineering are dealt with in an elegant, yet simplified, manner in this text. It presents all the material required for a firm background in the subject, reinforcing theoretical aspects with sound practical applications.

The study of soil behavior is made lucid through precise treatment of the factors that influence it.

FEATURES

- The measurement of soil properties is dealt with the conventions of the Bureau of Indian Standards. This included the methods of data collection, computation and presentation of results and limitations.
- Design of shallow foundations, pile foundations, drilled piers and caissons.
- Discusses the latest techniques of ground investigation and soil improvement.

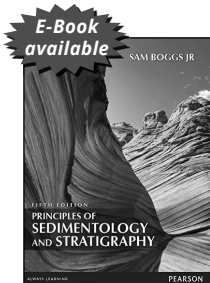
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1. Soil Formation and Composition
2. Index Properties of Soils
3. Identification and Classification of Soils
4. Compaction of Soils
5. Permeability and Capillarity
6. Seepage
7. Stress and Stress Distribution in Soil
8. Consolidation and Consolidation Settlement
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13. Stability of Slopes
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18. Ground Investigation
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20. Embankment Dams
21. Dynamic Loading of Soil
22. Environmental Geotechnology
23. Introductory Rock Mechanics
24. Pavements

ABOUT THE AUTHOR

Dr. P Purushothama Raj is Principal, Sri Aravindar Engineering College, Villupuram.

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E-Book
available

Principles of Sedimentology and Stratigraphy, 5/e

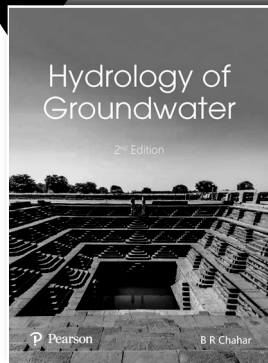


Sam Boggs Jr.

ISBN: 9789332570955

Pages: 568

NEW



ISBN: 9789357059695

Hydrology of Groundwater, 2/e

 **B R Chahar**
 **816** | © **2024**

ABOUT THE BOOK

Hydrology of Groundwater focuses on the basic principles of groundwater movement in aquifers and management of groundwater and hence enables the readers to acquire a complete understanding of the groundwater. The book includes detailed coverage on basics and theory of groundwater flow, well hydraulics, aquifer characterisation, groundwater prospecting, water wells, contamination transport, groundwater management, etc. An ideal offering for undergraduate and graduate students as well as professionals in civil engineering, hydrogeology, groundwater engineering, water resources engineering, agricultural engineering, earth sciences, water resources management, geotechnical engineering, and environmental sciences.

FEATURES

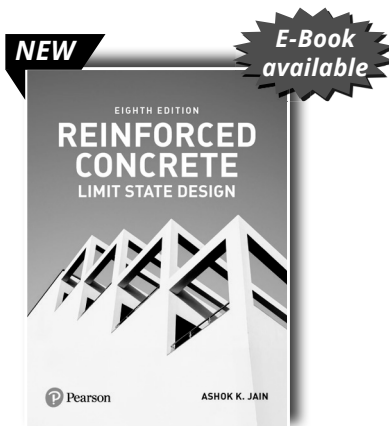
- Focused coverage on principles of groundwater flow, well hydraulics and management of groundwater
- Principles of groundwater movement in aquifers are presented through elaborate derivation of governing differential equations and their analytical solutions for simple boundary conditions
- Includes discussions on topics like groundwater flow solutions by complex analysis, stream depletion and flowing well problems and CAST that have been researched and developed by the author
- Groundwater management case studies from real scenarios are included
- Solved examples and numerical problems included are similar to end-semester examination of various Indian universities, colleges and other competitive examinations.

CONTENTS

1. Groundwater: Introduction, Occurrence and Assessment
2. Groundwater: Aquifers and Indian Scenario
3. Principles of Flow in Porous Media
4. Theory of Groundwater Flow
5. Contaminant Transport in Groundwater
6. GE in Radial Coordinates and Steady State Solutions
7. Unsteady State Solutions to Confined Aquifer Problems
8. Unsteady State Solutions to Special Cases
9. Aquifer Characterisation
10. Groundwater Prospecting
11. Water Wells – Design, Construction, Development and Maintenance
12. Managed Groundwater Recharge
13. Saline Water Intrusion in Aquifers
14. Groundwater Modelling Techniques
15. Management of Groundwater Quantity
16. Management of Groundwater Quality
17. Flow Through Unsaturated Medium
18. Groundwater Flow Solution by Complex Analysis

ABOUT THE AUTHOR

B R Chahar, Professor (HAG) of Civil Engineering Indian Institute of Technology Delhi New Delhi



ISBN: 9789361597817

Reinforced Concrete – Limit State Design, 8/e

 **Ashok K Jain**

 **1144** | © **2024**



ABOUT THE BOOK

This book, first published in 1983, has been thoroughly revised and updated to reflect the latest developments in Reinforced Concrete. There is more focus on the concepts and mechanics, learning activities through more explanations and examples, and learning assignments through more exercises. The intricacies of limit state design have been explained with the help of detailed explanations, numerous diagrams, and examples. Based on the current IS 456, IS 1343, IRC 112, IS 3370, IS 10262, IS 13920, and other relevant codes

FEATURES

- Exhaustive coverage of concepts and mechanics behind limit state design of different structural members
- New! Chapter 3 – Properties of Concrete and Steel, Chapter 4 – Buildings and Loads, Chapter 14 – Staircases and Chapter 17 – Domes
- Explanations of the design intricacies through 160 design examples from real life projects, and detailing of reinforcement in members through figures
- More than 700 review questions

CONTENTS

Part I: Plain Concrete

1. Materials for Concrete
2. Concrete Mix Design
3. Properties of Concrete and Steel

Part II: Reinforced Concrete

4. Buildings and Loads
5. Design Philosophies and Basics
6. Singly Reinforced Sections
7. Doubly Reinforced Sections
8. Flanged Sections
9. Shear and Bond
10. Serviceability Limit State
11. Detailing of Reinforcement
12. Design Examples
13. Continuous Beams and Slabs
14. Staircases
15. Torsion in Beams

16. Two-way Slabs

17. Domes
18. Columns and Walls
19. Foundations
20. Retaining Walls
21. Water Tanks

Part III: Prestressed Concrete

22. Introduction to Prestressed Concrete
23. Prestressed Concrete Beams

Part IV: Earthquake Resistant Construction

24. Detailing for Earthquake Resistant Construction
- Appendix A Useful References
Appendix B Area of Bars
Appendix C Dead and Live Loads
Appendix D Maximum Bending Moment and Shear Force

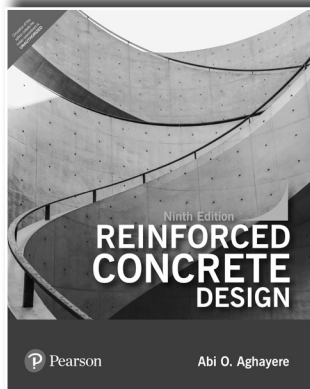
ABOUT THE AUTHOR

Dr Ashok K. Jain is a former Professor of Civil Engineering at the Indian Institute of Technology Roorkee (Formerly University of Roorkee), obtained B.E. and M.E. degrees with Honours from the University of Roorkee in 1972 and 1974, and doctorate degree from the University of Michigan, Ann Arbor in 1978. He has over 40 years of experience in exploring the behaviour of plain concrete, reinforced concrete and prestressed concrete, from lecture room to laboratory to design project to site inspections and investigations. He has designed numerous buildings, water tanks, STPs, bridges, retaining walls, and blast resistant structures. He has also investigated failure of many RC structures under normal and earthquake situations. He has conducted extensive research on non-linear analysis of buildings and bridges. A recipient of several awards, he has been a Research Fellow at the University of Michigan; a Visiting Professor at the McGill University, Montreal; Director, Malaviya National Institute of Technology, Jaipur, and Head of Civil Engineering Department, I.I.T. Roorkee. Prof. Jain embodies a unique combination of teaching, research, design consultancy, as well as a mentor and a philanthropist.

Reinforced Concrete Design, 9/e

 **Abi O Aghayere**

 **440** | © **2019**



ISBN: 9789353438739

ABOUT THE BOOK

Reinforced Concrete Design integrates current building and material codes with realistic examples to give readers a practical understanding of this field and the work of its engineers. Using a step-by-step solution format, the text takes a fundamental, active-learning approach to analyzing the design, strength, and behavior of reinforced concrete members and simple reinforced concrete structural systems. Content throughout the 9th edition conforms to the latest version of ACI-318 Code. It expands discussion of several common design elements and practice issues, and includes more end-of-chapter problems reflecting real-world design projects.

FEATURES

- Focus on the latest standards in concrete design and practice.
- Practical, real-world applications.
- Preparation for engineering work.

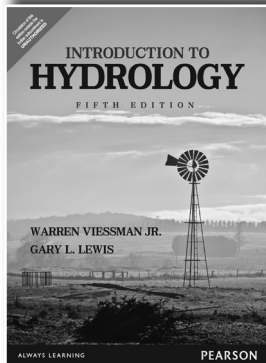
CONTENTS

1. Materials and Mechanics of Bending, Concrete Slab Systems and Gravity Load Distribution in Concrete Slab Systems
2. Rectangular Reinforced Concrete Beams and Slabs: Tension Steel Only, Slabs-on-Grade
3. Reinforced Concrete Beams: T-Beams and Doubly Reinforced Beams
4. Shear and Torsion in Beams, and Corbels and Brackets
5. Development, Splices, and Simple Bar Cut-offs, Structural Integrity Reinforcement
6. Continuous Construction Design Considerations
7. Serviceability: Deflections, Cracking, and Floor Vibrations
8. Structural Walls — Retaining Walls, Basement Walls, Bearing Walls, and Shear Walls
9. Columns: Axial Load plus Bending, Biaxial Bending, and Slender Columns
10. Foundations: Spread Footings, Strip Footings, Combined Footings, Eccentrically Loaded Footings, Strap Footings
11. Prestressed Concrete Fundamentals
12. Concrete Formwork
13. Detailing Reinforced Concrete Structures
14. Practical Considerations in the Design of Reinforced Concrete Buildings

ABOUT THE AUTHOR

Abi Aghayere is a professor of structural engineering in the Department of Civil, Architectural, and Environmental Engineering at Drexel University in Philadelphia and has more than 20 years design experience in the structural engineering consulting field.

Introduction to Hydrology, 5/e



ISBN: 9789332555297



Warren Viessman Jr. | Gary L. Lewis



624 | © 2015

ABOUT THE BOOK

For students who expect to become involved in programs that are concerned with the development, management and protection of water resources.

The Fifth Edition of *Introduction to Hydrology* has been redesigned to better acquaint future water engineers, scientists and managers with the basic elements of the hydrologic cycle. Its focus is on presenting the principles of hydrology in the context of their application to real-world problems. The book identifies data sources, introduces statistical analyses in the context of hydrologic problem-solving, covers the components of the hydrologic budget, discusses hydrograph analysis and routing,

and introduces groundwater hydrology, urban hydrology, hydrologic models and hydrologic design. Many solved examples and problems serve to amplify the concepts presented in the text. Computer applications are discussed and appropriate Web addresses are provided.

FEATURES

- NEW - Topical organization—Covers underlying principles of hydrology in chapters 1 - 10 while chapters 11 - 13 cover application of these principles to practical problems in the field.
- Provides logical course development and basis for advanced studies in hydrology.
- NEW - Comprehensive coverage.
- Covers all aspects of the hydrologic cycle, and the manner in which they may be modified to deal with floods, droughts, potable water supply and urban drainage. Chapters 1, 4-8, and 10 cover the key components of the hydrologic cycle and chapters 11 - 13 and section 10.6 cover measures that can be taken to develop and control water.
- Numerous solved examples—Using both English and metric units.
- Enhances student comprehension and aids in homework and test preparation.
- Presentation of hydrologic models and modeling.
- Provides practice-oriented experiences for students and demonstrates how the basic hydrologic processes can be incorporated into engineering designs and water resources management processes.

CONTENTS

1. Introduction
2. Hydrologic Measurements and Data Sources
3. Statistical Methods In Hydrology
4. Precipitation
5. Interception and Depression Storage
6. Evaporation and Transpiration
7. Infiltration
8. Surface Water Hydrology
9. Hydrographs
10. Groundwater Hydrology
11. Urban Hydrology
12. Hydrologic Simulation and Streamflow Synthesis
13. Hydrology in Design

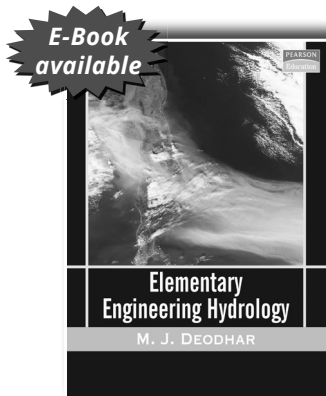
ABOUT THE AUTHOR(S)

Warren Viessman Jr., University of Florida
Gary L. Lewis, Consulting Engineer

Elementary Engineering Hydrology

 M. J. Deodhar

 408 | © 2009



ISBN: 9788131708057

ABOUT THE BOOK

Elementary Engineering Hydrology is a textbook for undergraduate and diploma students of civil engineering. It provides a comprehensive coverage of all the essential aspects of hydrology. To make it easy for students to grasp the concepts, all important topics have been divided into sub-topics, lending clarity to the subject matter. The text is interspersed with numerous figures and tables, and a wide range of solved problems to illustrate the underlying concepts and techniques effectively. Simple and comprehensible for beginners in the course, this book also contains a host of additional information, by way of appendices, including India's National Water Policy,

water resources of India and also a guide to using survey maps. These features of the book will make it an invaluable reference book for practicing engineers as well.

FEATURES

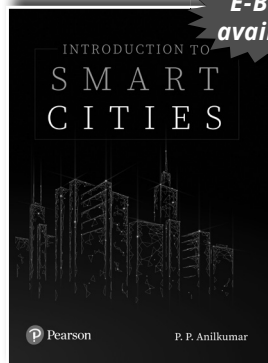
- Chapter organization based on the progression of the stages of the hydrologic cycle
- Inclusion of recent developments in the field of discharge measurement of high velocity fluids, and rainfall simulation to measure the infiltration rate
- Separate chapters devoted to evaporation and transpiration, precipitation, infiltration, discharge measurement, etc.
- An excellent selection of a wide range of solved problems, interspersed in the text as well as at the end of each chapter
- Review questions, objective-type questions and numerous practice problems to aid self-study

CONTENTS

1. Introduction
2. Hydrometeorology
3. Evaporation and Transpiration
4. Precipitation
5. Infiltration
6. Hydrograph
7. Runoff
8. Floods
9. Discharge Measurement
10. Flood Routing
11. Groundwater

ABOUT THE AUTHOR

Professor M. J. Deodhar graduated in 1957 and completed his postgraduate studies in Hydraulics and Dam Engineering in 1959 from the University of Pune. He started his career as Assistant Research Officer in Maharashtra Engineering Research Institute, Nasik, and later became Professor and Head of the Civil Engineering Department in the Government College of Engineering at Karad, Amaravati and Pune. He retired as Principal of K. K. Wagh College of Engineering, Nasik. He has been Visiting Professor and also Emeritus Fellow, AICTE, New Delhi. He has worked as technical expert for UPSC, MPSC, UP PSC and Himachal Pradesh PSC, and as Chairman, Board of Studies in Civil Engineering. He has also been a member of Faculty of Engineering and Technology and the Academic Council of universities in Maharashtra. He has published technical articles and also presented papers at the international conferences, the prominent being the International Association of Hydraulic Engineering and Research held at San Francisco and Beijing. He has also conducted and attended short-term courses on behalf of the Indian Society for Technical Education, New Delhi, and UNESCO. With over 50 years of research and teaching experience behind him, Professor Deodhar was awarded the 'best teacher' award and 'outstanding engineer' award by the Institution of Engineers, Nasik Local Centre. Presently, he is working as Technical Advisor for Coastal Power Consultants, Pune.



ISBN: 9789353439576

Introduction to Smart Cities

 **Anil Kumar**

 **400** |  **2019**

ABOUT THE BOOK

In the domain of city planning, smart cities made perceivable differences in easing city life, adding to its quality while keeping its people connected, engaged and informed. This book aims to introduce the idea of 'Smart cities' comprehensively by covering the conceptual basis and the principles in practice systematically and sector-wise. Written lucidly, covering both possible new attempts and retrofitting options in turning smart, the book is an all in one handy volume for beginners to city enthusiasts to advanced learners.

FEATURES

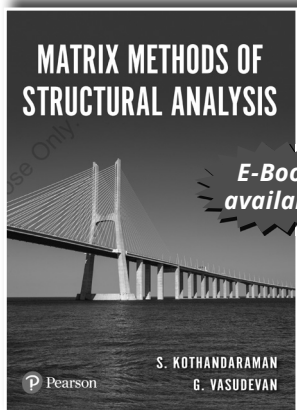
- Contains a concise story of cities and major innovations in city development.
- Chapters on Mobility, Energy, Governance, Water Supply, Waste Management, Economy, Buildings and Environment as core sectors of smart city transformation.
- Dedicated chapter on ICT.
- Chapters on International and Indian case studies cover potential interventions.
- Review Questions and Project Ideas added to test level of comprehension.

CONTENTS

1. Story of Cities
2. Urbanization and Sustainable Cities
3. Smart Cities: State of the Art
4. Smart Urban Mobility
5. Smart Energy
6. Smart Governance
7. Smart Water Management
8. Smart Waste Management
9. Smart Economy
10. Smart Buildings
11. Smart Environment
12. ICT for Smart Cities
13. Smart Cities: International Cases
14. Smart Cities: Indian Cases

ABOUT THE AUTHOR

Professor Department of Architecture and Planning National Institute of Technology Calicut.



ISBN: 9789357059190

Matrix Method of Structural Analysis

 **Kothandaraman | Vasudevan**

 **800 | © 2023**



ABOUT THE BOOK

Matrix Methods of Structural Analysis presents the fundamental aspects of matrix analysis of structures in an easy-to-understand manner. Designed as a textbook for the undergraduate students of civil engineering and postgraduate students of structural engineering, this comprehensive book has been written after teaching the subject for more than two decades and the content has been class tested thoroughly. It is believed that this book will enhance the readers' insight into the field of structural analysis.

FEATURES

- Two of the matrix approaches - flexibility matrix method by using system approach and stiffness matrix method by using system and element approaches are explained in detail
- Basic analysis methods, which form the basis for matrix methods of structural analysis such as slope-deflection method and moment distribution method are also dealt with examples
- More than 100 solved examples are provided without skipping intermediate steps to help students understand better
- More than 250 exercise problems with final answers are added to help students apply what they have learnt in theory and hone their problem-solving skills

CONTENTS

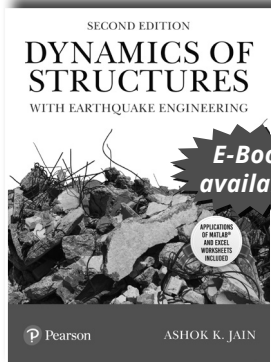
- | | |
|--|--|
| 1. Basic concepts in structural analysis | 12. Stiffness matrix method (element approach) - Plane trusses |
| 2. Matrix algebra and solution techniques | 13. Stiffness matrix method (element approach) - Space trusses |
| 3. Slope-deflection and moment distribution methods | 14. Stiffness matrix method (element approach) - Beams |
| 4. Basics of flexibility and stiffness matrix methods | 15. Stiffness matrix method (element approach) - Plane frames |
| 5. Flexibility Matrix Method - Plane Trusses | 16. Stiffness matrix method (element approach) - Grid frames |
| 6. Flexibility matrix method - Space trusses | 17. Stiffness matrix method (element approach) - Space frames |
| 7. Flexibility matrix method - Beams | |
| 8. Flexibility matrix method - Plane frames | |
| 9. Stiffness matrix method (system approach) - Plane trusses | |
| 10. Stiffness matrix method (system approach) - Beams | |
| 11. Stiffness matrix method (system approach) - Plane frames | |

ABOUT THE AUTHOR(S)

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Dr. Vasudevan. G, Assistant Professor of Civil Engineering, Perunthalaivar Kamarajar Institute of Engineering and Technology, Karaikal

Dynamics of Structures with Earthquake Engineering, 2/e



ISBN: 9789357059350

 Dr. Ashok K. Jain

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ABOUT THE BOOK

This book is an ideal offering for undergraduate and postgraduate students pursuing a first course in Earthquake Engineering, Dynamics of Structures or Structural Dynamics. The fundamentals of dynamic behaviour of structures and earthquake engineering have been vastly expanded with this edition. This book incorporates various Indian, American, and European specifications including FEMA documents.

FEATURES

- Lucid coverage of the theory of dynamic response of single- and multi-degree-of-freedom systems, elastic and inelastic response spectra, and acceleration-displacement response spectra
- Exhaustive coverage of computation of modal response, air blast loading, static and dynamic wind loads, algorithms for linear and non-linear analysis, elastic and inelastic behaviour, ductility, energy dissipating systems, and performance-based design
- NEW! Chapter 13-Analysis of Bridges for Earthquake Force and Chapter 14-Analysis of Liquid Retaining Structures for Earthquake Force
- Enhanced pedagogy including over 175 solved examples and 400 review problems along with numerous analytical problems

CONTENTS

Part 1 Single-Degree of Freedom Systems

1. Introduction to Structural Dynamics
2. Single Degree of Freedom System: Free Vibrations
3. Single Degree of Freedom System: Harmonic Loading
4. Single Degree of Freedom System: Periodic Loading
5. Single Degree of Freedom System: Impulse Loading
6. Single Degree of Freedom System: Machine Vibrations
7. Direct Integration of Equation of Motion
8. Elastic Response Spectra

Part 2 Multi-Degree of Freedom Systems

9. Two-degree of Freedom System

10. Multi-degree of Freedom Systems

11. Systems with Distributed Mass and Elasticity

Part 3 Application to Earthquake Engineering

12. Analysis of Buildings for Earthquake Force
13. Analysis of Bridges for Earthquake Force
14. Analysis of Liquid Retaining Structures for Earthquake Force

ONLINE CHAPTERS

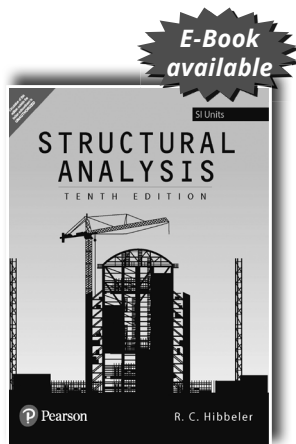
15. Nonlinear Analysis of Structures
16. Performance-Based Design of Structures

Part 4 Wind Load

17. Wind Load

ABOUT THE AUTHOR

Dr Ashok K. Jain is a former Professor of Civil Engineering at the Indian Institute of Technology Roorkee.



ISBN: 9789354497841

Structural Analysis, 10/e in SI Units

 R C Hibbeler

 744 |  2022



ABOUT THE BOOK

Structural Analysis, 10e in SI Units, presents the theory and applications of structural analysis as it applies to trusses, beams, and frames. Through its student-friendly, clear organization, the text emphasizes developing the ability to model and analyze a structure in preparation for professional practice. The text is designed to ensure students taking their first course in this subject understand some of the more important classical methods of structural analysis, in order to obtain a better understanding of how loads are transmitted through a structure, and how the structure will deform under load. The large number of problems covers realistic situations involving various levels of difficulty.

FEATURES

- The organization and approach of the text presents a structured method for introducing each new definition or concept, and makes the book a convenient resource for later reference and review.
- Procedures for Analysis is a unique feature that provides students with a logical and systematic method for applying theory and building problem-solving skills. The example problems are solved using this outlined method in order to clarify the steps needed for solution.
- NEW! Structural modeling is discussed throughout, especially as it applies to modeling a structure for a computer analysis.
- Photographs throughout the book demonstrate how principles of structural analysis apply to real-world situations and help students visualize difficult concepts.
- NEW! Preliminary problems offer simple applications of concepts and help students develop problem-solving skills before attempting to solve any of the standard problems that follow.

CONTENTS

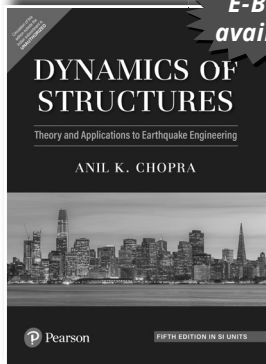
1. Types of Structures and Loads
2. Analysis of Statically Determinate Structures
3. Analysis of Statically Determinate Trusses
4. Internal Loadings Developed in Structural Members
5. Cables and Arches
6. Influence Lines for Statically Determinate Structures
7. Deflections
8. Deflections Using Energy Methods
9. Analysis of Statically Indeterminate Structures by the Force Method
10. Displacement Method of Analysis: Slope-Deflection Equations
11. Displacement Method of Analysis: Moment Distribution
12. Approximate Analysis of Statically Indeterminate Structures
13. Beams and Frames Having Nonprismatic Members
14. Truss Analysis Using the Stiffness Method
15. Beam Analysis Using the Stiffness Method
16. Plane Frame Analysis Using the Stiffness Method
17. Structural Modeling and Computer Analysis
- Appendix A. Matrix Algebra for Structural Analysis
- Preliminary Problems and Fundamental Problems
- Solutions
- Answers to Selected Problems
- Index

ABOUT THE AUTHOR

R.C. Hibbeler graduated from the University of Illinois at Urbana - Champaign with a BS in Civil Engineering (majoring in Structures) and an MS in Nuclear Engineering. He obtained his PhD in Theoretical and Applied Mechanics from Northwestern University. Professor Hibbeler's professional experience includes postdoctoral work in reactor safety and analysis at Argonne National Laboratory, and structural and stress analysis work at Chicago Bridge and Iron along with Sargent and Lundy in Chicago. He has practiced engineering in Ohio, New York and Louisiana.

Professor Hibbeler currently teaches both civil and mechanical engineering courses at the University of Louisiana - Lafayette. In the past, he has taught at the University of Illinois at Urbana - Champaign, Youngstown State University, Illinois Institute of Technology, and Union College.

Dynamics of Structures, 5/e



ISBN: 9789353945251



Anil K. Chopra



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ABOUT THE BOOK

An expert on structural dynamics and earthquake engineering, Anil K. Chopra fills an important niche, explaining the material in a manner suitable for both students and professional engineers with his fifth edition, in SI units of Dynamics of Structures: Theory and Applications to Earthquake Engineering. No prior knowledge of structural dynamics is assumed, and the presentation is detailed and integrated enough to make the text suitable for self-study.

FEATURES

- A section on application of the inelastic design spectrum to structural design is included.
- Examples on dynamics of bridges and their earthquake response are included.
- The text incorporates three building codes and the Eurocode.
- The theory of dynamic response of structures is presented in a manner that emphasizes physical insight into the analytical procedures.

CONTENTS

I. Single Degree of Freedom Systems

1. Equations of Motion, Problem Statement, and Solution Methods
2. Free Vibration
3. Response to Harmonic and Periodic Excitations
4. Response to Arbitrary, Step, and Pulse Excitations
5. Numerical Evaluation of Dynamic Response
6. Earthquake Response of Linear Systems
7. Earthquake Response of Inelastic Systems
8. Generalized Single-Degree-of-Freedom Systems

II. Multi Degree of Freedom Systems

9. Equations of Motion, Problem Statement, and Solution Methods
10. Free Vibration
11. Damping in Structures
12. Dynamic Analysis and Response of Linear Systems

13. Earthquake Analysis of Linear Systems
14. Analysis of Nonclassically Damped Linear Systems
15. Reduction of Degrees of Freedom
16. Numerical Evaluation of Dynamic Response
17. Systems with Distributed Mass and Elasticity
18. Introduction to the Finite Element Method

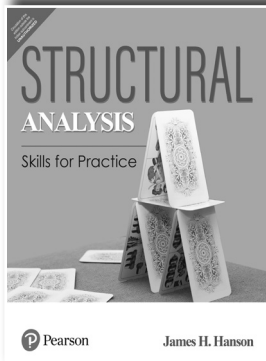
III. Earthquake Response, Design, and Evaluation of Multistory Buildings

19. Earthquake Response of Linearly Elastic Buildings
20. Earthquake Analysis and Response of Inelastic Buildings
21. Earthquake Dynamics of Base-Isolated Buildings
22. Structural Dynamics in Building Codes
23. Structural Dynamics in Building Evaluation Guidelines

ABOUT THE AUTHOR

Anil K. Chopra received his Bachelor of Science degree in Civil Engineering from Banaras Hindu University, India, in 1960, the Master of Science degree from the University of California, Berkeley, in 1963, and the Doctor of Philosophy degree, also from Berkeley, in 1966.

Structural Analysis: Skills for Practice



ISBN: 9789353947798

 **James Hanson**

 **928** | © **2020**



ABOUT THE BOOK

Structural Analysis: Skills for Practice encourages engineering students to develop their intuition and the habit of evaluating the reasonableness of structural analysis results. The author presents examples and homework problems that incorporate a consistent thought process structure-guess, calculate, and evaluate their results-helping students develop the metacognitive skill of thinking about their own thought process. Drawing upon the evaluation skills gathered from a six year project with experienced structural engineers, Hanson's *Structural Analysis* helps students learn skills to transition from novice to expert faster and become more competent in their careers.

FEATURES

- Help students develop the skills of developing their intuition and evaluating result.
- Teach engineering content students will use as practioners.
- Student-friendly, readable approach to structural analysis content

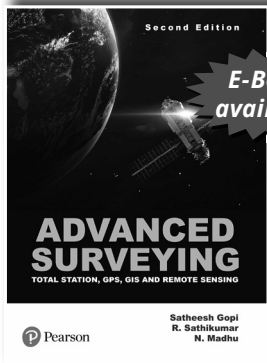
CONTENTS

1. Loads and Structure Idealization
2. Predicting Results
3. Cables and Arches
4. Internal Force Diagrams
5. Deformations
6. Influence Lines
7. Introduction to Computer Aided Analysis
8. Approximate Analysis of Indeterminate Trusses and Braced Frames
9. Approximate Analysis of Rigid Frames
10. Approximate Lateral Displacements
11. Diaphragms
12. Force Method
13. Moment Distribution Method
14. Direct Stiffness Method for Trusses
15. Direct Stiffness Method for Frames

ABOUT THE AUTHOR

For over twenty years, **Dr. James Hanson** has blended his two greatest passions: engineering and teaching. His undergraduate and graduate degrees come from Cornell University where his engineering and teaching skills started developing. He further developed those skills as a structural engineer for a large chemical company and as an engineer officer in the US Army. As a result, he is a licensed professional engineer in New York and Indiana.

Advanced Surveying: Total Station, GIS, GPS and Remote Sensing, 2/e



ISBN: 9789352860722



Sathesh Gopi | R. Sathikumar | N. Madhu



488 | © 2017

ABOUT THE BOOK

The revised edition has been enlarged and thoroughly updated to cover modern surveying. The use of electronic equipment and information technology with advanced automated systems has been emphasised on. Total Station, Global Positioning System (GPS), Remote Sensing and Geographical Information System (GIS) have all become an inextricable part of surveying excellently covered in the book.

FEATURES

- Comprehensive coverage on Total Station, GIS, GPS and Remote Sensing.
- Well drawn illustrations, black-and-white photographs and color plates that lend conceptual clarity to the subject.
- New and updated chapter on “Spatial Analysis”.
- Total Station explained with principles, data acquisition and plotting.
- Remote Sensing explained with data acquisition and interpretation.
- Covers latest Indian Remote Sensing Satellites.

CONTENTS

1. Fundamental Concepts of GIS GIS Data Models
2. Data Acquisition
3. Maps and Map Projections
4. The Coordinate System
5. Application of GIS
6. Spatial Analysis
7. Basics of Total Station
8. Electronic Distance Measurement(EDM)
9. Surveying Using Total Station
10. Data Collection Procedures
11. Automatic Level, Digital Level and Optical Theodolites
12. Aerial Surveying
13. Fundamentals of Remote Sensing
14. GPS Fundamentals
15. GPS Applications

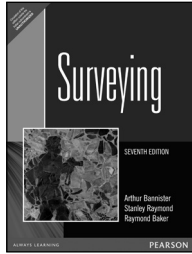
ABOUT THE AUTHOR(S)

Sathesh Gopi has over 20 years experience as a hydrographer and is currently working as Marine Surveyor in the Hydrographic Survey Wing of the Kerala Port Department. He received his degree in civil engineering from the College of Engineering, Thiruvananthapuram and also holds a masters degree in information technology. He is the author of Global Positioning System – Principles and Applications. He was commissioned to supervise surveys with commercially available Total Stations in the late eighties and with GPS receivers in the early nineties. He has worked with Total Station and GPS ever since.

R. Sathikumar was former Professor (Civil) with the College of Engineering, Thiruvananthapuram. He received his post-graduate degree, in Transportation Engineering, from IIT Kanpur in 1989 and his Ph.D from IIT Roorkee in 1996.

N. Madhu was former Assistant Professor (Civil) with the College of Engineering, Thiruvananthapuram. He obtained his M.Tech in Traffic and Transportation Engineering from IIT Madras in 1991.

➔ ALSO AVAILABLE...



Surveying, 7/e

 **A. Bannister /
Stanley Raymond /
Raymond Baker**

ISBN: 9788131700662

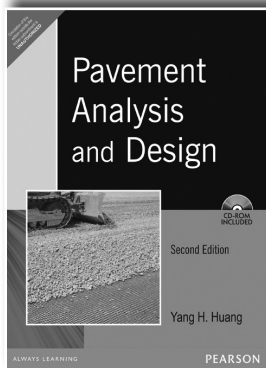
Pages: 512

PAVEMENT DESIGN

Pavement Analysis and Design, 2/e

 **Yang H. Huang**

 **792 | © 2008**



ISBN: 9788131721247

ABOUT THE BOOK

This up-to-date text covers both theoretical and practical aspects of pavement analysis and design. It includes some of the latest developments in the field, and some very useful computer softwares developed by the author with detailed instructions.

FEATURES

- **NEW - KENPAVE Windows program:** Based on the mechanistic-empirical method; written using Microsoft Visual Basic 6.0; combines the flexible and rigid pavements into a single package together with the addition of new input programs and computer graphics.
- Demonstrates to students how theory can be put into practice, and gives them a better understanding of the pavement design process.
- Serves as a useful tool for the structural design of raft foundations—an important subject in geotechnical engineering.
- **NEW - Revised material on the AASHTO overlay design method.**
 - Reflects the AASHTO design guide which was revised in 1993.
- **NEW- Added developments and information throughout, i.e.,** a new method based on the Mohr-Coulomb failure criterion; and new comparisons between KENLAYER and the latest Windows version of MICH-PAVE.
 - Keeps the book and students current, and broadens the scope of knowledge contained in both.
- **NEW - Three additional appendices: Superpave; Pavement Management System; and Preview of 2002 Design Guide.**
 - Provides students with the most current information available while new publications by the American Association of State Highway and Transportation Officials are being approved and implemented.

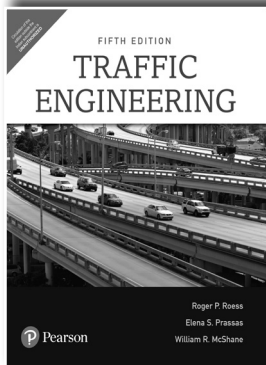
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| 2. Stresses and Strains in Flexible Pavements | 9. Pavement Performance |
| 3. KENLAYER Computer Program | 10. Reliability |
| 4. Stresses and Deflections in Rigid Pavements | 11. Flexible Pavement Design |
| 5. KENSLABS Computer Program | 12. Rigid Pavement Design |
| 6. Traffic Loading and Volume | 13. Design of Overlays |
| 7. Material Characterization | |

ABOUT THE AUTHOR

Yang H. Huang, University of Kentucky

Traffic Engineering, 5/e



ISBN: 9789353434854



Roger P Roess | Elena S Prassas | William R McShane



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ABOUT THE BOOK

Traffic Engineering, 5th Edition focuses on the key engineering skills required to practice traffic engineering. It presents both fundamental theory and a broad range of its applications to solve modern problems and gives students an understanding of and appreciation for planning, design, management, construction, operation, control, and system optimization. It also includes the latest in industry standards and criteria, new material and updates to existing material, and new homework problems.

FEATURES

- **New! Latest standards and criteria.**
- **New! Content on unsignalized intersections,** roundabouts, alternative intersections, interchanges, operation and analysis of facilities, and more.
- **Updated and extended content on signalized intersections,** signal design and timing, and signal hardware is included.
- **New! Supporting material on statistical analyses.**
- **New - More than half of the homework problems** for most chapters are new to this edition.
- **The text is organized into four major functional parts** and presented in an accessible format, giving students a clear and logical framework to learn the concepts.
- **Numerous sample problems and illustrations** demonstrate the procedures and methodologies as they are used in practice.
- **Important computer programs** demonstrate solutions throughout the text.

CONTENTS

I. Basic Concepts and Characteristics

1. Introduction
2. Transportation Modes and Characteristics
3. Road-User, Vehicle, and Roadway Characteristics
4. Communicating with Drivers: Traffic Control Devices
5. Traffic Stream Characteristics
6. The Concepts of Demand, Volume, and Capacity
7. Level of Service and the Highway Capacity Manual: History and Fundamental Concepts
8. Intelligent Transportation Systems

II. Traffic Studies and Programs

9. Traffic Data Collection and Reduction Methodologies
10. Traffic Volume Studies and Characteristics
11. Speed, Travel Time, and Delay Studies
12. Highway Traffic Safety: An Overview
13. Parking: Characteristics, Studies, Programs, and Design
14. Traffic Impact Studies and Analyses

III. Interrupted Flow Facilities: Design, Control, and Level of Service

15. The Hierarchy of Intersection Control
16. Traffic Signal Hardware
17. Fundamentals of Intersection Design and Layout
18. Principles of Intersection Signalization

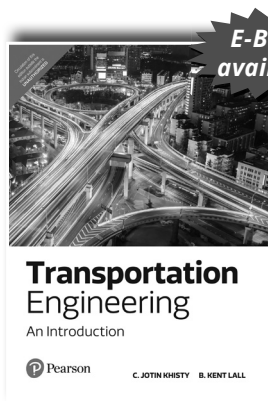
19. Fundamentals of Signal Timing and Design: Pre-timed Signals
20. Fundamentals of Signal Timing and Design: Actuated Signals
21. Signal Coordination for Arterials and Networks
22. Capacity and Level of Service Analysis: Signalized Intersections—The HCM Method
23. Planning-Level Analysis of Signalized Intersections
24. Urban Streets and Arterials: Complete Streets and Levels of Service
25. Unsignalized Intersections and Roundabouts
26. Interchanges and Alternative Intersections IV. Uninterrupted Flow Facilities: Design, Control, and Level of Service
27. An Overview of Geometric Design of Roadways
28. Capacity and Level of Service Analysis: Basic Freeway and Multilane Highway Segments
29. Capacity and Level of Service Analysis: Weaving Segments on Freeways and Multilane Highways
30. Capacity and Level of Service Analysis: Merge and Diverge Segments on Freeways and Multilane Highways
31. Operation and Analysis of Freeways and Highways

ABOUT THE AUTHOR(S)

Dr. Roger P. Roess is Department Head in the Department of Civil Engineering at Polytechnic Institute of NYU.

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William R. McShane is the Vice President of Operations and Dean of Engineering at Polytechnic University. He earned his B.S.E.E from Manhattan College and his M.S. and Ph.D. in Systems Engineering from Polytechnic University. His areas of interest include quality control, controls and simulation, and engineering economics.



ISBN: 9789332569706

Transportation Engineering: An Introduction, 3/e

 **C. Jotin Khisty | B. Kent Lall**

 **840** | © **2017**

ABOUT THE BOOK

Pearson brings to you the third edition of *Transportation Engineering*, which offers students and practitioners a detailed, current, and interdisciplinary introduction to transportation engineering and planning. This much praised and widely recommended text has been revered for its wide spectrum coverage encompassing both traditional principles—traffic engineering, transportation planning and non-traditional considerations transportation economics, land use, energy, public transport, transportation systems management.

FEATURES

- The text is built on ideas, concepts, and observations that students are likely to be most familiar with, e.g., roads, streets, highways, buses, bicyclists, pedestrians and so on.
- Organization of the book and individual chapters has been carefully planned for easy transition from one to another.
- Quantitative and policy-oriented topics are incorporated, each supported by numerous worked examples and problems of varying complexity.
- Appendix on Statistics for Transportation Engineers provided for easy reference.
- Examples and exercises that illustrate real-world problems and require creativity and critical thinking.”

CONTENTS

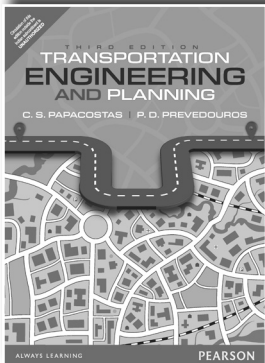
1. Transportation as a System
2. Transportation Economics
3. The Land-Use/Transportation System
4. Vehicle and Human Characteristics
5. Traffic Flow Characteristics
6. Geometric Design of Highways
7. Highway Capacity
8. Intersection Control and Design
9. At-Grade Intersection Capacity and Level of Service
10. Public Passenger Transportation
11. Urban Transportation Planning
12. Local Area Traffic Management
13. Energy Issues Connected with Transportation
14. TSM Planning: Framework
15. Evaluation of Transportation Improvement
16. Transportation Safety

ABOUT THE AUTHOR(S)

C. Jotin Khisty has been a Professor of civil engineering and the Director of the Transportation and Infrastructure program at the Illinois Institute of Technology, Chicago.

B. Kent Lall has been a Professor of civil engineering at Portland State University, Portland.

Transportation Engineering and Planning, 3/e



ISBN: 9789332555150



C. S. Papacostas | P. D. Prevedouros



704 | © 2015

ABOUT THE BOOK

For a course in transportation engineering in the Civil Engineering Department. This detailed, interdisciplinary introduction to transportation engineering serves as a comprehensive text as well as a frequently cited reference. It begins with the basic sciences, mathematics, and engineering mechanics, and gradually introduces new concepts concerning societal context, geometric design, human factors, traffic engineering, and simulation, transportation planning, evaluation.

FEATURES

- NEW - Restructured--Organized in four main sections: DESIGN AND OPERATION (includes basic engineering principles, geometric design, human factors and traffic engineering); SYSTEMS (includes transportation modes, urban transportation, intelligent transportation systems [ITS], transportation planning and forecasting); IMPACTS (includes traffic impact studies, noise and pollution, and evaluation of transportation alternatives); and SUPPORTING ELEMENTS (such as economics, statistics, probability, queuing and software for traffic simulation and transportation analysis).
- NEW - Updated coverage on Transportation Modes.
- NEW - Updated coverage on Urban Systems--With extensive coverage of Intelligent Transportation Systems and the Quantification of Congestion.
- NEW - Expanded Capacity Analyses--Of bikeway, freeway, intersection, pedestrian and transit facilities based on HCM 2000.
- Coverage of Traffic Calming and basic Roundabouts.
- Extensive coverage of transportation software-(Ch. 15).
- NEW - Expanded coverage of Actuated Controllers--With numerous realistic case studies for Signal Design and Capacity Analysis.
- NEW - Updated Demand Modeling and Forecasting.
- NEW - Updated Traffic Impact Studies.
- Carefully chosen examples--Most accompanied by discussion and interpretations of results.
- Develops and illustrates concepts.
- Exercises--Cover a full range of difficulty.
- Gives students hands-on practice in applying concepts.

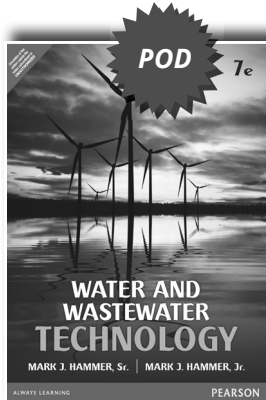
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1. Introduction and Background
2. Roadway Design
3. Traffic Stream Flow Models.
4. Capacity and Level of Service Analysis
5. Transportation Modes
6. Urban and Intelligent Transportation Systems
7. Transportation Planning
8. Travel-Demand Forecasting
9. Traffic Impact and Parking Studies
10. Air Quality, Noise, and Energy Impacts
11. Evaluation and Choice
12. Elements of Engineering Economy
13. Probability and Statistics
14. Queuing and Simulation
15. Transportation Software

ABOUT THE AUTHOR(S)


C.S. Papacostas, both of University of Hawaii, Manoa

P.D. Prevedouros, both of University of Hawaii, Manoa



ISBN: 9789332550056

Water and Wastewater Technology, 7/e

 **Mark J. Hammer, Sr. | Mark J. Hammer, Jr.**

 **472 | © 2015**

ABOUT THE BOOK

The new seventh edition of *Water and Wastewater Technology* continues its tradition of coverage water processing principles and modern management practices, but now integrates a new emphasis on sustainability throughout.

Comprehensive coverage of topics such as:

- Water processing
- Water distribution
- Wastewater collection
- Conventional and advanced wastewater treatment
- Sludge processing

FEATURES

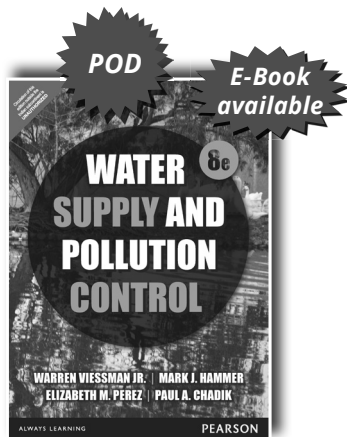
- Coverage of new technologies.
- Water supply and water sustainability woven throughout.
- Coverage of energy reduction opportunities, and other processes important to water sustainability.
- Extensive use of illustrations to explain concepts and demonstrate modern equipment and facilities.
- Extensive use of charts, diagrams, and tables to make the mathematics more accessible.

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- | | |
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| 1. Introduction | 9. Wastewater Flows and Characteristics |
| 2. Chemistry | 10. Wastewater Collection Systems |
| 3. Biology | 11. Wastewater Processing |
| 4. Hydraulics and Hydrology | 12. Wastewater Systems Capacity, Management, Operation, and Maintenance |
| 5. Water Quality | 13. Advanced Wastewater Treatment |
| 6. Water Distribution Systems | 14. Water Reuse |
| 7. Water Processing | |
| 8. Operation of Waterworks | |

ABOUT THE AUTHOR(S)

Mark Hammer Sr., Emeritus Professor of Civil Engineering, is a writer of Environmental Engineering publications in the United States and Saudi Arabia. During his long tenure as a professor at the University of Nebraska-Lincoln, Dr. Hammer also served as the Director of the Environmental Protection Agency Grant in Water Quality Control. Professor Hammer has taught at the King Fahd and King Abdulaziz Universities in Saudi Arabia where he conducted environmental engineering research in addition to his teaching responsibilities. Mark J. Hammer Sr. is an independent consultant in Lincoln, Nebraska, **Mark J. Hammer Jr.**, is with HDR Engineering, Inc.



ISBN: 9789332549616

Water Supply and Pollution Control, 8/e



Warren Viessman Jr. | Mark J. Hammer | Elizabeth M. Perez | Paul A. Chadik



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ABOUT THE BOOK

The Eighth Edition of this bestselling text has been revised and modernized to meet the needs of today's environmental engineering students who will be engaged in the design and management of water and wastewater systems. It emphasizes the application of the scientific method to problems associated with the development, movement, and treatment of water and wastewater. Recognizing that all waters are potential sources of supply, the authors present treatment processes in the context of what they can do, rather than dividing them along clean water or waste water lines. An abundance of examples and homework problems amplify the concepts presented.

FEATURES

- The interconnectedness of all potential water sources is illustrated by the text's wide breadth of coverage – Water development, distribution, and use as well as water and wastewater development are all explored.
- Prominent coverage of monitoring drinking water for pathogens highlights this topic – an increasing concern as the security of drinking water becomes more critical.
- Expanded and updated material on indirect reuse of water for augmenting drinking water supplies gives prominence to this increasingly important component of water resources development.

CONTENTS

1. Introduction
2. Water Resources Planning and Management
3. The Hydrologic Cycle and Natural Water Sources
4. Alternative Sources of Water Supply
5. Water Use Trends and Forecasting
6. Conveying and Distributing Water
7. Wastewater Collection and Stormwater Engineering
8. Water Quality
9. Systems for Treating Wastewater and Water
10. Physical Treatment Processes
11. Chemical Treatment Processes
12. Biological Treatment Processes
13. Processing of Sludges

ABOUT THE AUTHOR(S)

Warren Viessman, Jr. is Professor Emeritus with the Department of Environmental Engineering Sciences, College of Engineering University of Florida. He served as Associate Dean for Academic Programs from 1990 to 2003, and prior to that was Chairman of the Department of Environmental Engineering Sciences.

Mark L. Hammer is Professor Emeritus of civil engineering and is an author of environmental engineering publications in the United States and Saudi Arabia. During his long tenure as a professor at the University of Nebraska-Lincoln, Dr. Hammer also served as the Director of the Environmental Protection Agency Grant in Water Quality Control.

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Paul A. Chadik brings background of degrees in Chemical and Environmental Engineering and 23 years of teaching and research in water and wastewater treatment. He is a member of the faculty of the Department of Environmental Engineering Sciences at the University of Florida.

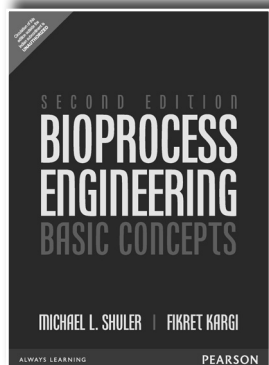


Chemical Engineering

Bioprocess Engineering: Basic Concepts, 2/e

 Michael L. Shuler | Fikret Kargi

 576 | © 2015



ISBN: 9789332549371

ABOUT THE BOOK

This is the definitive, up-to-the-minute guide to systems management for every IT professional responsible for maintaining stable, responsive IT production environments. Top IT system management expert Rich Schiesser illuminates both the theoretical and practical aspects of systems management, using methods and examples drawn from decades of professional experience in roles ranging from data center leadership to infrastructure design. Schiesser covers every systems management discipline, every type of IT environment, and all elements of success: technology, processes, and people. This edition adds detailed new coverage of the popular

IT Infrastructure Library, showing how ITIL's 10 processes align with the 12 processes Schiesser presents. Another new chapter addresses key issues related to ethics, legislation, and outsourcing. Additional new coverage ranges from managing wireless networks, VoIP, and "ultra-speed" Internet to strategic security and new approaches to facilities management

CONTENTS

Part: I. Introduction

1. What is a Bioprocess Engineer?

Part: II. The Basics Of Biology: An Engineer's Perspective

2. An Overview of Biological Basics
3. Enzymes
4. How Cells Work
5. Major Metabolic Pathways
6. How Cells Grow
7. Stoichiometry of Microbial Growth and Product Formation
8. How Cellular Information is Altered

Part: III. Engineering Principles For Bioprocesses

9. Operating Considerations for Bioreactors for Suspension and Immobilized Cultures
10. Selection, Scale-Up, Operation, and Control of Bioreactors
11. Recovery and Purification of Products

Part: IV. Applications To Nonconventional Biological Systems

12. Bioprocess Considerations in Using Animal Cell Cultures
13. Bioprocess Considerations in Using Plant Cell Cultures
14. Utilizing Genetically Engineered Organisms
15. Medical Applications of Bioprocess Engineering
16. Mixed Cultures
17. Epilogue

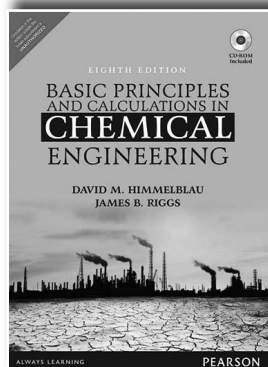
ABOUT THE AUTHOR(S)

Dr. Michael L. Shuler is Professor in the School of Chemical Engineering, Cornell University. His areas of research include structured models, heterologous protein expression systems, cell culture analogs for pharmacokinetic models, in-vitro toxicology, plant-cell tissue culture, microbial functional genomics, and bioremediation.

Dr. Fikret Kargi is Professor of Environmental Engineering at Dokuz Eylul University in Ismir, Turkey. His current research includes bioprocessing of wastes for production of commercial products, development of novel technologies for biological treatment of problematic wastewaters, nutrient removal, and novel biofilm reactor development.

INTRODUCTION TO CHEMICAL ENGINEERING

Basic Principles and Calculations in Chemical Engineering, 8/e



ISBN: 9789332549623

 David M. Himmelblau | James B. Riggs

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ABOUT THE BOOK

Basic Principles and Calculations in Chemical Engineering, Eighth Edition goes far beyond traditional introductory chemical engineering topics, presenting applications that reflect the full scope of contemporary chemical, petroleum, and environmental engineering. Celebrating its fiftieth Anniversary as the field's leading practical introduction, it has been extensively updated and reorganized to cover today's principles and calculations more efficiently, and to present far more coverage of bioengineering, nanoengineering, and green engineering.

Offering a strong foundation of skills and knowledge for successful study and practice, it guides students through formulating and solving material and energy balance problems, as well as describing gases, liquids, and vapors. Throughout, the authors introduce efficient, consistent, student-friendly methods for solving problems, analyzing data, and gaining a conceptual, application-based understanding of modern chemical engineering processes. This edition's improvements include many new problems, examples, and homework assignments.

FEATURES

- Thoroughly covers material balances, gases, liquids, and energy balances.
- Contains new biotech and bioengineering problems throughout.
- Adds new examples and homework on nanotechnology, environmental engineering, and green engineering.
- All-new student projects chapter.
- Self-assessment tests, discussion problems, homework, and glossaries in each chapter.
- Power Points and instructor's solutions manual available for course use.

CONTENTS

Part I: Introduction

1. What are Chemical Engineering and Bioengineering?
2. Introductory Concepts

Part II: Material Balances

3. Material Balances
4. Material Balances without Reaction
5. Material Balances Involving Reactions
6. Material Balances for Multi-Unit Systems

Part III: Gases, Vapors, and Liquids

7. Ideal and Real Gases
8. Multiphase Equilibrium

Part IV: Energy

9. Energy Balances
10. Energy Balances: How to Account for Chemical Reaction
11. Humidity (Psychrometric) Charts and Their Use

Part V: Supplementary Material

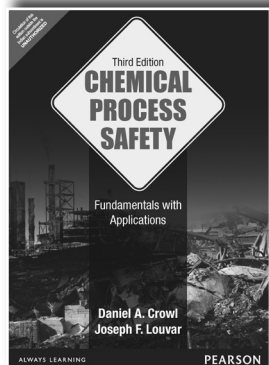
12. Analysis Of The Degrees Of Freedom in a Steady-State Process
13. Heats of Solution and Mixing
14. The Mechanical Energy Balance
15. Liquids and Gases in Equilibrium with Solids
16. Solving Material and Energy Balances Using Process Simulators (Flowsheeting Codes)
17. Unsteady-State Material And Energy Balances

ABOUT THE AUTHOR(S)

David M. Himmelblau was (until his death in April) the American Petrofina Foundation Centennial Professor in Chemical Engineering at the University of Texas, Austin. The author of sixteen books, his areas of research included the use of artificial neural networks for fault diagnosis and data rectification.

James B. Riggs is Professor in the Chemical Engineering Department at Texas Tech University, where he directs the Texas Tech Process Control and Optimization Consortium. His books include Chemical Process Control, Second Edition and An Introduction to Numerical Methods for Chemical Engineers, Second Edition.

Chemical Process Safety: Fundamentals with Applications, 3/e



ISBN: 9789332524057



Daniel A. Crowl | Joseph F. Louvar



736 | © 2013

ABOUT THE BOOK

As chemical processes have grown more complex, so have the safety systems required to prevent accidents. *Chemical Process Safety, Third Edition*, offers students a more fundamental understanding of safety and the application required to safely design and manage today's sophisticated processes.

The third edition continues the definitive standard of the previous editions. The content has been extensively updated to today's techniques and procedures, and two new chapters have been added. A new chapter on chemical reactivity provides the information necessary to identify, characterize, control, and manage reactive chemical hazards. A new chapter on safety procedures and designs includes new content on safely management, and specific procedures including hot work permits, lock-tag-try, and vessel entry.

FEATURES

- New chapter on Chemical Reactivity.
- New chapter on Safe Design Features and Procedures.
- Extensively updated content.
- Additional homework problems.
- Power Point Slides and an instructor's solutions manual available for course use.

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1. Introduction
 2. Toxicology
 3. Industrial Hygiene
 4. Source Models
 5. Toxic Release and Dispersion Models
 6. Fires and Explosions
 7. Concepts to Prevent Fires and Explosions
 8. Chemical Reactivity
 9. Introduction to Reliefs
 10. Relief Sizing
 11. Hazards Identification
 12. Risk Assessment
 13. Safety Procedures and Designs
 14. Case Histories
- Appendix A: Unit Conversion Constants
- Appendix B: Flammability Data for Selected Hydrocarbons
- Appendix C: Detailed Equations for Flammability Diagrams
Equations Useful for Gas Mixtures
Equations Useful for Placing Vessels into and out of Service
- Appendix D: Formal Safety Review Report for Example 10-4
- Appendix E: Saturation Vapor Pressure Data
- Appendix F: Special Types of Reactive Chemicals
- Appendix G: Hazardous Chemicals Data for a Variety of Chemical Substances

ABOUT THE AUTHOR(S)

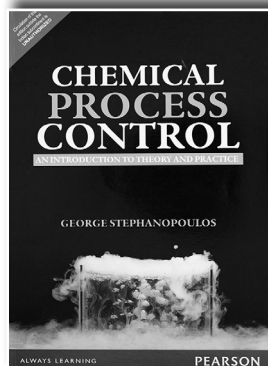
Daniel A. Crowl is Herbert H. Dow Professor for Chemical Process Safety at Michigan Tech. He serves on the AIChE Center for Chemical Process Safety (CCPS) Safety and Chemical Engineering Education (SACHE) Committee, and is author/editor of several AIChE books on process safety.

Joseph F. Louvar is Research Professor at Wayne State University's College of Engineering, where he teaches chemical process safety, risk assessment, and process design.

Chemical Process Control: An Introduction to Theory and Practice

 **George Stephanopoulos**

 **720** | © **2015**



ISBN: 9789332549463

ABOUT THE BOOK

A thorough overview of all aspects of chemical process control — process modeling, dynamic analyses of processing systems, a large variety of control schemes, synthesis of multivariable control configurations for single units and complete chemical plants, analysis and design of digital computer control systems.

FEATURES

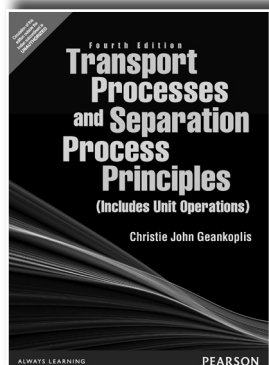
- Emphasizes problem formulation, analysis of posed control problems, and the synthesis and evaluation of alternative control systems.
- Provides a complete understanding of control design and implementation rather than a mere list of mechanistic tools.
- Discusses both controller design concepts and hardware elements needed for practical implementation of various control schemes.
- Emphasizes controllers' actions and their relative advantages and drawbacks.

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1. The Control of a Chemical Process: Its Characteristics and Associated Problems
2. Modeling the Dynamic and Static Behavior of Chemical Processes
3. Analysis of the Dynamic Behavior of Chemical Processes
4. Analysis and Design of Feedback Control Systems
5. Analysis and Design of Advanced Control Systems
6. Design of Control Systems for Multivariable Processes
7. Process Control Using Digital Computers

ABOUT THE AUTHOR

George Stephanopoulos, MIT



ISBN: 9789332549432

Transport Processes and Separation Process Principles (Includes Unit Operations), 4/e

 Christie John Geankoplis

 1040 | © 2015

ABOUT THE BOOK

Appropriate for one-year transport phenomena (also called transport processes) and separation processes course. First semester covers fluid mechanics, heat and mass transfer; second semester covers separation process principles (includes unit operations).

The title of this Fourth Edition has been changed from Transport Processes and Unit Operations to Transport Processes and Separation Process Principles (Includes Unit Operations). This was done because the term Unit Operations has been largely superseded by the term Separation Processes which better reflects the present

modern nomenclature being used. The main objectives and the format of the Fourth Edition remain the same. The sections on momentum transfer have been greatly expanded, especially in the sections on fluidized beds, flow meters, mixing, and non-Newtonian fluids. Material has been added to the chapter on mass transfer. The chapters on absorption, distillation, and liquid-liquid extraction have also been enlarged. More new material has been added to the sections on ion exchange and crystallization. The chapter on membrane separation processes has been greatly expanded especially for gas-membrane theory.

FEATURES

- The comprehensive, unified, up-to-date guide to transport and separation processes.
- A more thorough coverage of momentum, heat, and mass transport processes and new coverage of separation process applications.
- Greatly expanded coverage of momentum transfer, including fluidized beds and non-Newtonian fluids.
- More detailed discussions of mass transfer, absorption, distillation, liquid-liquid extraction, and crystallization.

CONTENTS

I. Transport Processes: Momentum, Heat, And Mass

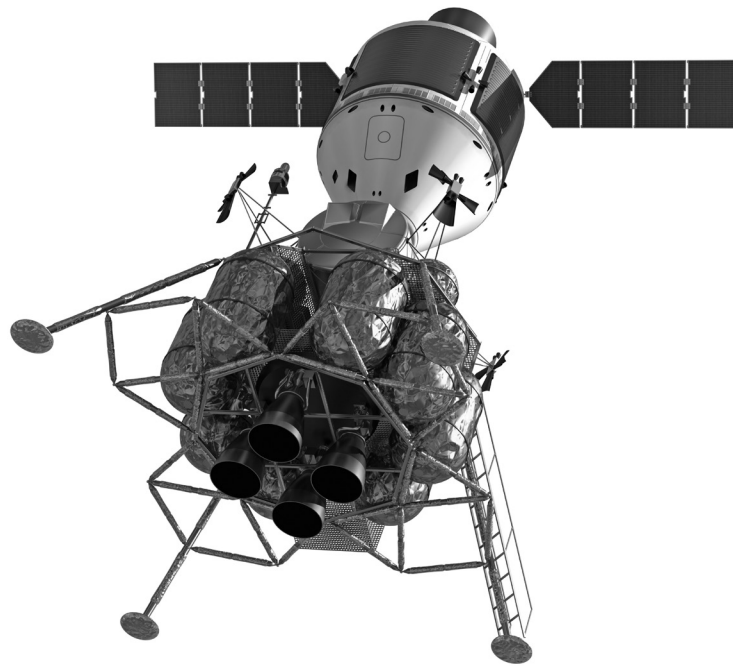
1. Introduction to Engineering Principles and Units
2. Principles of Momentum Transfer and Overall Balances
3. Principles of Momentum Transfer and Applications
4. Principles of Steady-State Heat Transfer
5. Principles of Unsteady-State Heat Transfer
6. Principles of Mass Transfer
7. Principles of Unsteady-State and Convective Mass Transfer

II. Separation Process Principles (Includes Unit Operations)

8. Evaporation
9. Drying of Process Materials
10. Stage and Continuous Gas-Liquid Separation Processes
11. Vapor-Liquid Separation Processes
12. Liquid-Liquid and Fluid-Solid Separation Processes
13. Membrane Separation Processes
14. Mechanical-Physical Separation Processes

ABOUT THE AUTHOR

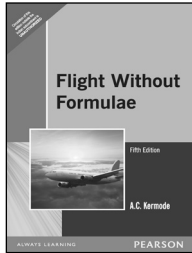
Christie John Geankoplis is a Professor of Chemical Engineering and Materials Science at the University of Minnesota. His current research interests involve transport processes, biochemical reactor engineering, mass transfer in liquid solutions, and diffusion and/or reaction in porous solids. He holds a Ph.D. in Chemical Engineering from the University of Pennsylvania.



Aeronautical Engineering

AERONAUTICAL ENGINEERING

AVAILABLE TITLES

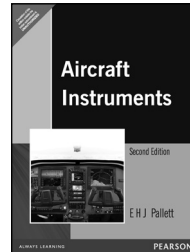


Flight Without Formulae, 5/e


 A.C. Kermode

ISBN: 9788131713891

Pages: 314



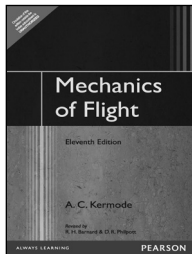
Aircraft Instruments, 2/e

 E.H.J. Pallett


ISBN: 9788131728130

Pages: 432

EXCLUSIVE TO STERLING BOOK



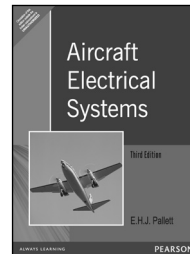
Mechanics of Flight, 11/e

 R. H. Barnard / D. R. Philpott /
A.C. Kermode


ISBN: 9788131716571

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EXCLUSIVE TO STERLING BOOK

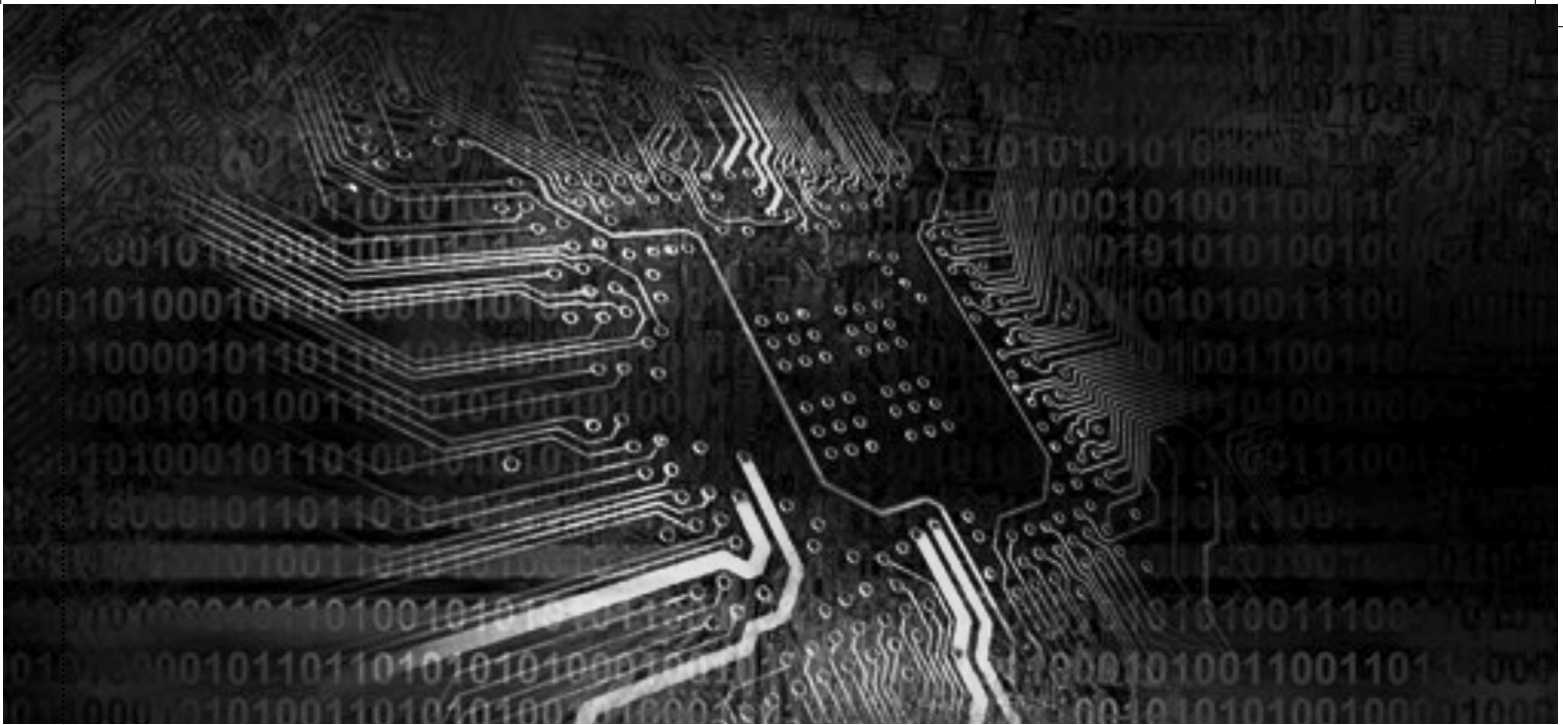


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