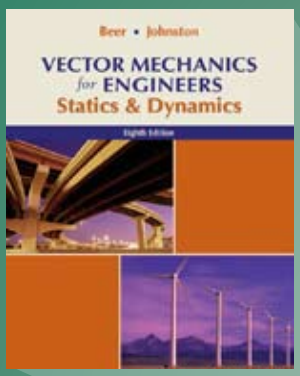
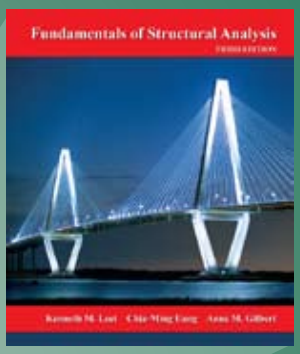
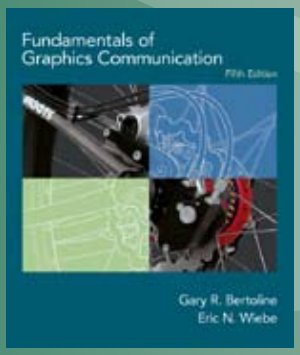
McGraw Hill Higher Education







Engineering

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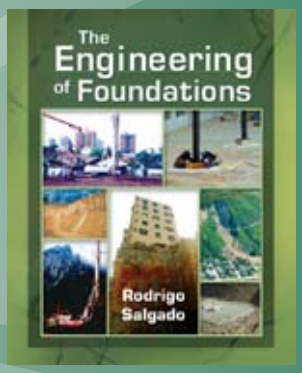
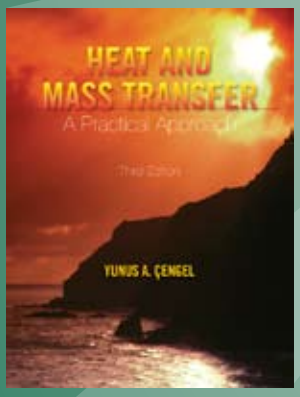
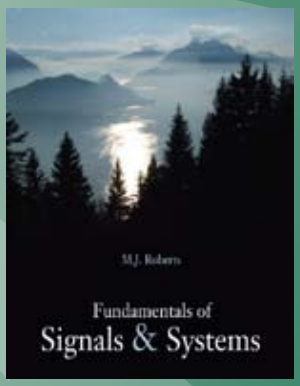
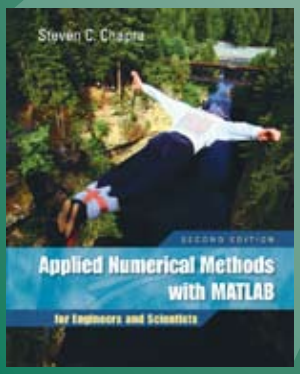
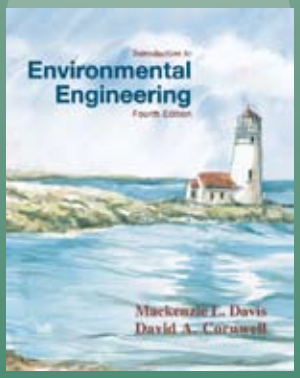










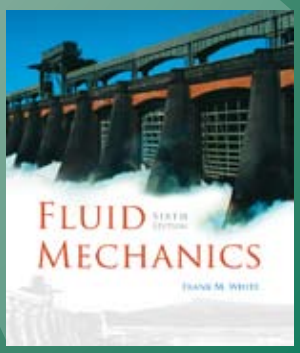
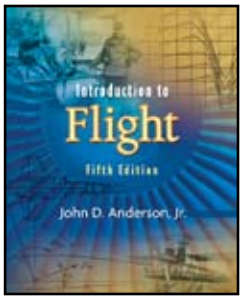


Table of Contents

GENERAL INTRODUCTION: AERONAUTICAL & AEROSPACE SCIENCE

Introduction to Flight, 5E



John D. Anderson,
University of Maryland–College Park

2005 / Hardcover / 800 pgs / ISBN 0-07-299071-6

Book site features table of contents, password-protected instructor solutions manual and image files. (Browse http://highered.mcgraw-hill.com/sites/0072825693)

Noted for its highly readable style, the new edition of this bestseller provides an updated overview of aeronautical and aerospace engineering. *Introduction to Flight* blends history and biography with discussion of engineering concepts, and shows the development of flight through this perspective.

New content includes coverage of: the last days of the Concorde and the centennial of the Wright Brothers' flight; the Mariner and Voyager 2 missions; geometric and geopotential altitudes; and uninhabited aerial vehicles [UAVs]. Preview Boxes, new to this edition, provide students with a snapshot of what they are to learn in each chapter.

NEW TO THIS EDITION

- Coverage of new developments in aero, including: UAVs (unmanned aerial vehicles) and UCAVs (uninhabited combat aerial vehicles) in Chapter 6; the Mariner and Voyager 2 missions; and the newest spaceflight technologies.
- Each chapter features a "Preview Box" that provides readers with a motivating rationale for learning the given chapter's material.
- Plentiful new and/or revised problems.
- Additional coverage of space flight vehicles, supersonic airplanes, trajectories, unmanned aircraft, and rocket staging.

FEATURES

- Strong integration of historical and biographical information.
- Search for this book on EngineeringCS.com to find password-protected problem solutions for instructors and image files of selected illustrations for class presentation.

CONTENTS

1 The First Aeronautical Engineers / 2 Fundamental Thoughts / 3 The Standard Atmosphere / 4 Basic Aerodynamics / 5 Airfoils, Wings, and Other Aerodynamics Shapes / 6 Elements of Airplane Performance / 7 Principles of Stability and Control / 8 Space Flight (Astronautics) / 9 Propulsion / 10 Flight Vehicle Structures and Materials / 11 Hypersonic Vehicles / Appendices / A Standard Atmosphere, SI Units / B Standard Atmosphere, English Engineering Units / C Symbols and Conversion Factors / D Airfoil Data

SUPPLEMENT

Instructor Password Protected Resource Website t/a Introduction to Flight

Spacepower for a New Millennium

Peter L. Hays, of U S Air Force Academy
James M. Smith, of U S Air Force Academy
Alan R. Van Tassel, of U S Air Force Academy
Guy M. Walsh, of U S Air Force Academy

2000 / Softcover / 322 pgs / ISBN 0-07-240170-2

McGraw-Hill Primis Custom Publishing

This book examines how military space activities might best contribute to US national security in the new millennium by analyzing key current and future issues such as missile defense and how to organize for military space. It is composed of essays written by eminent participants in the realms of space, politics, academia, and national security. The book focuses on the issues raised in US Space Command's 1998 report, Long Range Plan: Implementing USSPACECOM Vision for 2020, and is divided into four parts: current military space issues, space and military defense, organizing for military space missions and future military space missions.

CONTENTS

Foreword / Spacepower for a New Millennium: Examining Current U.S. Capabilities and Policies / National Space Policy and National Defense / Acquisition of Space Power for a New Millennium / The USAF Space Warfare Center: Bringing Space to the Warfighter / Space and Ballistic Missile Defense Program / Space Defense: An Idea Whose Time Has Come? / Charting a New Course on Missile Defense / The Aerospace Force of Today and Tomorrow: Transforming the Air Force to Control the Vertical Dimension / Shaping the Battlespace: Alternative Military Space Organizations / Organizing for Space-Based Intelligence Gathering / Future Military Space Technologies / Space Control for the 21st Century: A Space "Navy" Protecting the Commercial Basis of America's Wealth / Spacepower and the Revolution in Military Affairs: A Glass Half-Full / Spacepower and America's Future / Epilogue: Spacepower for a New Millennium—Space and U.S.National Security

DYNAMICS (INTERMEDIATE)

Analytical Dynamics

Haim Baruh, Rutgers University–New Brunswick

1999 / Hardcover / 744 pgs / ISBN 0-07-365977-0

Analytical Dynamics presents a fair and balanced description of dynamics problems and formulations. From the classical methods to the newer techniques used in today's complex and multibody environments, this text shows how those approaches complement each other. The text begins by introducing the reader to the basic concepts in mechanics. These concepts are introduced at the particle mechanics level. The text then extends these concepts to systems of particles, rigid bodies (plane motion and 3D), and lightly flexible bodies. The cornerstone variational principles of mechanics are developed and they are applied to particles, rigid bodies, and deformable bodies. Through this approach, students are exposed to a natural flow of the concepts used in dynamics.

CONTENTS

1 Introduction / 2 Basic Principles / 3 Relative Motion / 4 Dynamics of a System of Particles / 5 Analytical Mechanics: Basic Concepts / 6 Analytical Mechanics: Additional Concepts / 7 Rigid-Body Geometry / 8 Rigid Body Kinematics / 9 Rigid Body Dynamics: Basic Concepts / 10 Rigid Body Dynamics: Advanced Concepts / 11 Qualitative Analysis of Rigid Body Motion / 12 Dynamics of Lightly Flexible Bodies / Appendices / A A History of Mechanics / B Concepts from the Calculus of Variations / C Common Mass Moments of Inertia

SUPPLEMENT

Instructor's Solutions Manual

STRESS ANALYSIS

Advanced Strength and Applied Stress Analysis, 2E

Richard Budynas, Rochester Institute Technology

1999 / Hardcover / 960 pgs / ISBN 0-07-008985-X

This book provides a broad and comprehensive coverage of the theoretical, experimental, and numerical techniques employed in the field of stress analysis. Designed to provide a clear transition from the topics of elementary to advanced mechanics of materials. Its broad range of coverage allows instructors to easily select many different topics for use in one or more courses. The highly readable writing style and mathematical clarity of the first edition are continued in this edition. Major revisions in this edition include: an expanded coverage of three-dimensional stress/strain transformations; additional topics from the theory of elasticity; examples and problems which test the mastery of the prerequisite elementary topics; clarified and additional topics from advanced mechanics of materials; new sections on fracture mechanics and structural stability; a completely rewritten chapter on the finite element method; a new chapter on finite element modeling techniques employed in practice when using commercial FEM software; and a significant increase in the number of end of chapter exercise problems some of which are oriented towards computer applications.

CONTENTS
1 Basic Concepts of Force, Stress, Strain, and Displacement / 2 Stress and Strain. Transformations, Equilibrium, and Compatibility / 3 Fundamental Formulations of Stress, Strain, and Deflection / 4 Concepts from the Theory of Elasticity / 5 Topics from Advanced Mechanics of Materials / 6 Energy Techniques in Stress Analysis / 7 Strength Theories and Design Methods / 8 Experimental Stress Analysis / 9 Introduction to the Finite Element Method / 10 Finite Element Modeling Techniques / Appendices / A Si and USCU Conversions / B Properties of Cross Sections / C Beams in Bending / D Singularity Functions / E Principal Second-Area Moments / F Stress Concentration Factors / G Strain Gage Rosette Equations / H Corrections for Transverse Sensitivity of Strain Gages / I Matrix Algebra and Cartesian Tensors

SUPPLEMENT
Instructor's Solutions Manual

FLIGHT STRUCTURES

Fundamentals of Aircraft Structural Analysis

Howard D. Curtis, Embry Riddle Aero University–Daytona Beach

1997 / 800 pgs / ISBN 0-256-19260-X

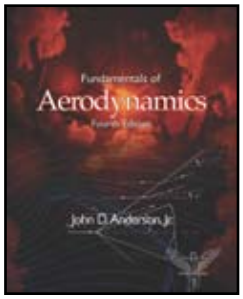
Fundamentals of Aircraft Structural Analysis focuses on the basics behind the elements of aircraft structural analysis using an applications-oriented approach. Through the use of extensive practical problems, Howard Curtis introduces your undergraduate students to the theory required for understanding linear, static structural behavior, and the classic methods of analysis. By focusing on the basics, students will comprehend each topic and be encouraged to study more advanced topics.

CONTENTS
1 Historical Perspective / 2 Statically Determinate Structures / 3 Applied Elasticity: Fundamental Concepts / 4 Box Beam Stress Analysis / 5 Load Transfer in Stiffened Panel Structures / 6 Energy Work Principles / 7 Force Method: Trusses, Beams and Frames / 8 Force Method: Idealized Thin-Walled Structures / 9 The Matrix Displacement Methods / 10 Matrix Displacement Method: Trusses, Beams and Frames / 11 Matrix Displacement Method: Thin-Walled Structures / 12 Structural Stability / Appendix / Comparative Mechanical Properties of Metal Alloys

SUPPLEMENT
Solutions Manual with Transparencies

AERODYNAMICS

Fundamentals of Aerodynamics, 4E



John D. Anderson, University of Maryland–College Park

2007 / Hardcover / 928 pgs / ISBN 0-07-295046-3

Browse the website for instructor's solutions manual and helpful weblinks. (Browse http://www.mhhe.com/anderson)

In keeping with its bestselling previous editions, *Fundamentals of Aerodynamics*, fourth edition, offers the most readable, interesting, and up-to-date overview of aerodynamics to be found in any text. The classic organization of the text has been preserved, with new standalone viscous flow sections at the end of various chapters to conceptualize the coverage of this topic in part 4, and complement discussion of fundamental principles in part 1, inviscid incompressible flow in part 2, and inviscid compressible flow in part 3.

Historical topics, carefully developed examples, numerous illustrations, and a wide selection of chapter problems are found throughout the text to motivate and challenge students of aerodynamics. This is the most reliable up-to-date- text for students and teachers of aerodynamics.

NEW TO THIS EDITION
- NEW! Self-contained viscous flow sections have been added to the end of various chapters to contextualize the topic and complement discussion of inviscid flow.
- New!! Preview boxes have been introduced at the beginning of each chapter to inform the reader in plain language what to expect from each chapter, and why the material is important and exciting.
- New worked examples and homework problems have been added to provide even more key concept practice for students.
- A completely redesigned website includes web links, animations, and additional student and instructor resources.

FEATURES
- "Design Boxes" that relate basic concepts to actual aircraft design.
- Strong descriptive coverage of CFD included, with additional CFD resources available of the book's web site.
- Excellent writing style, and integration of history and biography to show the development of aerodynamics.
- "Roadmap" feature at the beginning of every chapter provides readers with a preview of key concepts, and puts them in perspective for the student.

CONTENTS
Part 1 Fundamental Principles / 1 Aerodynamics: Some Introductory Thoughts / 2 Aerodynamics: Some Fundamental Principles and Equations / **Part 2 Inviscid, Incompressible Flow** / 3 Fundamentals of Inviscid Incompressible Flow / 4 Incompressible Flow over Airfoils / 5 Incompressible Flow over Finite Wings / 6 Three-Dimensional Incompressible Flow / **Part 3 Inviscid, Compressible Flow** / 7 Compressible Flow: Some Preliminary Aspects / 8 Normal Shock Waves and Related Topics / 9 Oblique Shock and Expansion Waves / 10 Compressible Flow through Nozzles, Diffusers, and Wind Tunnels / 11 Subsonic Compressible Flow over Airfoils: Linear Theory / 12 Linearized Supersonic Flow / 13 Introduction to Numerical Techniques for Nonlinear Supersonic Flow / 14 Elements of Hypersonic Flow / Part 4 Viscous Flow / 15 Introduction to the Fundamental Principles and Equations of Viscous Flow / 16 Some Special Cases; Couette and Poiseuille Flows / 17 Introduction to Boundary Layers / 18 Laminar Boundary Layers / 19 Turbulent Boundary Layers / 20 Navier-Stokes Solutions: Some Examples / Appendices / A Isentropic Flow Properties / B Normal Shock Properties / C Prandtl-Meyer Function and Mach Angle / Bibliography / Index

SUPPLEMENT
Solutions Manual

COMPUTATIONAL FLUID DYNAMICS

Computational Fluid Dynamics

John D. Anderson, University of Maryland–College Park, National Air & Space Museum

1995 / Hardcover / 574 pgs / ISBN 0-07-001685-2

This pioneering text provides an excellent introduction to CFD at the senior level in aerospace and mechanical engineering, and to some extent, chemical and civil engineering. It can also serve as a one-semester introductory course at the beginning graduate level, as a useful precursor to a more serious study of CFD in advanced books. It is presented in a very readable, informal, enjoyable style.

CONTENTS
I Basic Thoughts and Equations / 1 Philosophy of Computational Fluid Dynamics / 2 The Governing Equations of Fluid Dynamics: Their Derivation, A Discussion of Their Physical Meaning, and A Presentation of Forms Particularly Suitable to CFD / 3 Mathematical Behavior of Partial Differential Equations The Impact on Computational Fluid Dynamics / **II Basics of the Numerics** / 4 Basic Aspects of Discretization / 5 Grids and Meshes, With Appropriate Transformations / 6 Some Simple CFD Techniques A Beginning / **III Some Applications** / 7 Numerical Solutions of Quasi-One-Dimensional Nozzle Flows / 8 Numerical Solution of A Two-Dimensional Supersonic Flow Prandtl-Meyer Expansion Wave / 9 Incompressible Couette Flow Numerical Solution by Means of an Implicit Method and the Pressure Correction Method / 10 Incompressible, Inviscid Slow Over a Circular Cylinder Solution by the Technique Relaxation / **IV Other Topics** / 11 Some Advanced Topics in Modern CFD A Discussion / 12 The Future of Computational Fluid Dynamics / Appendices / Thomas's Algorithm for the Solution of A Tridiagonal System of Equations References

SUPPLEMENT
Solutions Manual

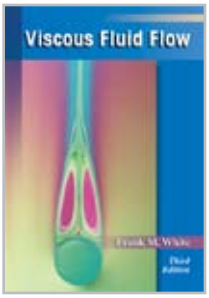
VISCOUS FLUID FLOW/BOUNDARY LAYER THEORY

Viscous Fluid Flow, 3E

Frank M. White, University of Rhode Island–Kingston

2006 / Hardcover / 640 pgs / ISBN 0-07-240231-8

The Instructor and Student Resource Web site includes general textbook information, the solutions to end-of-chapter problems, additional problems and solutions. (Browse http://www.mhhe.com/white3e)



Frank White's *Viscous Fluid Flow, Third Edition* continues to be the market leader in this course area. The text is for a senior graduate level elective in Mechanical Engineering, and has a strong professional and international appeal.

Author Frank White is has a strong reputation in the field, his book is accurate, conceptually strong, and contains excellent problem sets. Many of the problems are new to this third edition; a rarity among senior and graduate level textbooks. Frank White has always been recognized for his enagaging, and easy-to-read writing style.

NEW TO THIS EDITION

- Topically speaking, the text contains modern information on technological advances, such as Micro- and Nano-technology, Turbulence Modeling, Computational Fluid Dynamics (CFD), and Unsteady Boundary Layers.
- New material has been added to chapters 1, 3, and 4 on microflows, slip in liquids, gas slip flow in tubes and channels, and a novel micro-pump.
- Chapter 5, The Stability of Laminar Flows, now begins with the classic Kelvin-Helmholtz wind-wave instability. A wind-shear cloud-wave photo has been added too.
- The discussion of turbulence modeling in chapter six has been completely rewritten, expanded and updated.
- Users will be happy to find explanations of, and references to, ongoing controversies and trends in this course area.
- The role of Computerized Fluid Mechanics ("CFD") in viscous fluid flow/boundary layer analysis is mentioned, and 2 new applications of CFD are given for liquid spheres and a novel micro-pump.
- Each reference in the text reflects the most recent information available.

CONTENTS

1 Preliminary Concepts / 2 Fundamental Equations of Compressible Viscous Flow / 3 Solutions of the Newtonian Viscous-Flow Equations / 4 Laminar Boundary Layers / 5 The Stability of Laminar Flows / 6 Incompressible Turbulent Mean Flow / 7 Compressible Boundary Layer Flow/ Appendices / A Transport Properties of Various Newtonian Fluids / B Equations of Motion of Incompressible Newtonian Fluids in Cylindrical and Spherical Coordinates / C A Runge-Kutta Subroutine for N Simultaneous Differential Equations/ Bibliography / Index

SUPPLEMENT

Instructor and Student Resource Web site t/a Viscous Fluid Flow

COMPRESSIBLE FLOW/GAS DYNAMICS

Modern Compressible Flow: With Historical Perspective, 3E

John D. Anderson, University of Maryland–College Park, National Air & Space Museum

2003 / Hardcover / 784 pgs / ISBN 0-07-242443-5

highered.mcgraw-hill.com/sites/0072424435

Anderson's book provides the most accessible approach to compressible flow for Mechanical and Aerospace Engineering students. In keeping with previous versions, the 3rd edition uses numerous historical vignettes that show the evolution of the field.

Pedagogical features—"Roadmaps" showing the development of a given topic, and "Design Boxes" giving examples of design decisions—will make the 3rd edition even more student-friendly than before.

The 3rd edition strikes a careful balance between classical methods of determining compressible flow, and modern numerical and computer techniques (such as CFD) now used in industry & research.

A Book Website contains all problem solutions for instructors, and extended information on CFD.

FEATURES

- Integration of modern computer methods, especially Computerized Fluid Dynamics (CFD) in compressible flow applications.
- New "Design Box" and "Road Map" features included throughout the book.
- Book Website that contains instructor solutions; and coverage of CFD methods/examples.
- Historical vignettes show the development of the field.

CONTENTS

1 Compressible Flow—Some History and Introductory Thoughts / 2 Integral Forms of the Conservation Equations for Inviscid Flows / 3 One-Dimensional Flow / 4 Oblique Shock and Expansion Waves / 5 Quasi-One-Dimensional Flow / 6 Differential Conservation Equations for Inviscid Flows / 7 Unsteady Wave Motion / 8 General Conservation Equations Revisited: Velocity Potential Equation / 9 Linearized Flow / 10 Conical Flow / 11 Numerical Techniques for Steady Supersonic Flow / 12 The Time-Marching Technique: With Application to Supersonic Blunt Bodies and Nozzles / 13 Three-Dimensional Flow / 14 Transonic Flow / 15 Hypersonic Flow / 16 Properties of High-Temperature Gases / 17 High-Temperature Flows: Basic Examples

STABILITY AND CONTROL

Flight Stability and Automatic Control, 2E

Robert C. Nelson, University of Notre Dame

1998 / Hardcover / 456 pgs / ISBN 0-07-046273-9

The second edition of *Flight Stability and Automatic Control* presents an organized introduction to the useful and relevant topics necessary for a flight stability and controls course. Not only is this text presented at the appropriate mathematical level, it also features standard terminology and nomenclature, along with expanded coverage of classical control theory, autopilot designs, and modern control theory. Through the use of extensive examples, problems, and historical notes, author Robert Nelson develops a concise and vital text for aircraft flight stability and control or flight dynamics courses.

CONTENTS

1 Introduction / 2 Static Stability and Control / 3 Aircraft Equations of Motion / 4 Longitudinal Motion (Stick Fixed) / 5 Lateral Motion (Stick Fixed) / 6 Aircraft Response to Control on Atmospheric Inputs / 7 Automatic Control Theory-The Classical Approach / 8 Application of Classic Control Theory to Aircraft Autopilot Design / 9 Modern Control Theory / 10 Applications of Modern Control Theory to Aircraft Autopilot Design / Appendices / A Atmospheric Tables / B Geometric, Mass, and Aerodynamic Characteristics of Selected Airplanes / C Mathematical Review of Laplace Transforms and Matrix Algebra / D Review of Control System Analysis Techniques

SUPPLEMENT

Solutions Manual

SPACEFLIGHT DYNAMICS

Spaceflight Dynamics, 2E

William E. Wiesel, Air Force Institute Technology

1997 / Hardcover / 368 pgs / ISBN 0-07-070110-5

Designed for undergraduate courses in Spacecraft Dynamics and Orbital Mechanics, this edition offers a three-dimensional treatment of dynamics discussions of rigid body dynamics, rocket trajectories, and the space environment. An expert in his field, author

William E. Wiesel presents a wealth of information in an easy-to-understand manner without the daunting mathematical rigor of graduate texts. Reference is made to actual flight vehicles and satellites to give students background on the type of work currently being done in this field.

CONTENTS
1 Partial Dynamics / 2 The Two Body Problem / 3 Earth Satellite Operations / 4 Rigid Body Dynamics / 5 Satellite Attitude Dynamics / 6 Gyroscopic Instruments / 7 Rocket Performances / 8 Reentry Dynamics / 9 The Space Environment / 10 The Restricted Three Body Problem / 11 Interplanetary Trajectories / Appendices / A Vectors and Matricies / B Linear Systems / C Astrodynamic Constants

SUPPLEMENT
Solutions Manual

DYNAMIC SYSTEMS/SYSTEM ANALYSIS

System Dynamics

William J. Palm III

2005 / Hardcover / 704 pgs / ISBN 0-07-301603-9

Find password-protected solutions to chapter problems for instructors and files for MATLAB® and SIMULINK applications included in the book. (Browse http://highered.mcgraw-hill.com/sites/0073016039/)

William Palm's *System Dynamics* is a major new entry in this course offered for Mechanical, Aerospace and Electrical Engineering students, as well as for practicing engineers.

Palm's text is notable for having the strongest coverage of computational software and system simulation of any available book. MATLAB® is introduced in Chapter 1, and every subsequent chapter has a standalone MATLAB® Applications section. No previous experience with MATLAB® is assumed; methods are carefully explained, and a detailed appendix outlines use of the program. SIMULINK is introduced in Chapter 5, and used in subsequent chapters to demonstrate the use of system simulation techniques.

This textbook also makes a point of using real-world systems, such as vehicle suspension systems and motion control systems, to illustrate textbook content.

FEATURES
- MATLAB® is introduced in the first chapter, and integrated throughout the book.
- A MATLAB® Primer is included (as Appendix A) to give readers a short course in using the program.
- SIMULINK is introduced in chapter 5 and used as an optional feature in remaining chapters for doing systems simulation.
- Chapters 11-12 provide real-world engineering application examples of systems dynamics and the integration of concepts in the preceding chapters.
- Later chapters feature coverage of Controls and Vibrations.
- MATLAB® files for all users of the book and a password-protected instructor solutions manual are provided on the text-specific Web Site.

CONTENTS
1 Introduction / 2 Modeling of Rigid-Body Mechanical Systems / 3 Solution Methods for Dynamic Models / 4 Spring and Damper Elements in Mechanical Systems / 5 Block Diagrams and State-Variable Models / 6 Electrical and Electromechanical Systems / 7 Fluid and Thermal Systems / 8 System Analysis in the Time Domain / 9 System Analysis in the Frequency Domain / 10 Modeling and Analysis of Control Systems / 11 Control System Design / 12 Vibration Applications / Appendices / A Introduction to MATLAB® / B Guide to Selected MATLAB® Commands and Functions / C Numerical Methods / D Fourier Series

SUPPLEMENT
Instructor Password Protected and Student Resource Website t/a System Dynamics

Dynamic Systems: Modeling and Analysis

Hung V. Vu, California State University–Long Beach
Ramin Esfandiari, California State University–Long Beach

1997 / Hardcover / 640 pgs / ISBN 0-07-296661-0

McGraw-Hill Primis Custom Publishing

Using an easy-to-follow, intuitive approach, *Dynamic Systems: Modeling and Analysis* emphasizes the latest modeling and analysis techniques. Its emphasis on the fundamentals, many thoroughly worked examples, and frequent use of free body and effective force diagrams, better prepares students for subsequent courses. The essential mathematical background is covered in detail, and a variety of applications from mechanical to electrical engineering makes this an ideal text for a variety of engineering disciplines.

CONTENTS
1 Complex Analysis, Differential Equations, and The Laplace Transform / 2 Matrix Analysis / 3 System Model Representation / 4 Mechanical Systems / 5 Electrical, Electronic, and Electromechanical Systems / 6 Fluid and Thermal Systems / 7 System Response / 8 Introduction to Vibrations / 9 Block Diagram Representation / 10 Introduction to Control Systems / Appendices

SUPPLEMENT
Solutions Manual

DESIGN OF AIRCRAFT

Aircraft Performance and Design

John D. Anderson, University of Maryland–College Park, National Air & Space Museum

1999 / Hardcover / 600 pgs / ISBN 0-07-001971-1

Written by one of the most successful aerospace authors, this new book develops aircraft performance techniques from first principles and applies then to real airplanes. It also addresses a philosophy of, and techniques for aircraft design. By developing and discussing these two subjects in a single text, the author captures a degree of synergism not found in other texts. The book is written in a conversational style, a trademark of all of John Anderson's texts, to enhance the readers' understanding.

CONTENTS
I Preliminary Considerations / 1 The Evolution of the Airplane and its Performance: A Short History / 2 Aerodynamics of the Airplane: The Drag Polar / 3 Some Propulsion Characteristics / **II Airplane Performance** / 4 The Equations of Motion / 5 Airplane Performance: Steady Flight / 6 Airplane Performance: Accelerated Flight / **III Airplane Design** / 7 The Philosophy of Airplane Design / 8 Design of a Propeller-Driven Airplane / 9 Design of Jet-Propelled Airplanes / References / Appendices / A Standard Altitude Table (SI Units) / B Standard Altitude Table (English Engineering Units)

SUPPLEMENT
Instructor's Solutions Manual

ENVIRONMENTAL DESIGN/ENERGY

Passive and Active Environmental Controls: Informing the Schematic Designing of Buildings

Dean Heerwagen, University of Washington

2004 / Hardcover with coupon / 976 pgs / ISBN 0-07-292228-1

Browse http://highered.mcgraw-hill.com/sites/0072922281

Passive and Active Environmental Controls: Informing the Schematic Designing of Buildings is written for the architecture audience. It primarily addresses how to design and construct buildings to satisfy occupants' physical and physiological needs. The text serves as an introduction to the subject of environmental controls and presents information necessary for the schematic design of buildings. It describes the various components of a particular system, developing how a system functions, how the systems components fit together and how spaces are organized to accommodate these components. The book demonstrates how each system is integrated with other building systems, such as the structural systems and the overall architecture of the building.

FEATURES

- The text is divided into two parts, the first discussing passive environmental controls and the second describing active environmental control systems.
- The text is geared specifically towards architecture and covers only the essential information that architects need to know, resulting in a focused and manageable text
- Prepares students with design fundamentals and decision-making choices in the early phases of any building design process, providing a firm grounding in the understanding of the fundamental concepts of Environmental Control Systems.
- A highly illustrated text, appropriate for the visually-motivated architectural audience.
- A diversity of buildings or structures is studied in a case-like manner, allowing students to evaluate designs, costs and associated issues encountered during and after the production stage.
- An entire chapter is devoted to vertical transportation systems, an important part of the planning process often omitted from texts.
- Superior coverage of HVAC, Acoustics, and Daylighting, three topics crucial to the planning and design process and each with their own chapter.

CONTENTS

SUPPLEMENTS

Science, Engineering and Math Classroom Performance System for two terms
Solutions Manual
Instructor and Student Resource Web site t/a Passive and Active Environmental Controls: Informing the Schematic Designing of Buildings

ARCHITECTURAL LIGHTING

Architectural Lighting, 2E

David Egan, Architectural Acoustics & Noise Consultants
Victor Olgyay

2002 / Hardcover / 456 pgs / ISBN 0-07-020587-6

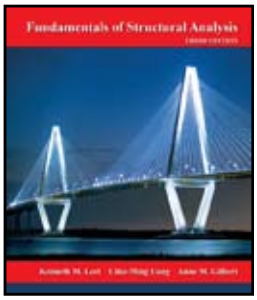
www.construction.com

This second edition contains a comprehensive and in-depth presentation of lighting fundamentals. The text continues to focus on both natural and artificial lighting and includes chapters on Design Tools and the Design Process. Case studies have also been added, providing helpful exercises for the engineering student. The addition of topics such as energy efficiency, computer programs, and urban design will also appeal to architectural students. The text will continue to be the single, comprehensive resource for illumination education.

CONTENTS

STRUCTURES

Fundamentals of Structural Analysis, 3E



New Edition

Kenneth M. Leet, Northeastern University
Chia-Ming Uang, University of California-San Diego
Anne Gilbert, Speigel Zamecnik & Shah

2008 / Hardcover / 784 pgs / ISBN 0-07-330538-3

The Online Learning Center contains instructor and student resources such as the RISA 2-D software, lecture outlines, an image bank, helpful web links and more! (Browse http://www.mhhe.com/leet3e)

Fundamentals of Structural Analysis third edition introduces engineering and architectural students to the basic techniques for analyzing the most common structural elements, including beams, trusses, frames, cables, and arches. Leet et al cover the classical methods of analysis for determinate and indeterminate structures, and provide an introduction to the matrix formulation on which computer analysis is based. Third edition users will find that the text's layout has improved to better illustrate example problems, superior coverage of loads is give in Chapter 2 and over 25% of the homework problems have been revised or are new to this edition.

NEW TO THIS EDITION

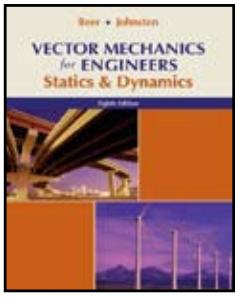
- Design and layout has been improved to better illustrate example problems.
- Example problems are now on a two page spread, where in the past readers had to flip back and forth to follow examples. Now all the information in one place.
- The Solutions Manual has been revised and checked for accuracy.
- The text features an Online Learning Center at http://www.mhhe.com/leet3e.

FEATURES

- Free access to RISA software, which is beneficial since RISA is among the easiest to learn and utilize, and is a well-known anyalysis tool in the industry.
- The text contains a highly detailed, realistic art program with fully drawn, practical illustrations.
- Different types of Structural and Building Codes are described.
- Chapter Two, Design Loads, is devoted to a comprehensive discussion of loads that include dead and live loads, tributary areas and earthquake and wind forces. Wind specifications conform to the latest edition of the ASCE Standard.
- "Computer Problems" that require a computer solution, rather than a hand analysis, are found in various chapters. We also offer an academic version of RISA-2D software for free to adopters of the text.

CONTENTS

Vector Mechanics for Engineers: Statics and Dynamics, 8E



Ferdinand P. Beer (deceased)
E. Russell Johnston, Jr., University of Connecticut
Elliot R. Eisenberg, Pennsylvania State University
William E. Clausen, Ohio State University
David Mazurek, U S Coast Guard Academy
Phillip J. Cornwell, Rose-Hulman Institute of Technology

2007 / Hardcover / 1312 pgs / ISBN 0-07-321222-9

Browse http://www.mhhe.com/beerjohnston

For the past fifty years Beer and Johnston have been the uncontested leaders in the teaching of undergraduate engineering mechanics. Over the years their textbooks have introduced significant theoretical and pedagogical innovations in statics, dynamics, and mechanics of materials education. At the same time, their careful presentation of content, unmatched levels of accuracy, and attention to detail have made their texts the standard for excellence.

The new Eighth Edition of *Vector Mechanics for Engineers: Statics and Dynamics* marks the fiftieth anniversary of the Beer/Johnston series. Continuing in the spirit of its successful previous editions, the Eighth Edition provides conceptually accurate and thorough coverage together with a significant addition of new problems, including biomechanics problems, and the most extensive media resources available.

NEW TO THIS EDITION

- The 8th editions offer a 48% new or revised homework problem set, with biomechanics-focused problems added appropriately throughout the texts.
- The photo program continues to be expanded in each edition, with new chapter opener and in chapter photos added to each chapter.
- A C.O.S.M.O.S. Solutions Manual, provided to instructors on DVD, allows for assignment generation, tracking, and distribution. Instructors also have the ability to edit homework problems.
- A robust ARIS website provides both student and instructor resources including algorithmic problems, S.M.A.R.T. tutorials, lecture powerpoints, and images from the text, among other resources.
- McGraw-Hill's web-based Hands-on Mechanics teaching demonstration library provides instructors with instructions for building hands-on physical models used to demonstrate important Statics and Dynamics concepts in class.
- yourotherteacher.com provides access to hours of online tutorials for statics and dynamics.

FEATURES

- A careful, step-by-step presentation is followed in each lesson of each chapter; every chapter is organized as follows: an opening photograph to help students visualize key concepts is followed by a chapter introduction with a chapter outline previewing what will be covered in each lesson. After each lesson there are 1-4 Sample Problems (set up to serve as a model for student solutions) followed by a Solving Problems On Your Own section giving solution guidelines before the lesson's problems set. At the end of each chapter students find a Review and Summary section with notes for review and examples and cross references to key sections. Finally, a Review Problem section ties together several concepts from that chapter and a Computer Problems section also has many problems relevant to the design process, encouraging open-ended solutions.
- A signature Beer and Johnston text feature, Sample Problems allow students to see important key problem types with their solution laid out on a single page, and organized to provide a model for student problem solving. Sample Problems serve the dual purpose of amplifying the text and demonstrating the type of neat and orderly work that students should cultivate in their own solutions.
- Liberal use of free-body diagrams (graphical representation of objects where arrows indicate forces acting on object) in Statics and effective-forces diagrams in Dynamics. By placing the emphasis on "free-body-diagram equations" rather than on the standard algebraic equations of motion, a more intuitive and more complete understanding of fundamental principles is achieved.
- Review and Summary sections at the end of each chapter provide students with a valuable study tool. Reviewers found these chapter reviews to be one of the strongest features of the text and the best available in the market.
- Computer Problems, relevant to the design process, are offered at the end of each chapter. While the problems will be generic, they will be designed to be easily solved using popular computational programs such as MATLAB®, Mathcad, Maple, etc. The computer problems focus on symbolic manipulation and plotting, as opposed to the more programming-based computer problems in the current editions. Computer problems help students gain a better understanding of basic principles because most require integration of several concepts, much like one does in design. They also allow for open-ended parametric studies.
- A Fundamentals of Engineering Examination Appendix helps prepare students for the FE/EIT exam.
- Effective use of 4-color helps students distinguish between different vectors: red=accelerations and forces (applied and effective) green=velocities, blue=displacements.
- Instructors enjoy a clearer presentation and organization of problem solutions with a typeset print solutions manual in a clear 1-2 solution per page format. In addition, Instructors are provided with assignment grids, designed so that instructors can assign different homework problems each semester for up to six semesters.

CONTENTS

1 Introduction / 2 Statics of Particles / 3 Rigid Bodies: Equivalent Systems of Forces / 4 Equilibrium of Rigid Bodies / 5 Distributed Forces: Centroids and Centers of Gravity / 6 Analysis of Structures / 7 Forces in Beams and Cables / 8 Friction / 9 Distributed Forces: Moments of Inertia / 10 Method of Virtual Work / 11 Kinematics of Particles / 12 Kinetics of Particles: Newton's Second Law / 13 Kinetics of Particles: Energy and Momentum Methods / 14 Systems of Particles / 15 Kinematics of Rigid Bodies / 16 Plane Motion of Rigid Bodies: Forces and Accelerations / 17 Plane Motion of Rigid Bodies: Energy and Momentum Methods / 18 Kinetics of Rigid Bodies in Three Dimensions / 19 Mechanical Vibrations / Appendix: Fundamentals of Engineering Examination

SUPPLEMENTS

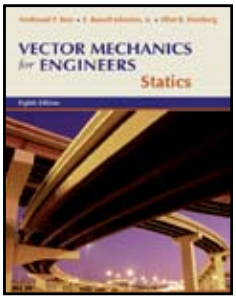
Instructor's and Solutions Manual (Four volumes): Instructors materials and solutions to all text homework problems.
Statics (vol 1.); (vol 2)
Dynamics (vol 1); (vol 2)

ARIS (Assessment, Review, and Instruction System): A complete, online tutorial, electronic homework, and course management system to accompany Beer; featuring algorithmic homework and teaching tools.

Hands-on Mechanics: An online library of three-dimensional teaching demonstrations for Statics and Dynamics.

COSMOS: A complete electronic solutions manual for the text on DVD allows instructors to edit homework problems, as well as generate and track assignments.

Vector Mechanics for Engineers: Statics, 8E

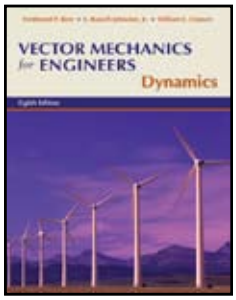


2007 / Hardcover / 648 pgs / ISBN 0-07-321219-9

CONTENTS

1 Introduction / 2 Statics of Particles / 3 Rigid Bodies: Equivalent Systems of Forces / 4 Equilibrium of Rigid Bodies / 5 Distributed Forces: Centroids and Centers of Gravity / 6 Analysis of Structures / 7 Forces in Beams and Cables / 8 Friction / 9 Distributed Forces: Moments of Inertia / 10 Method of Virtual Work / Fundamentals of Engineering Examination / Index / Answers to Problems

Vector Mechanics for Engineers: Dynamics, 8E



2007 / Hardcover / 768 pgs / ISBN 0-07-321220-2

CONTENTS

11 Kinematics of Particles / 12 Kinetics of Particles: Newton's Second Law / 13 Kinetics of Particles: Energy and Momentum Methods / 14 Systems of Particles / 15 Kinematics of Rigid Bodies / 16 Plane Motion of Rigid Bodies: Forces and Accelerations / 17 Plane Motion of Rigid Bodies: Energy and Momentum Methods / 18 Kinetics of Rigid Bodies in Three Dimensions / 19 Mechanical Vibrations / Appendices / A Some Useful Definitions and Properties of Vector Algebra / B Moments of Inertia of Masses / C Fundamentals of Engineering Examination

Steel Structures: Behavior and LRFD

Ramulu S. Vinnakota, Marquette University

2006 / Hardcover / 928 pgs / ISBN 0-07-236614-1

Browse http://www.mhhe.com/vinnakota

Ramulu Vinnakota's *Steel Structures: Behavior and LRFD* stresses both the design of steel structures and the behavior of steel members under various loading conditions. The current editions of the American Institute of Steel Construction's Load and Resistance Factor Design Specifications (3e, 1999) and the LRFD Manual (3e, 2001) are used and extensively referenced in the Vinnakota text. Therefore covering the interaction of design and behavior of steel members and connections in one textbook is a unique approach. Designers must understand structural behavior as an integral part of the design process, and chapters 1 to 5 thoroughly cover this material. As Ramulu Vinnakota notes, "The heart and soul of design are the ability to conceive a structure that will behave as desired, and intuition regarding different framing options."

The balance of the chapters covers the elements that makeup a steel building structure: members and connections. In each chapter, discussion of theory and behavior of the member under various combinations of loads it must resist is followed by a discussion of design applications.

Throughout the text, a web icon references readers to the book's website (http://www.mhhe.com/vinnakota), which contains extensive additional coverage of advanced topics.

FEATURES

- This text integrates both design of steel structures with behavior of steel.
- 450 carefully drawn figures of structural systems, members, and bolted and welded joints illustrate the text.
- The most recent editions of the LRFD Specifications and the LRFD Manual are used and extensively referenced throughout the text.
- 120 well explained worked out example problems emphasizing the application of design concepts are included.
- An accompanying website (http://www.mhhe.com/vinnakota) contains extensive advanced steel design and behavior coverage. These additional topics are closely integrated with the text.

CONTENTS

SUPPLEMENT

Instructor's Solutions Manual

Design of Concrete Structures, 13E

Arthur H. Nilson, Cornell University–Ithaca
David Darwin, University of Kansas–Lawrence
Charles W. Dolan, University of Wyoming–Laramie

2004 / Hardcover with coupon / 896 pgs / ISBN 0-07-292199-4

Contains supplementary resources for the book. (Browse http://highered.mcgraw-hill.com/sites/0072921994)

The 13th edition of the classic text, *Design of Concrete Structures*, is completely revised using the newly released 2002 American Concrete Institute (ACI) Code. This new edition has the same dual objectives as the previous editions: first to establish a firm understanding of the behavior of structural concrete, then to develop proficiency in the methods used in current design practice.

Design of Concrete Structures covers the behavior and design aspects of concrete and provides thoroughly updated examples and homework problems throughout. The 13th edition also features a new chapter, Chapter 10, covering strut-and-tie models. The text also presents the basic mechanics of structural concrete and methods for the design of individual members for bending, shear, torsion, and axial force, and provides detail in the various types of structural systems applications.

NEW TO THIS EDITION

- Completely updated text, examples, and problems following the newly released 2002 ACI Code.
- Redesigned interior of text makes for a new, open look, and the art program has been redrafted and updated.
- Thoroughly rewritten Chapter 3 on Flexural Analysis and Design.
- A thoroughly revised description of loading criteria and design requirements for seismic design (Chapter 20).
- Expanded guidance on preliminary design and guidelines for proportioning members (Chapter 12).
- Updated design procedures for prestressed concrete (Chapter 19).

FEATURES

- A brand new chapter on strut-and-tie models, Chapter 10, complements the emphasis on the approach throughout the text.
- Applications impart an "engineering" flavor which reflects the authors' practical experience.

CONTENTS

SUPPLEMENT

Instructor's Solutions Manual

Understanding Structures

Fuller Moore, Miami University–Oxford

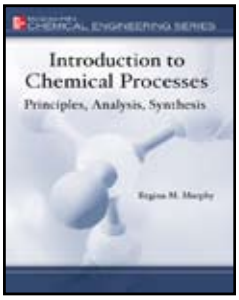
1999 / Softcover / 304 pgs / ISBN 0-07-043253-8

The goal of this book is to provide the architecture student with a conceptual introduction to architectural structures and to emphasize the importance of integrating structure and architectural design. This is done with an introduction to the basic principles (Statics, Dynamics, and Strength of Materials) followed by the various structural systems. The clear, non-mathematical presentation stresses their architectural design implications. It lays the conceptual groundwork for subsequent advanced courses such as Statics, Strength of Materials, and Timber, Steel and Concrete.

CONTENTS

INTRODUCTION TO CHEMICAL ENGINEERING

Introduction to Chemical Processes: Principles, Analysis, Synthesis



Regina M. Murphy, *University of Wisconsin-Madison*

2007 / Hardcover / 576 pgs / ISBN 0-07-284960-6

The text Web site includes Solutions Manual, images in PowerPoint, Transition Guide, Sample Syllabi, Sample Exam, Physical Property Data Tables, and more. (Browse http://www.mhhe.com/murphy)

New Edition

Introduction to Chemical Processes: Principles, Analysis, Synthesis enhances student understanding of the connection between the chemistry and the chemical engineering processes. Users will find strong coverage of chemistry, gain a solid understanding of what chemical processes do (convert raw materials into useful products using energy and other resources), and learn about the ways in which chemical engineers make decisions and balance constraints to come up with new processes and products. The author presents material and energy balances as tools to achieve a real goal: workable, economical, and safe chemical processes and products.

Loaded with useful pedagogy, this text is essential to a students first course in Chemical Engineering.

Additional resources intended to guide users are also available as package options, including the Engineering Equation Solver (EES) software, ChemSkill Builder and the well-known Perry's Chemical Engineering Handbook.

FEATURES

- Strong coverage of chemistry
- Treats calculations as part of the overall process as opposed to separately.
- Approach—the book teaches students how to invent and analyze. It's approach will enhance student understanding of the connection between the chemistry and the chemical engineering process.
- The text is heavily-laden with pedagogy. A few of the pedagogical elements include, *Helpful Hints*, *Chemistories*, and *Did You Know*, sections.
- The text web site is available at http://www.mhhe.com/murphy. Users will find resources for the instructor and students.
- The Engineering Equation Solver (EES) software is available as an optional package on CD-ROM (package ISBN 0-07-322042-6). The basic function provided by EES is the numerical solution of a set of algebraic equations. EES can also be used to solve differential and integral equations, do optimization, provide uncertainty analyses and linear and non-linear regression, and generate publication-quality plots.
- ChemSkill Builder is available as an optional package, online.
- This text is not directly tied to one software program.

CONTENTS

1 Converting the Earth's Resources into Useful Products / 2 Process Flows: Variables, Diagrams, Balances / 3 Mathematical Analysis of Material Balance Equations and Process Flowsheets / 4 Synthesis of Reactor Flowsheets and Selection of Reactor Process Conditions / 5 Selection of Separation Technologies and Synthesis of Separation Flowsheets / 6 Process Energy Calculations and Synthesis of Safe and Efficient Energy Flowsheets

Perry's Chemical Engineers' Handbook, 8E

New!

Donald W. Green, *Ph.D., University of Kansas*
Robert H. Perry

2007 / Hardcover / 2400 pgs / 0-07-142294-3

McGraw-Hill Professional

The field's definitive reference for more than half a century—updated for the first time in more than a decade

Since 1934, *Perry's Chemical Engineer's Handbook* has delivered unrivaled, state-of-the-art coverage of all aspects of chemical engineering—from the fundamentals to details on computer applications and control. Featuring 2,400 pages and 700 illustrations, the eighth edition is a comprehensive source for the newest developments, advances, achievements, and methods in the field.

CONTENTS

1:Conversion Factors and Mathematical Symbols / 2 Physical and Chemical Data / 3 Mathematics / 4 Thermodynamics / 5 Heat and Mass Transfer / 6 Fluid and Particle Dynamics Reaction Kinetics / 7 Process Control / 8 Process Economics / 9 Transport and Storage of Fluids / 10 Heat Transfer Equipment / 11 Psychrometry, Evaporative Cooling, and Solids Drying / 12 Distillation / 13 Gas Absorption and Gas-Liquid System Design / 14 Liquid-Liquid Extraction Operations and Equipment / 15 Adsorption and Ion Exchange / 16 Gas-Solid Operations and Equipment / 17 Liquid-Solid Operations and Equipment / 18 Solid-Solid Operations and Equipment / 19 Size Reduction and Size Enlargement / 20 Handling of Bulk Solids and Packaging of Solids and Liquids / 21 Alternative Separation Processes / 22 Chemical Reactors / 23 Biochemical Engineering / 24 Waste Management / 25 Process Safety / 26 Energy Resources Conversion and Utilization / 27 Materials of Construction / 28 Process Machinery Drives / 29 Analysis of Plant Performance

THERMODYNAMICS (CHEMICAL ENGINEERING)

Fundamentals of Thermal-Fluid Sciences, 3E

New Edition

Yunus A. Cengel
Robert H. Turner
both of University of Nevada-Reno

2008 / Hardcover / 1152 pgs / ISBN 0-07-332748-4

The best-selling *Fundamentals of Thermal-Fluid Sciences* is designed for the non-mechanical engineering student who needs exposure to key concepts in the thermal sciences in order to pass the Fundamentals of Engineering (FE) Exam. This lavishly illustrated text provides a highly intuitive and practical understanding of the material by emphasizing the physics and the underlying physical phenomena involved. Using a reader-friendly approach and a conversational writing style, the book is self-instructive and entertains while it teaches. It shows that highly technical matter can be communicated effectively using simple yet precise language. The text is made up of Thermodynamics, Heat Transfer and Fluids. The laws that govern these three subjects are all the same. Like all the other Cengel texts, it uses a similar pedagogical approach, by using familiar everyday examples.

FEATURES

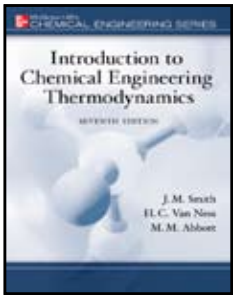
- Exceptional homework problems—over 2,000 homework problems, including concept, review, design, computer essay, and lab-type problems, are grouped by topic for easy selection. Open-ended problem solving is encouraged and readers are given an early lead-in to design considerations. Numerous realistic economic and safety-related problems are presented to help promote cost, engineering practice, and safety awareness.
- EES (Engineering Equation Solver) CD-ROM packaged is free with text. EES is a powerful equation solver with built-in functions and property tables for thermodynamics and transport properties as well as automatic unit checking capability.
- An integrated and highly intuitive approach to the 1st Law of Thermodynamics unifies, in one chapter, coverage of the 1st Law as it relates to Closed Systems and Control Volumes.
- Numerous student-friendly examples relate thermal science concepts to students' everyday experiences (i.e., cooking, weight gain, cooling drinks).

- A structured approach to problem solving is used while maintaining an informal style, giving readers a strong grounding in the concepts of engineering thermal-fluid sciences.
- Current industrial practices are highlighted by offering two applications chapters to supplement the text. Chapters on the heating and cooling of buildings and the cooling of electronic equipment are available for free download on the book website.

CONTENTS

1 Introduction and Overview / PART I Thermodynamics / 2 Basic Concepts of Thermodynamics / 3 Properties of Pure Substances / 4 Energy Transfer by Heat, Work, and Mass / 5 The First Law of Thermodynamics / 6 The Second Law of Thermodynamics / 7 Entropy / 8 Power and Refrigeration Cycles / PART II Fluid Mechanics / 9 Gas Mixtures and Psychrometrics / 10 Properties of Fluids / 11 Fluid Statics / 12 Momentum Analysis of Flow Structures / 13 Bernoulli and Energy Equations / 14 Flow in Pipes / 15 Flow Over Bodies: Drag and Lift / Part III Heat Transfer / 16 Mechanisms of Heat Transfer / 17 Steady Heat Conduction / 18 Transient Heat Conduction / 19 Forced Convection / 20 Natural Convection / 21 Fundamentals of Thermal Radiation / 22 Radiation Heat Transfer / 23 Heat Exchanges / PART IIII Appendices / Appendix 1 Property Tables and Charts (SI Units) / Appendix 2 Property Tables and Charts (English Units) / Appendix 3 Introduction to EES

Introduction to Chemical Engineering Thermodynamics, 7E



J. M. Smith, University of California–Davis
Hendrick C. Van Ness
Michael Abbott
both of Rensselaer Polytech Institute–Troy

2005 / Hardcover / 840 pgs / ISBN 0-07-310445-0

Browse http://mhhe.com/smiththermo

Introduction to Chemical Engineering Thermodynamics, 7/e, presents comprehensive coverage of the subject of thermodynamics from a chemical engineering viewpoint. The text provides a thorough exposition of the principles of thermodynamics and details their application to chemical processes. The chapters are written in a clear, logically organized manner, and contain an abundance of realistic problems, examples, and illustrations to help students understand complex concepts. New ideas, terms, and symbols constantly challenge the readers to think and encourage them to apply this fundamental body of knowledge to the solution of practical problems.

The comprehensive nature of this book makes it a useful reference both in graduate courses and for professional practice. The seventh edition continues to be an excellent tool for teaching the subject of chemical engineering thermodynamics to undergraduate students.

NEW TO THIS EDITION

- 20% new and revised homework problems
- The McGraw-Hill Perry's Handbook for Chemical Engineers CD-ROM is offered at a 75% discount for students who purchase a new edition.

FEATURES

- The updated and rearranged material is user-friendly and accommodating to courses of different length and content. It provides sensible stopping places.
- The treatment of equations of state, thoroughly revised and augmented in recent editions, appears in applications throughout several chapters.
- Phase equilibrium is developed in stages, with the simple models introduced early, and the sophisticated treatments provided later.
- The material on molecular thermodynamics is presented in a single chapter at the end of the book.

CONTENTS

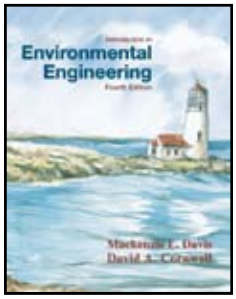
Preface / 1 Introduction / 2 The First Law and Other Basic Concepts / 3 Volumetric Properties of Pure Fluids / 4 Heat Effects / 5 The Second Law of Thermodynamics / 6 Thermodynamic Properties of Fluids / 7 Applications of Thermodynamics to Flow Processes / 8 Production of Power from Heat / 9 Refrigeration and Liquefaction / 10 Vapor/Liquid Equilbrium: Introduction / 11 Solution Thermodynamics: Theory / 12 Solution Thermodynamics: Applications / 13 Chemical-Reaction Equilibria / 14 Topics in Phase Equilibria / 15 Thermodynamic Analysis of Processes / 16 Introduction to Molecular Thermodynamics/ Appendices / A Conversion Factors and Values of the Gas Constant / B Properties of Pure Species / C Heat Capacities and Property Changes of Formation / D Representative Computer Programs / E The Lee/Kesler Generalized-Correlation Tables / F Steam Tables / G Thermodynamic Diagrams / H UNIFAC Method / I Newton's Method / Author Index / Subject Index

SUPPLEMENTS

Instructor's Solution Manual
Perry's Chemical Engineer's Handbook

ENVIRONMENTAL (GENERAL INTEREST)

Introduction to Environmental Engineering, 4E



New Edition

Mackenzie L. Davis, Michigan State University-East Lansing
David A. Cornwell, Environmental Engineering & Technology

2008 / Hardcover / 928 pgs / 0-07-242411-7

Browse http://www.mhhe.com/davis

Introduction to Environmental Engineering, 4/e contains the essential science and engineering principles needed for introductory courses and used as the basis for more advanced courses in environmental engineering. Davis and Cornwell apply the concepts of sustainability and materials and energy balance as a means of understanding and solving environmental engineering issues. With 650 end-of-chapter problems, as well as provocative discussion questions, and a helpful list of review items found at the end of each chapter, the text is both a comprehensible and comprehensive tool for any environmental engineering course.

NEW TO THIS EDITION

- The new edition features the most up-to-date environmental regulations, standards, and laws, and an updated art and photo program throughout.
- A new chapter on Materials and Energy Balances (2) has been added to emphasize this important topic.
- Over 200 new homework problems have been added to the new edition, including over 60 problems on web based research and spreadsheet applications with MathCAD or MATLAB.
- discussions have been updated to include issues such as membrane technology for water treatment, endocrine disrupters as a pollution source, hydrogen fuel for automobiles, energy conservation as a pollution control alternative, and use of computer models for traffic noise prediction.

FEATURES

- The text provides a comprehensive overview of environmental engineering including a discussion on the nature of the profession and environmental ethics, a discussion of waste minimization techniques for each subject area, the presentation of legislative history and detailed regulatory requirements, and coverage of noise and ionizing radiation.
- The end of chapter review items provide a built-in study guide for students and make it easy for instructors to assess what students should have learned from the chapter.
- Numerous example problems throughout the chapter and discussion questions at the end of the chapter reinforce concepts for students.
- Supplements include a Unit Conversion Booklet (available as an optional package with the text) and a website featuring the solutions manual, lecture powerpoints, and image files for instructors, as well as animations and web links for students.

CONTENTS

1 Introduction / 2 Materials and Energy Balances / 3 Hydrology / 4 Water Treatment / 5 Water Quality Management / 6 Wastewater Treatment / 7 Air Pollution / 8 Noise Pollution / 9 Solid Waste Management / 10 Hazardous Waste Management / 11 Ionizing Radiation / Appendices / A Properties of Air, Water, and Selected Chemicals / B Noise Computation Nomographs

SUPPLEMENTS

Unit Conversion Booklet/Intro to Environmental Engineering/0-07-327709-6

Principles of Environmental Engineering and Science

Mackenzie L. Davis, Michigan State University–East Lansing
Susan J. Masten, Michigan State University–East Lansing

2004 / Hardcover / ISBN 0-07-292186-2

Solutions Manual, Links to glossary and Environmental Learning Modules, Sample chapter, Overview, TOC, Author links/bio, Preface, Features, Supplement list, reviewer notes, PPT. (Browse http://www.mhhe.com/davismasten)

Principles of Environmental Engineering and Science by Mackenzie Davis and Susan Masten is intended for a course in introductory environmental engineering for sophomore- or junior-level students. The emphasis of this new text is on engineering principles rather than on engineering design. The concept of mass balance is carried throughout the text as a tool for problem solving, and the text boasts extensive coverage of chemistry, biology, and hydrology than other books have. The chemistry review in Chapter 2 and coverage of ethics will aid students in better understanding the engineering topics presented in the book.

FEATURES

- The book teaches through an emphasis on concepts, definitions, descriptions, and abundant illustrations. Scientific principles are emphasized and design aspects are discussed in abbreviated form, freeing the student to focus on real environmental applications.
- Includes chapters on Ecosystems, Soil and Geological Resources, and Agricultural Impacts—topics that are of crucial importance to environmental engineering and related disciplines, but which are not covered in detail in other texts.
- Includes a chemistry review chapter, which has been highly praised by reviewers. Most say that their students need and would greatly benefit from the chapter.
- The concept of mass balance as a tool for problem-solving is a theme carried throughout the text. This theme motivates much of the text discussion and ties together a variety of subject areas including hydrology, soil, water quality, and waste audits.
- Exclusively uses SI units.

CONTENTS

1 Introduction / 2 Chemistry / 3 Materials and Energy Balances / 4 Ecosystems / 5 Risk Perception, Assessment, and Management / 6 Hydrology / 7 Geological and Soil Resources / 8 Water Quality Management / 9 Water Treatment / 10 Wastewater Treatment / 11 Air Pollution / 12 Solid Waste Management / 13 Hazardous Waste Management / 14 Agricultural Impacts/ 15 Noise Pollution / 16 Ionizing Radiation / Appendix A: Properties of Air, Water, and Selected Chemicals

Introduction to Engineering and the Environment

Edward S. Rubin, Carnegie Mellon University

2001 / Softcover / 720 pgs / ISBN 0-07-235467-4

www.mhhe.com/engcs/civil/rubin

This book covers a broad range of topics for an introductory course in Environmental Engineering, as well as courses related to engineering design, sustainable development, and environmental policy. Through applications in different engineering domains, students develop the fundamental skills and insights needed to recognize and address environmental problem solving opportunities.

CONTENTS

I Motivation and Framework / 1 Engineering and the Environment / 2 Overview of Environmental Issues / **II Technology Design for the Environment** / 3 Automobiles and the Environment / 4 Batteries and the Environment / 5 Electric Power Plants and the Environment / 6 Refrigeration and the Environment / 7 Environmental Life Cycle Assessments / **III Modeling Environmental Processes** / 8 Controlling Urban Smog / 9 PCBs in the Aquatic Environment / 10 Human Exposure to Toxic Metals / 11 CFCs and the Ozone Hole / 12 Global Warming and the Greenhouse Effect / **IV Topics in Environmental Policy Analysis** / 13 Economics and the Environment / 14 Risk Assessment and Decision Analysis / 15 Environmental Forecasting / Appendices

Industrial Water Pollution Control, 3E

W. Wesley Eckenfelder, Jr.

2000 / Hardcover / 600 pgs / ISBN 0-07-039364-8

This classic text is intended for the student in courses related to industrial water pollution control, as well as a guide for someone in the industry. It is very strong on biological treatment and reflects better than any other book actual industrial treatment practices. This new revision contains new material on hazardous waste disposal and improved coverage of adsorption and partitioning.

CONTENTS

1 Source and Characteristics of Industrial Wastewaters / 2 Wastewater Treatment Processes / 3 Pre- and Primary Treatment / 4 Coagulation, Precipitation and Metals Removal / 5 Aeration and Mass Transfer / 6 Principles of Aerobic Biological Oxidation / 7 Biological Wastewater Treatment Processes / 8 Adsorption / 9 Ion Exchange / 10 Chemical Oxidation / 11 Sludge Handling and Disposal / 12 Miscellaneous Treatment Processes / Bibliography

Environmental Impact Assessment, 2E

Larry Canter, University of Oklahoma–Norman

1996 / Hardcover / 480 pgs / ISBN 0-07-009767-4

The Canter text appeals mainly to Civil Engineering students taking course work in environmental assessment practice or impact assessment, usually taught at the junior/senior level as a popular elective. Some chemical and environmental engineers take the course as well. The author has specifically beefed up and improved the chapters on biological, cultural, and socioeconomic environmental factors. The book continues to emphasize both production and assessment aspects of environmental factors, i.e., air, water, and noise, together with some interesting case studies. The latest governmental methodologies and Environmental Impact Studies have been included in this timely revision.

CONTENTS

1 National Environmental Policy Act and Its Implementation / 2 Planning and Management of Impact Studies / 3 Simple Methods for Impact Identification Matrices, Networks and Checklists / 4 Description of Environmental Setting / 5 Environmental Indices and Indicators for Describing the Affected Environment / 6 Prediction and Assessment of Impacts on the Air Environment / 7 Prediction and Assessment of Impacts on the Surface Water Environment / 8 Prediction and Assessment of Impacts on the Soil and Ground Water Environment / 9 Prediction and Assessment of Impacts on the Noise Environment / 10 Prediction and Assessment of Impacts on the Biological Environment / 11 Habitat Methods for Biological Impact Prediction and Assessment / 12 Prediction and Assessment of Impacts on the Cultural (Historical/Archaeological) Environment / 13 Prediction and Assessment of Visual Impacts / 14 Prediction and Assessment of Impacts on the Socioeconomic Environment / 15 Decision Methods for Evaluation of Alternatives / 16 Public Participation in Environmental Decision Making / 17 Environmental Monitoring

Environmental Engineering

Howard S. Peavy, University of Idaho
Donald R. Rowe, Western Kentucky University
George Tchobanoglous, University of California–Davis

1985 / Hardcover / 640 pgs / ISBN 0-07-049134-8

CONTENTS

1 Introduction / 2 Water Quality; Definitions, Characteristics, and Perspectives / 3 Water Purification / 4 Engineered Systems for Wastewater Treatment and Disposal / 5 Environmental Engineering Hydraulics Design / 6 Air Quality Definitions, Characteristics, and Perspectives / 7 Engineered Systems for Air Pollution / 8 Solid Waste Definitions, Characteristics, and Perspectives / 9 Engineered Systems for Solid Waste Management / 10 Engineered Systems for Resource and Energy Recovery

SUPPLEMENT

Solutions Manual

Population Balances in Biomedical Engineering

Martin Hjortso

2006 / Hardcover / 182 pgs / ISBN 0-07-144768-7

McGraw-Hill Professional

The population balance modeling is a statistical approach for achieving accurate counts of any populations. It is an efficient way of counting traffic on roadways as well as to bacteria in lakes. In the biomedical world, it is used to count cell populations for the creation of biomaterials. Despite their undisputed accuracy, they have been underutilized for design and control purposes due to two main reasons: a) they are hard to solve and b) the functions that describe single-cell mechanisms and appear as parameters in these models are typically unknown.

FEATURES

- Numerical Solutions Methods for population balances modeling
- Experimental Methods for particle counting and flow cytometry
- Population Balancing techniques for Filamentous organisms
- Control points of steady state solutions and Transient solutions
- Methods for analysis of the underlying behavior of cellular systems

CONTENTS

Preface / Nomenclatur / 1 Introduction / 2 Unstructured PBMs / 3 Steady-State Solutions / 4 Transient Solutions / 5 Cell Cycle Synchrony / 6 Growth by Branching / 7 Alternative Formulations / Bibliography / Index

AIR POLLUTION

Air Pollution Control Engineering, 2E

Noel de Nevers, University of Utah–Salt Lake City

2000 / Hardcover / 608 pgs / ISBN 0-07-039367-2

This text covers the whole air pollution field, from an engineering perspective. The principal topics are control devices and their theory. The book uses many more examples than other texts to help the student see the magnitudes of important quantities and to show and practice the practical application of theoretical treatments presented. The other half is devoted to topics that form some of the background for the selection of such devices, i.e., air pollution effects, the structure of U.S. air pollution law, atmospheric models, etc.

CONTENTS

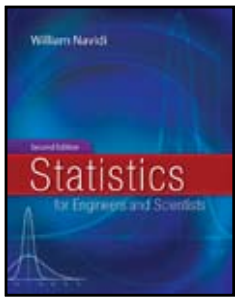
1 Introduction to Air Pollution Control / 2 Air Pollution Effects / 3 Air Pollution Control Laws and Regulations, Air Pollution Control Philosophies / 4 Air Pollution Measurements, Emission Estimates / 5 Meteorology for Air Pollution Control Engineers / 6 Air Pollutant Concentration Models / 7 General Ideas in Air Pollution Control / 8 The Nature of Particulate Pollutants / 9 Control of Primary Particulates / 10 Control of Volatile Organic Compounds (VOCs) / 11 Control of Sulfur Oxides / 12 Control of Nitrogen Oxides / 13 The Motor Vehicle Problem / 14 Air Pollutants and Global Climate / 15 Other Topics / Appendixes / Answers to Selected Problems

SUPPLEMENT

Solutions Manual

ENGINEERING MATH/STATISTICS

Statistics for Engineers and Scientists, 2E



New Edition

William C. Navidi, Colorado School of Mines

2008 / Hardcover / 675 pgs / ISBN 0-07-330949-4

Browse http://www.mhhe.com/navidi2

The second edition of this book is intended to extend the strengths of the first. Some of the changes include:

- More than 200 new exercises have been added.
- A new section on point estimation has been added to Chapter 4.
- The material on histograms in Chapter 1 has been completely revised.
- Chapter 2 now contains a discussion of Chebyshev's inequality. • Chapter 4 now contains a discussion of the uniform distribution.
- The section on the normal distribution contains a discussion on linear functions of normal random variables.
- Chapter 7 contains additional material on the correlation coefficient.
- Chapter 10 contains a discussion of the relationship between control charts and hypothesis tests.
- The exposition has been improved in a number of places.

Also new for this edition is the ARIS online course management system. ARIS provides automatic grading of student assignments and keeps a record of students' grades. In addition, ARIS contains problems for student practice, along with Java applets that allow students to interactively explore ideas in the text. Customizable PowerPoint lecture notes for each chapter are available as well, along with suggested syllabi, and other features. More information can be found at aris.mhhe.com.

William Navidi is Professor of Mathematical and Computer Sciences at the Colorado School of Mines. He received the B.A. degree in mathematics from New College, the M.A. in mathematics from Michigan State University, and the Ph.D. in statistics from the University of California at Berkeley. Professor Navidi has authored more than 50 research papers both in statistical theory and in a wide variety of applications including computer networks, epidemiology, molecular biology, chemical engineering, and geophysics.

NEW TO THIS EDITION

- McGraw-Hill's ARIS online Homework Manager has been added to this edition and features algorithmic problems and gradebook capability. Instructors will have access to data sets, solutions, lecture powerpoints, and images from the text.
- Over 180 new homework problems have been added throughout.

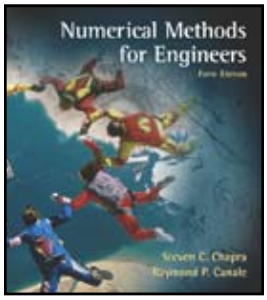
FEATURES

- An engaging writing style explains difficult concepts clearly. While including the mathematics necessary for clear understanding, the text makes extensive use of examples to motivate fundamental concepts and to develop intuition.
- Contemporary, real world data sets are one of the defining features of this text. With a fresh approach to the subject, the author uses contemporary data sets to help motivate students and show direct connection to industry and research.
- In line with modern trends, the text contains exercises suitable for solving with computer software. These examples and exercises involve interpreting, as well as generating, computer output. The student edition of MINITAB, the widely used statistical software package, is available bundled with the text.
- A separate chapter provides **extensive coverage of propagation of error**, sometimes called "error analysis" or the "delta method." The coverage is more extensive than in most texts, with a flexible format allowing instructors to easily cover selected topics.
- The text presents an **extensive, self-contained introduction to simulation methods** at a level appropriate for introductory students, including the bootstrap and applications to estimating probabilities, estimating bias, computing confidence intervals, and testing hypotheses.
- The text provides **more extensive coverage of linear model diagnostic procedures** than is found in most competing texts including a lengthy section on checking model assumptions and transforming variables. The coverage emphasizes that linear models are appropriate only when the relationship between variables is linear. This point is all the more important since it is often overlooked in practice by engineers and scientists (not to mention statisticians).
- **Flexible presentation of probability** addresses the needs of different courses. Allowing for a mathematically rigorous approach, the major results are derived from axioms, with proofs given for most of them. Each result is illustrated with an example or two to promote intuitive understanding. Instructors who prefer a more informal approach may therefore focus on the examples rather than the proofs and skip the optional sections.

CONTENTS

1 Sampling and Descriptive Statistics / 2 Probability / 3 Propagation of Error / 4 Commonly Used Distributions / 5 Confidence Intervals / 6 Hypothesis Testing / 7 Correlation and Simple Linear Regression / 8 Multiple Regression / 9 Factorial Experiments / 10 Statistical Quality Control / A Tables / B Partial Derivatives / C Suggestions for Further Reading / Answers to Selected Exercises / Index

Numerical Methods for Engineers, 5E



Steven C. Chapra, Tufts University
Raymond Canale, Emeritus University of Michigan

2006 / Hardcover / 960 pgs / ISBN 0-07-310156-7

The text website features MATLAB® Appendix from Chapra's brief 2005 text; helpful web links; Study Objectives; COSMOS, PowerPoint images and lecture notes from the text; and a Solutions Manual. Browse http://www.mhhe.com/chapra

The fifth edition of *Numerical Methods for Engineers* continues its tradition of excellence. Instructors love this text because it is a comprehensive text that is easy to teach from. Students love it because it is written for them—with great pedagogy and clear explanations and examples throughout. The text features a broad array of applications, including all engineering disciplines.

The revision retains the successful pedagogy of the prior editions. Chapra and Canale's unique approach opens each part of the text with sections called Motivation, Mathematical Background, and Orientation, preparing the student for what is to come in a motivating and engaging manner. Each part closes with an Epilogue containing sections called Trade-Offs, Important Relationships and Formulas, and Advanced Methods and Additional References. Much more than a summary, the Epilogue deepens understanding of what has been learned and provides a peek into more advanced methods. Users will find use of software packages, specifically MATLAB® and Excel with VBA. This includes material on developing MATLAB® m-files and VBA macros.

The expanded breadth of engineering disciplines covered is especially evident in the problems, which now cover such areas as biotechnology and biomedical engineering.

NEW TO THIS EDITION

- Approximately 80% of the problems are new or revised for this edition.
- Users have access to an Online Learning Center which will house PowerPoint slides of all text figures, M-Files, general textbook information and more!
- Available to instructors only, the detailed solutions for all text problems will be delivered via CD-ROM, in our new, Complete Online Solutions Manual Organization System (COSMOS).

FEATURES

- Challenging problems drawn from all engineering disciplines are included in the text.
- Chapra is known for his clear explanations and elegantly rendered examples.
- The text includes a helpful appendix chapter, Getting Started with MATLAB®.

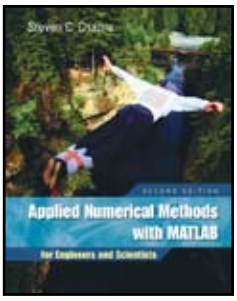
CONTENTS

Part 1 Modeling, Computers, and Error Analysis / 1 Mathematical Modeling and Engineering Problem Solving / 2 Programming and Software / 3 Approximations and Round-Off Errors / 4 Truncation Errors and the Taylor Series / **Part 2 Roots of Equations** / 5 Bracketing Methods / 6 Open Methods / 7 Roots of Polynomials / 8 Case Studies: Roots of Equations / **Part 3 Linear Algebraic Equations** / 9 Gauss Elimination / 10 LU Decomposition and Matrix Inversion / 11 Special Matrices and Gauss-Seidel / 12 Case Studies: Linear Algebraic Equations / **Part 4 Optimization** / 13 One-Dimensional Unconstrained Optimization / 14 Multidimensional Unconstrained Optimization / 15 Constrained Optimization / 16 Case Studies: Optimization / **Part 5 Curve Fitting** / 17 Least-Squares Regression / 18 Interpolation / 19 Fourier Approximation / 20 Case Studies: Curve Fitting/ **Part 6 Numerical Differentiation and Integration** / 21 Newton-Cotes Integration Formulas / 22 Integration of Equations / 23 Numerical Differentiation / 24 Case Studies: Numerical Integration and Differentiation / **Part 7 Ordinary Differential Equations** / 25 Runge-Kutta Methods / 26 Stiffness and Multistep Methods / 27 Boundary-Value and Eigenvalue Problems / 28 Case Studies: Ordinary Differential Equations / **Part 8 Partial Differential Equations** / 29 Finite Difference: Elliptic Equations / 30 Finite Difference: Parabolic Equations / 31 Finite-Element Method / 32 Case Studies: Partial Differential Equations / Appendices / A The Fourier Series / B Getting Started with MATLAB® / Bibliography / Index

SUPPLEMENT

COSMOS t/a Numerical Methods for Engineers

Applied Numerical Methods with MATLAB® for Engineers and Scientists, 2E



New Edition

Steven C. Chapra, Tufts University

2008 / Hardcover / 544 pgs / ISBN 0-07-313290-X

The web site features student and instructor resources such as an image bank, lecture slides, helpful web links, study objectives, and more! (Browse http://www.mhhe.com/chapra)

Steven Chapra's new second edition, *Applied Numerical Methods with MATLAB® for Engineers and Scientists*, is written for engineers and scientists who want to learn numerical problem solving. This text focuses on problem-solving (applications) rather than theory, using MATLAB®, and is intended for Numerical Methods users; hence theory is included only to inform key concepts. The new second edition feature new material such as Numerical Differentiation and ODE's: Boundary-Value Problems.

NEW TO THIS EDITION

- Based on response from users and reviewers, 4 New Chapters have been added to the second edition to provide a more accessible presentation, while maintaining its student-friendly flavor.
  - ~Optimization
  - ~Numerical Differentiation
  - ~ODES: Boundary-Value Problems
  - ~Fast Fourier Transform. This appendix chapter is presented in an introductory fashion to illustrate the power of MATLAB® and to let students go away recognizing that although they have just scratched the surface, they might want to pursue the topic in greater depth in future courses.
- 50% new or revised chapter and homework problems

FEATURES

- Explanations are straight-forward and practically oriented. The math level is considered, just to be at the right level—not too easy or rigorous, just right.
- Extensive use of engineering examples, case studies, and applications are given throughout the text.
- Each chapter is well integrated with MATLAB® M-files. In addition, relevant MATLAB® functions are introduced in each chapter.
- MATLAB® is used as the primary computing environment. All algorithms are presented as m-files.
- A text Web site is available at http://www.mhhe.com/chapra

CONTENTS

Part One Modeling, Computers, and Error Analysis / 1 Mathematical Modeling Numerical Methods and Problem Solving / 2 MATLAB® Fundamentals / 3 Programming with MATLAB® / 4 Roundoff and Trunication Errors / Part Two Roots and Optimization / 5 Roots: Bracketing Methods / 6 Roots: Open Methods / 7 Optimization / Part Three Linear Systems / 8 Linear Algebraic Equations and Matrices / 9 Gauss Elimination / 10 LU Factorization / 11 Matrix Inverse and Condition / 12 Iterative Methods / Part Four Curve Fitting / 13 Linear Regression / 14 General Linear Least-Squares and Non-Linear Regression / 15 Polynomial Interpolation / 16 Splines and Piecewise Interpolation / Part Five Integration and Differentiation / 17 Numerical Integration Formulas / 18 Numerical Integration of Functions / 19 Numerical Differentiation / Part Six Ordinary Differential Equations / 20 Initial-Value Problems / 21 Adaptive Methods and Stiff Systems / 22 Boundary-Value Problems / Appendices / A: Eigenvalues Appendix / B: MATLAB® Built-in Functions / C: MATLAB® M-File Functions / Bibliography / Index

Engineering Formulas, 8E

New!

Kurt Gieck, Heilbronn A.N., Germany
Reiner Gieck

2006 / Hardcover / 580 pgs / ISBN 0-07-145774-7

McGraw-Hill Professional

This is a revision of the famed pocket guide giving engineers, scientists, technicians, and students thousands of essential technical and mathematical formulas and hundreds of diagrams to simplify and speed their calculations.

NEW TO THIS EDITION

- A one stop source of essential engineering and scientific formulas
- Blank pages provide space for notes
- Environment additions including, noise, water, soil pollution, waste recycling, and ozone tables
- Current symbols and standards revised and updated
- Electrical engineering additions including small electric motors
- HVAC applications added

CONTENTS

1 Units / 2 Areas / 3 Solid Bodies / 4 Arithmetic / 5 Functions of a Circle / 6 Analytical Geometry / 7 Statistics / 8 Differential Calculus / 9 Integral Calculus / 10 Differential Equations / 11 Statics / 12 Kinematics / 13 Dynamics / 14 Hydraulics / 15 Heat / 16 Strength / 17 Machine Parts / 18 Production Engineering / 19 Electrical Engineering / 20 Control Engineering / 21 Chemistry / 22 Radiation Physics / 23 Tables

Standard Handbook of Engineering Calculations, 4E

Tyler G. Hicks

2005 / Hardcover / 1200 pgs / ISBN 0-07-142793-7

McGraw-Hill Professional

NEW TO THIS EDITION

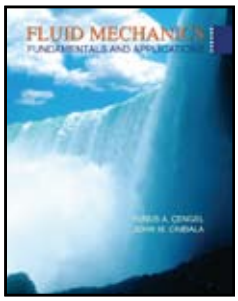
- Wind-energy system calculations
- Complying with new environmental requirements in engineering
- Structural engineering changes in buildings to fight terrorism
- Data on suitable computer programs for solving repetitive computational problems
- Data on Websites containing useful engineering information on standards, units of measurement, design methodology, dimensioning, vibrations, etc.
- New power plant cost saving calculations
- Finite element analysis methods of calculation
- Data on refrigerants required to replace Freon gases
- New design code calculations in civil engineering
- New pump material and calculation methods
- All ten major engineering fields included

CONTENTS

Contributors and Advisors / Preface / How to Use This Handbook/ Section 1. Civil Engineering *(Max Kurtz)* / Section 2. Architectural Engineering *(Max Kurtz)* / Section 3. Mechanical Engineering *(Joseph Leto, Gerald M. Eisenberg, Stephen M. Eber, Jerome F. Mueller, Tyler G. Hicks, Edgar J. Kates, B.G.A. Skrotzki, Raymond J. Roark, S.W. Spielvogel, Rufus Oldenburger, Lyman F. Scheel)* / Section 4. Electrical Engineering *(Andrew W. Edwards, Harold L. Rorden, Frederick W. Suhr)* / Section 5. Chemical and Process Plant Engineering *(Robert L. Davidson, John S. Rearick, Tyler G. Hicks)* / Section 6. Water and Waste-Water Engineering *(Edmund B. Besselievre, Tyler G. Hicks, Max Kurtz)* / Section 7. Environmental Engineering *(Tyler G. Hicks, Joseph Leto)*

FLUID MECHANICS

Fluid Mechanics w/Student Resources DVD



Yunus A. Cengel, University of Nevada-Reno
John M. Cimbala, Pennsylvania State University–University Park

2006 / Hardcover / 864 pgs / ISBN 0-07-304465-2

Browse http://www.mhhe.com/cengel

Fluid Mechanics: Fundamentals and Applications communicates directly with tomorrow's engineers in a simple yet precise manner. The text covers the basic principles and equations of fluid mechanics in the context of numerous and diverse real-world engineering examples. The text helps students develop an intuitive understanding of fluid mechanics by emphasizing the physics, and by supplying attractive figures, numerous photographs and visual aids to reinforce the physics.

FEATURES

- EMPHASIS ON PHYSICS. This text emphasizes the physical aspects of the subject matter in addition to mathematical representations and manipulations. The authors believe that the emphasis in undergraduate education should remain on developing a sense of the underlying physical mechanisms and a mastery of solving practical problems than an engineer is likely to face in the real world.
- VISUAL PROGRAM. fluid mechanics is a highly visual subject,and students learn more effectively by visual stimulation. Our text features more illustrations and photographs than other books in this category. Some of the figures and photographs in the text are intended to serve as a means of emphasizing key concepts that would otherwise go unnoticed; some serve as page summaries.
- VIDEO CLIPS AND ANIMATIONS. In addition to text figures and photographs, there are narrated video clips of fluid mechanics experiments that complement the text material. There are also dozens of animations created with computational fluid dynamics. Both the video clips and animations can be found on the DVD that accompanies the text.
- SYSTEMATIC SOLUTION PROCEDURE. A well-structured approach is used in problem solving while maintaining an informal conversational style. The problem is first stated and the objectives are identified, and the assumptions made are stated together with their justifications. The properties needed to solve the problem are listed separately. Numerical values are used together with their units to emphasize that numbers without units are meaningless, and unit manipulations are a important as manipulating the numerical values with a calculator. The significance of the findings is discussed following the solutions. This approach is also used consistently in the solutions presented in the Instructor's Solutions Manual.
- REALISTIC END-OF-CHAPTER PROBLEMS. End-of-chapter problems are grouped under specific topics in the order they are covered to make problem selection easier for both instructors and students. Within each group of problems are CONCEPT QUESTIONS, to check the students' level of understanding of basic concepts. The COMPREHENSIVE AND REVIEW PROBLEMS are not directly tied to any specific section of a chapter—in some cases they require review of material used in previous chapters.
- DESIGN AND ESSAY PROBLEMS. This special category of end-of-chapter problems encourages students to make engineering judgments, to conduct independent exploration of topics of interest, and to communicate their findings in a professional manner.
- COMPUTER PROBLEMS. Throughout the text comprehensive problems that require conducting extensive parametric studies are incorporated using either a spreadsheet or the enclosed EES (or other suitable) software. These problems are designated by a computer icon for easy recognition.
- CHAPTER ON CFD. Commercial CFD (Computational Fluid Dynamics) codes are used widely in engineering practice in the design and analysis of flow systems, and it has become exceedingly important for students to have a solid understanding of the fundamental aspects, capabilities, and common pitfalls of CFD. Chapter 15 describes the fundamental concepts of CFD, and shows students how to use commercial CFD codes as a tool to solve complex fluid mechanics problems. We emphasize the application of CFD rather than the algorithms used in CFD code.
- APPLICATIONS SPOTLIGHT. Written by guest authors, this feature is designed to show how fluid mechanics has diverse applications in a wide variety of fields. The Application Spotlights highlight industry and university research worldwide.
- CHOICE OF SI ALONE OR SI/ENGLISH UNITS. In recognition of the fact that English units are still widely used in some industries, both SI and English units are used in this text, with an emphasis on SI. Problems, tables, and charts in English units are designated by "E" after the number for easy recognition, and they can be ignored easily by SI users.
- ACCURACY. The accuracy of the book will be insured by thorough testing.
- STUDENT DVD: Packaged free with the text, the Student Resources DVD features: 1) Limited Academic Version of EES (Engineering Equation Solver) software with scripted solutions to selected text problems, 2) Video Clips of fluid mechanics experiments; and 3) Animations Library (Courtesy of Fluent, Inc.) offering dozens of animations created with CFD.
- INSTRUCTOR'S RESOURCE CD. This CD provides all of the text images in Jpeg and PowerPoint formats and the detailed solutions to all text problems are delivered in our electronic solutions manual and organization system—COSMOS. COSMOS is a database management tool geared toward assembling homework assignments, tests, and quizzes.

CONTENTS

1 Introduction and Basic Concepts / 2 Properties of Fluids / 3 Pressure and Fluid Statics / 4 Fluid Kinematics / 5 Bernoulli and Energy Equations / 6 Momentum and Analysis of Flow Systems / 7 Dimensional Analysis and Flow Systems / 8 Flow in Pipes / 9 Differential Analysis of Fluid Flow / 10 Approximations of the Navier-Stokes Equation / 11 Flow Over Bodies: Drag and Lift / 12 Compressible Flow / 13 Open-Channel Flow / 14 Turbomachinery / 15 Computational Fluid Dynamics (CFD)/ Appendices / 1 Property Tables and Charts (SI Units) / 2 Property Tables and Charts (English Units) / 3 Introduction to EES

SUPPLEMENTS

Student Resources DVD T/A Fluid Mechanic s
COSMOS t/a Fundamentals of Fluid Mechanics

Fluid Mechanics for Chemical Engineers, 3E

Noel de Nevers, University of Utah–Salt Lake City

2005 / Hardcover / 632 pgs / ISBN 0-07-297676-4

The text Web site includes general textbook information, the instructor solutions manual, errata and spreadsheets. (Browse http://highered.mcgraw-hill.com/sites/0072976764)

Fluid Mechanics for Chemical Engineers, Third Edition retains the characteristics that made this introductory text a success in prior editions. It emphasizes material and energy balances and maintains a practical orientation throughout. No more math is included than is required to understand the concepts presented. To meet the demands of today's market, the author has included many problems suitable for solution by computer. Three brand new chapters are included. Chapter 15 on Two- and Three Dimensional Fluid Mechanics, Chapter 19 on Mixing, and Chapter 20 on Computational Fluid Dynamics (CFD).

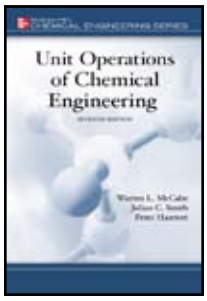
NEW TO THIS EDITION

- Approximately 30% of the homework problems have been revised or are new.
- New Chapter 15 on Two- and Three- Dimensional Fluid Mechanics.
- New chapter 19 titled Mixing.
- New chapter 20 titled Computational Fluid Dynamics (CFD).
- Many new examples and homework problems that are suitable for computer solution are included.
- Examples are presented in both SI and English units.
- The pump chapter treats not only the centrifugal pumps (which are the only type treated in most texts) but also positive displacement and regenerative pumps.
- Explicit treatment of jet pumps, with a Bunsen Burner as a solved example.
- A text Web site is available at http://www.mcgrawhillengineeringcs.com

CONTENTS

UNIT OPERATIONS/DESIGN/CONTROL

Unit Operations of Chemical Engineering, 7E



Warren McCabe (deceased)
Julian Smith, Cornell University–Ithaca
Peter Harriott, Cornell University–Ithaca

2005 / Hardcover / 1152 pgs / ISBN 0-07-284823-5

The text site includes the solutions to end-of-chapter problems, PowerPoint slides of the text figures and general textbook information. (Browse http://www.mhhe.com/mccabe7e)

Since 1956, this text has been the most comprehensive of the introductory, undergraduate, chemical engineering titles available. Separate chapters are devoted to each of the principal unit operations, grouped into four sections: fluid mechanics, heat transfer, mass transfer and equilibrium stages, and operations involving particulate solids.

Now in its seventh edition, the text still continues its balanced treatment of theory and engineering practice, with many practical, illustrative examples included. Unique topics of this text include diafiltration, adsorption and membrane operations.

NEW TO THIS EDITION

- Approximately 30% of the problems have been revised or are new. A majority of these new problems involve SI units; students in the United States must be familiar with both sets of units and this text helps to reach that goal.
- Expanded coverage of biochemistry and food processing.
- The section on fluid viscosity in Chap. 3 is expanded to include simple theories for gases and liquids.

CONTENTS

SUPPLEMENT

Instructor and Student Resource Web site t/a Unit Operations of Chemical Engineering

Optimization of Chemical Processes, 2E

Thomas F. Edgar, University of Texas at Austin
David. M. Himmelblau, University of Texas at Austin

2001 / Hardcover / 672 pgs / ISBN 0-07-039359-1

www.mhhe.com/engcs/chemical/edgar

This book is an update of a successful first edition that has been extremely well received by the experts in the chemical process industries. The authors explain both the theory and the practice of optimization, with the focus on the techniques and software that offer the most potential for success and give reliable results. Applications and case studies in optimization are presented with new examples taken from the areas of microelectronics processing and molecular modeling. Ample references are cited for those who wish to explore the theoretical concepts in more detail.

CONTENTS

Conceptual Design of Chemical Processes

James Douglas, University of Massachusetts–Amherst

1988 / Hardcover / 601 pgs / ISBN 0-07-017762-7

This text explains the concepts behind process design. It uses a case study approach, guiding readers through realistic design problems, and referring back to these cases at the end of each chapter. Throughout, the author uses shortcut techniques that allow engineers to obtain the whole focus for a design in a very short period (generally less than two days).

CONTENTS
Part I A Strategy for Process Synthesis and Analysis / 1 The Nature of Process Synthesis and Analysis / 2 Engineering Economics / 3 Economic Decision Making-Design of a Solvent Recovery System / **Part II Developing A Conceptual Design and Finding the Best Flowsheet** / 4 Input Information and Batch vs. Continuous / 5 Input-Output Structure of the Flowsheet / 6 Recycle Structure of the Flowsheet / 7 Separation System / 8 Heat-Exchanger Networks / 9 Cost Diagrams and the Quick Screening of Process Alternatives / **Part III Other Design Tools and Applications** / 10 Preliminary Process Optimization / 11 Process Retrofits / 12 Computer-Aided Design Programs / 13 Summary of the Conceptual Design Procedure and Extensions of the Method

SUPPLEMENT
Instructor's Manual

PROCESS CONTROL

Process Control: Designing Processes and Control Systems for Dynamic Performance, 2E

Thomas E. Marlin, McMaster University

2000 / Hardcover / 1056 pgs / ISBN 0-07-039362-1

www.pc-education.mcmaster.ca

This is a revision of a well received new book for what is a required course in Chemical Engineering. The author uniquely emphasizes practices in industry so that students learn what aspects of plant design & control are critical.

This book identifies process as the central factor in plant automation and develops theory and practice to present the parameters of good dynamic performance. Approaches are presented for measurement selection, process/modification, control structure design and algorithm tuning to achieve good performance over a range of operating conditions. The sequence of topics (modeling, single-loop control and tuning, enhancements, multiloop control, and design) builds the students' ability to analyze increasingly complex systems, culminating in multiloop control design.

CONTENTS
1 Introduction to Process Control / 2 Control Objectives and Benefits / 3 Mathematical Modeling Principles / 4 Modeling and Analysis for Process Control / 5 Dynamic Behavior of Typical Process Systems / 6 Empirical Model Identification / 7 The Feedback Loop / 8 The Proportional-Integral-Derivative (PID) Algorithm / 9 PID Controller Tuning for Dynamic Performance / 10 Stability Analysis and Controller Tuning / 11 Digital Implementation of Process Control / 12 Practical Application of Feedback Control / 13 Performance of Feedback Control Systems / 14 Cascade Control / 15 Feedforward Control / 16 Adapting Single-Loop Control Systems for Non-Linear Processes / 17 Inferential Control / 18 Level and Inventory Control / 19 Single-Variable Model Predictive Control / 20 Multiloop Control Effects of Interaction / 21 Multiloop Control Performance Analysis / 22 Variable Structure and Constraint Control / 23 Centralized Multivariable Control / 24 Process Control Design Definition and Decisions / 25 Process Control Design Managing the Design Procedure / 26 Control for Product Quality and Profit / Appendices

SUPPLEMENT
Solution Manual

Process Systems Analysis and Control, 2E

Donald R. Coughanowr, Drexel University

1991 / Hardcover / 640 pgs / ISBN 0-07-013212-7

A thorough revision of the best-selling text on Process Dynamics and Control, this edition features inclusion of the use of the digital computer in problem solving. The volume also contains seventeen fundamentals chapters. New end-of-chapter problems and examples have been added. PC-based software by Tutsim Products is packaged with the solutions manual.

CONTENTS
1 An Introductory Example / **Part I The Laplace Transform** / 2 The Laplace Transform / 3 Inversion by Partial Fractions / 4 Further Properties of Transforms / **Part II Linear Open-Loop System** / 5 Response of First-Order Systems / 6 Physical Examples of First-Order Systems / 7 Response of First-Order Systems in Series / 8 Higher-Order Systems Second-Order and Transportation Lag / **Part III Linear Closed-Loop Systems** / 9 The Control System / 10 Controllers and Final Control Elements / 11 Block Diagram of a Chemical-Reactor Control System / 12 Closed-Loop Transfer Functions / 13 Transient Response of Simple Control Systems / 14 Stability / 15 Root Locus / **Part IV Frequency Response** / 16 Introduction to Frequency Response / 17 Control System Design by Frequency Response / **Part V Process Applications** / 18 Advanced Control Strategies / 19 Controller Tuning and Process Identification / 20 Control Valves / 21 Theoretical Analysis of Complex Processes / **Part VI Sampled Data Control Systems** / 22 Sampling and Z-transforms. / 23 Open-loop and Closed-loop Response / 24 Stability / 25 Modified Z-transforms / 26 Sampled-Data Control of a First Order Process with Transport Lag / 27 Design of Sampled-data Controllers / **Part VII State Space Methods** / 28 State Space Representation of Physical Systems / 29 Transfer Function Matrix / 30 Multivariable Control / **Part VIII Nonlinear Control** / 31 Examples of Nonlinear Systems / 32 Methods of Phase Plane Analysis / 33 The Describing Function Method / **Part IX Computers in Process Control** / 34 Digital Computer Simulation of Control Systems / 35 Microprocessor-Based Controllers and Distributed Control

SUPPLEMENT
Solutions Manual

DISTILLATION

Conceptual Design of Distillation Systems with CD-ROM

Michael F. Doherty, University of Massachusetts–Amherst
Michael F. Malone, University of Massachusetts–Amherst

2001 / ISBN 0-07-248863-8

www.mhhe.com/engcs/chemical/doherty

This book is a pioneering effort by two of the world's top researchers. The authors have fashioned a text which develops models, the basis for software tools for conceptual design.

The book clearly addresses both analysis and design with sharp attention to supplying mathematical correctness and providing physical insight. A software supplement accompanies the text in a student version.

CONTENTS
1 Introduction / 2 Vapor-Liquid Equilibrium and Flash Separations / 3 Binary Distillation / 4 Distillation of Multicomponent Mixtures Without Azeotropes / 5 Homogeneous Azeotropic Distillation / 6 Column Design and Economics / 7 Column Sequencing and System Synthesis / 8 Heterogeneous Azeotropic Distillation / 9 Batch Distillation / 10 Reactive Distillation

SUPPLEMENT
Solutions Manual

PLANT DESIGN/ECONOMICS

Plant Design and Economics for Chemical Engineers, 5E

Max S. Peters
Klaus D. Timmerhaus, University of Colorado–Boulder
Ronald E. West

2003 / Hardcover / 1008 pgs / ISBN 0-07-239266-5

Instructor Solutions Manual, Sample Chapter, Preface, Concept Quizzes, FE Exam Quizzes and Tips, What's New, Excel Spreadsheets, P-Graph Supplement, Virtual Plant Tour Links, and Pageout (Browse http://www.mhhe.com/peters-timmerhaus)

The fifth edition of *Plant Design and Economics for Chemical Engineers* is a major revision of the popular fourth edition. There are new chapters on process synthesis, computer-aided design, and design of chemical reactors. A traditionally strong feature of the text, economic analysis, has been revamped and updated. Another strength, equipment sizing and cost estimation, is updated and expanded as well. These improvements also reflect changes in equipment availability.

The numerous real examples throughout the book include computer or hand solutions, and often both. There is a new increased emphasis on computer use in design, economic evaluation, and optimization. Concepts, strategies, and approaches to computer use are featured. These concepts are not tied to particular software programs and therefore apply to wide a range of applications software, of both current and future release.

NEW TO THIS EDITION

- A new chapter is offered on computer-aided design, geared to the newer design paradigms, and software is incorporated throughout the text.
- Equipment selection and costing sections are updated and more complete. These sections include easy-to-use equipment applicability tables and costing charts.
- Economic and optimization sections featuring embedded spreadsheets for investment, product-cost estimation, and profitability analysis have been modernized and updated.
- A web page that supports the text contains updates, supplements, and equipment costing information.
- SI units are now the primary units.
- Cost estimation and process economics evaluation software.

CONTENTS

1 Introduction / 2 General Design Considerations / 3 Process Design Development / 4 Flowsheet Synthesis and Development / 5 Software Use in Process Design / 6 Analysis of Cost Estimation / 7 Interest, Time Value of Money, Taxes, and Fixed Charges / 8 Profitability, Alternative Investments, and Replacements / 9 Optimum Design and Design Strategy / 10 Materials and Fabrication Selection / 11 Written and Oral Reports / 12 Materials-Handling Equipment—Design and Costs / 13 Reactor Equipment—Design and Costs / 14 Heat-Transfer Equipment—Design and Costs / 15 Separation Equipment—Design and Costs / Appendices / A The International System (SI) of Units / B Auxiliary, Utility, and Instrumentation Cost Data / C Design Problems / D Tables of Physical Properties and Constants / E Heuristics for Process Equipment Design / F Software Useful for Design

KINETICS/CATALYSIS

Fundamentals of Chemical Reaction Engineering

Mark E. Davis, California Institute of Technology
Robert J. Davis, University of Virginia

2003 / Hardcover / 384 pgs / ISBN 0-07-245007-X

www.mhhe.com/davisdavis

This book is an introduction to the quantitative treatment of chemical reaction engineering. It is appropriate for a one-semester undergraduate (or first-year graduate) course. The text provides a balanced approach: first, it covers both homogeneous and heterogeneous reacting systems; second, it covers both chemical reaction engineering and chemical reactor engineering.

FEATURES

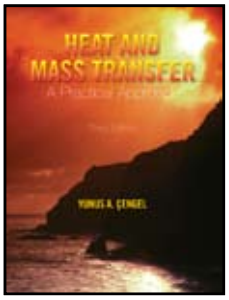
- Each chapter contains numerous vignettes—discussions of real, commercial applications of molecules or analyses described in the text. The vignettes have no equivalent in competing texts and have been universally praised by reviewers.
- The book takes a chemical approach, as opposed to an engineering approach that treats chemistry as a black box.
- Reviewers have praised the originality of the numerous example problems, most of which are drawn from real applications.

CONTENTS

1 The Basics of Reaction Kinetics for Chemical Reaction Engineering / 2 Rate Constants of Elementary Reactions / 3 Reactors for Measuring Reaction Rates / 4 The Steady-State Approximation: Catalysis / 5 Heterogeneous Catalysis / 6 Effects of Transport Limitations on Rates of Solid-Catalyzed Reactions / 7 Microkinetic Analysis of Catalytic Reactions / 8 Nonideal Flow in Reactors / 9 Nonisothermal Reactors / 10 Reactor Accomplishing Heterogeneous Reactions

HEAT TRANSFER

Heat and Mass Transfer: A Practical Approach, 3E



Yunus A. Cengel, University of Nevada-Reno

2007 / Hardcover / ISBN 0-07-325035-X

This website will include EES Software information, Solutions Manual, Image Sets, Lecture Slides, additional chapters, and a Student Survival Guide. Browse http://www.mhhe.com/cengel

With complete coverage of the basic principles of heat transfer and a broad range of applications in a flexible format, *Heat Transfer: A Practical Approach* provides the perfect blend of fundamentals and applications. The text provides a highly intuitive and practical understanding of the material by emphasizing the physics and the underlying physical phenomena involved. Using a reader-friendly approach and a conversational writing style, the book is self-instructive and entertains while it teaches. It shows that highly technical matter can be communicated effectively in a simple yet precise language.

NEW TO THIS EDITION

- ~50% of the problems are new or revised to this edition.
- Fundamentals of Engineering Exam Problems have been added to the end of each chapter.
- Mathematical details of analytical solutions of 1-D transient heat conduction have been added.
- Select "Guest Authors" have been chosen to contribute content to various topics such as Transitional Flow.
- Chapters on *Refrigeration and the Freezing of Foods*, *Heating and Cooling of Buildings* and *Cooling of Electronic Equipment* can be found on the Online Learning Center.
- The Appendix chapter *An Introduction to EES* has been placed on the Online Learning Center.
- Supplements such as lecture slides and helpful web links have been added to the Online Learning Center.
- A list of chapter objectives have been added to the beginning of each chapter.
- Nomenclature has been updated to be consistent with Cengel's *Fluid Mechanics* and *Thermodynamics*.
- The text and its solutions manual have been carefully checked for accuracy.
- Approximately 2,000 Homework Problems including design, computer, essay, and lab-type problems are included.
- Offers unique physics-based approach using real-world, everyday applications to lead students through heat transfer concepts
- A list of helpful web links have been added to the text's web site at http://www.mhhe.com/cengel.
- PowerPoint lecture slides have been added to the text's web site at http://www.mhhe.com/cengel.

FEATURES

- Radiation is covered in two chapters instead of one.
- Electronic Solutions Manual. The detailed solutions for all text problems will be delivered via COSMOS, our Complete Online Solution Manual Organization System. COSMOS helps you to

quickly find solutions and also keeps a record of problems assigned to avoid duplication in subsequent semesters.
- EES (Engineering Equation Solver) CD-ROM packaged free with text. EES is a powerful equation solver with built-in functions and property tables for thermodynamics and transport properties as well as automatic unit checking capability.
- More than 1000 illustrations. This text has a sensational visual appeal that highlight its key learning features.
- The book offers contemporary coverage of the important practical applications, including specific sections and chapters on the Cooling of Electronic Equipment, Heating and Cooling of Buildings, and Refrigeration and Freezing of Foods.
- Complete coverage of the the essential heat transfer topic, convection. Forced convection is covered in three chapters with separate chapters for external flow and internal flow.
- A "Topics of Special Interest" feature is included at the end of most chapters.
- Numerous worked examples with sketches, step-by- step procedures, and process diagrams.
- Safety awareness is promoted through the use of safety-related problems.
- Both SI and English units of measurement are included, with an emphasis on SI.
- Comprehensive computer problems are included. Students can plot the key variables and generate results by using the powerful and intuitive Engineering Equation Solver(EES) software tool (or other suitable programs).

CONTENTS

1 Basic Concepts of Thermodynamics and Heat Transfer / 2 Heat Conduction Equation / 3 Steady Heat Conduction / 4 Transient Heat Conduction / 5 Numerical Methods in Heat Conduction / 6 Fundamentals of Convection / 7 External Forced Convection / 8 Internal Forced Convection / 9 Natural Convection / 10 Boiling and Condensation / 11 Fundamentals of Thermal Radiation / 12 Radiation Heat Transfer / 13 Heat Exchangers / 14 Mass Transfer / 15 Cooling of Electronic Equipment / Appendices / 1 Property Tables and Charts (SI Units) / 2 Property Tables and Charts (English Units) / 3 Introduction to EES

Heat Transfer, 9E

Jack P. Holman, Southern Methodist University

2002 / Hardcover / 688 pgs / ISBN 0-07-240655-0

www.mhhe.com/engcs/mech/holman/

As one of the most popular heat transfer texts, Jack Holman's *Heat Transfer* is noted for its clarity, accessible approach, and inclusion of many examples and problem sets. The Ninth Edition retains the straight-forward, to-the-point writing style while covering both analytical and empirical approaches to the subject. Throughout the book, emphasis is placed on physical understanding while, at the same time, relying on meaningful experimental data in those situations that do not permit a simple analytical solution. New examples and templates provide students with updated resources for computer-numerical solutions.

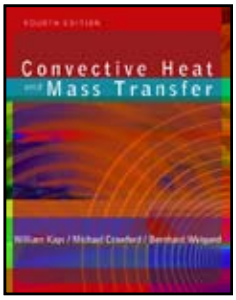
CONTENTS

1 Introduction / 2 Steady-State Conduction—One Dimension / 3 Steady-State Conduction—Multiple Dimensions / 4 Unsteady-State Conduction / 5 Principles of Convection / 6 Empirical and Practical Relations for Forced-Convection Heat Transfer / 7 Natural Convection Systems / 8 Radiation Heat Transfer / 9 Condensation and Boiling Heat Transfer / 10 Heat Exchangers / 11 Mass Transfer / Appendixes / A Tables / B Exact Solutions of Laminar-Boundary-Layer Equations / C Analytical Relations for the Heisler Charts / D Use of Microsoft Excel for Solution of Heat-Transfer Problems

SUPPLEMENT

Instructor's Solutions Manual

Convective Heat & Mass Transfer, 4E



William M. Kays, Stanford University
Michael E. Crawford, University of Texas at Austin
Bernhard Weigand, Universitat Stuttgart

2005 / Hardcover / 576 pgs / ISBN 0-07-299073-2

Find password-protected solutions to chapter problems for instructors and additional information on TEXSTAN. (Browse http://highered.mcgraw-hill.com/sites/0072990732)

The 4th edition *Convective Heat and Mass Transfer* continues the trend of encouraging the use of a numerically based, computational approach to solving convective heat and mass transfer problems, in addition to classical problem-solving approaches. This best-selling text also presents a strong theoretical basis for the subject of convective heat and mass transfer by focusing on boundary layer theory and provides optional coverage of the software teaching tool TEXSTAN.

NEW TO THIS EDITION

- Significant revisions include an expanded chapter on convective heat transfer with body forces, reduced focus on heat exchanger theory, completely rewritten chapters on mass transfer to include more engineering examples for both low and high transfer rates that provide the student with more insight into a seemingly difficult subject.
- The use of TEXSTAN software is covered in the appendix and integrated into computer problems throughout the book.
- Increased coverage of modern numerical and computer techniques.
- Instructors can find password-protected solutions on EngineeringCS.com as well as additional information on TEXSTAN.

FEATURES

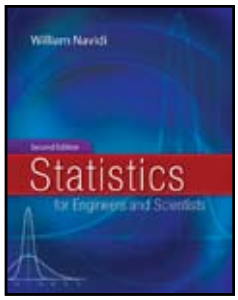
- Numerous design sections show how analytical techniques are actually used to model heat exchangers, etc.
- Computer Problems included in each chapter problem set.

CONTENTS

1 Introduction / 2 Conservation Principles / 3 Fluid Stresses and Flux Laws / 4 Differential Equations for the Laminar Boundary Layer / 5 Integral Equations for the Boundary Layer / 6 Differential Equations for the Turbulent Boundary Layer / 7 Laminar Internal Flows: Momentum Transfer / 8 Laminar Internal Flows: Heat Transfer / 9 Laminar External Boundary Layers: Momentum Transfer / 10 Laminar External Boundary Layers: Heat Transfer / 11 Turbulent External Boundary Layers: Momentum Transfer / 12 Turbulent External Boundary Layers: Heat Transfer / 13 Turbulent Internal Flows: Momentum Transfer / 14 Turbulent Internal Flows: Heat Transfer / 15 Influence of Temperature-Dependent Fluid Properties / 16 Convective Heat Transfer at High Velocities / 17 Convective Heat Transfer with Body Forces / 18 Convective Mass Transfer: Basic Definitions and Formulation of a Simplified Theory / 19 Convective Mass Transfer: Evaluation of the Mass-Transfer Conductance from the Conserved-Property(*P*) Equation / 20 Convection Mass Transfer: Examples for Application of the Simplified Method / Appendices / A Property Values / B Dimensions and Conversion to SI / C Some Tables of Functions Useful in Boundary-Layer Analysis / D Operations Implied by the Operator / E Detailed Derivation of the Simplified Mass-Diffusion and Energy Equation (P) for Convective Mass Transfer Problems and the Corresponding Boundary Conditions / F The TEXSTAN Boundary-Layer Code / G Blasius Flow—A Sample Data Set for TEXSTAN / H TEXSTAN Data Sets

ENGINEERING MATH/STATISTICS

Statistics for Engineers and Scientists, 2E



New Edition

William C. Navidi, Colorado School of Mines

2008 / Hardcover / 675 pgs / ISBN 0-07-330949-4

Browse http://www.mhhe.com/navidi2

The second edition of this book is intended to extend the strengths of the first. Some of the changes include:

- More than 200 new exercises have been added.
- A new section on point estimation has been added to Chapter 4.
- The material on histograms in Chapter 1 has been completely revised.
- Chapter 2 now contains a discussion of Chebyshev's inequality. • Chapter 4 now contains a discussion of the uniform distribution.
- The section on the normal distribution contains a discussion on linear functions of normal random variables.
- Chapter 7 contains additional material on the correlation coefficient.
- Chapter 10 contains a discussion of the relationship between control charts and hypothesis tests.
- The exposition has been improved in a number of places.

Also new for this edition is the ARIS online course management system. ARIS provides automatic grading of student assignments and keeps a record of students' grades. In addition, ARIS contains problems for student practice, along with Java applets that allow students to interactively explore ideas in the text. Customizable PowerPoint lecture notes for each chapter are available as well, along with suggested syllabi, and other features. More information can be found at aris.mhhe.com.

William Navidi is Professor of Mathematical and Computer Sciences at the Colorado School of Mines. He received the B.A. degree in mathematics from New College, the M.A. in mathematics from Michigan State University, and the Ph.D. in statistics from the University of California at Berkeley. Professor Navidi has authored more than 50 research papers both in statistical theory and in a wide variety of applications including computer networks, epidemiology, molecular biology, chemical engineering, and geophysics.

NEW TO THIS EDITION

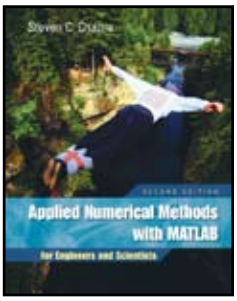
- McGraw-Hill's ARIS online Homework Manager has been added to this edition and features algorithmic problems and gradebook capability. Instructors will have access to data sets, solutions, lecture powerpoints, and images from the text.
- Over 180 new homework problems have been added throughout.

FEATURES

- An engaging writing style explains difficult concepts clearly. While including the mathematics necessary for clear understanding, the text makes extensive use of examples to motivate fundamental concepts and to develop intuition.
- Contemporary, real world data sets are one of the defining features of this text. With a fresh approach to the subject, the author uses contemporary data sets to help motivate students and show direct connection to industry and research.
- In line with modern trends, the text contains exercises suitable for solving with computer software. These examples and exercises involve interpreting, as well as generating, computer output. The student edition of MINITAB, the widely used statistical software package, is available bundled with the text.
- A separate chapter provides **extensive coverage of propagation of error**, sometimes called "error analysis" or the "delta method." The coverage is more extensive than in most texts, with a flexible format allowing instructors to easily cover selected topics.
- The text presents an **extensive, self-contained introduction to simulation methods** at a level appropriate for introductory students, including the bootstrap and applications to estimating probabilities, estimating bias, computing confidence intervals, and testing hypotheses.
- The text provides **more extensive coverage of linear model diagnostic procedures** than is found in most competing texts including a lengthy section on checking model assumptions and transforming variables. The coverage emphasizes that linear models are appropriate only when the relationship between variables is linear. This point is all the more important since it is often overlooked in practice by engineers and scientists (not to mention statisticians).
- **Flexible presentation of probability** addresses the needs of different courses. Allowing for a mathematically rigorous approach, the major results are derived from axioms, with proofs given for most of them. Each result is illustrated with an example or two to promote intuitive understanding. Instructors who prefer a more informal approach may therefore focus on the examples rather than the proofs and skip the optional sections.

CONTENTS

Applied Numerical Methods with MATLAB® for Engineers and Scientists, 2E



New Edition

Steven C. Chapra, Tufts University

2008 / Hardcover / 544 pgs / ISBN 0-07-313290-X

The web site features student and instructor resources such as an image bank, lecture slides, helpful web links, study objectives, and more! (Browse http://www.mhhe.com/chapra)

Steven Chapra's new second edition, *Applied Numerical Methods with MATLAB® for Engineers and Scientists*, is written for engineers and scientists who want to learn numerical problem solving. This text focuses on problem-solving (applications) rather than theory, using MATLAB®, and is intended for Numerical Methods users; hence theory is included only to inform key concepts. The new second edition feature new material such as Numerical Differentiation and ODE's: Boundary-Value Problems.

NEW TO THIS EDITION

- Based on response from users and reviewers, 4 New Chapters have been added to the second edition to provide a more accessible presentation, while maintaining its student-friendly flavor.
  - ~Optimization
  - ~Numerical Differentiation
  - ~ODES: Boundary-Value Problems
  - ~Fast Fourier Transform. This appendix chapter is presented in an introductory fashion to illustrate the power of MATLAB® and to let students go away recognizing that although they have just scratched the surface, they might want to pursue the topic in greater depth in future courses.
- 50% new or revised chapter and homework problems

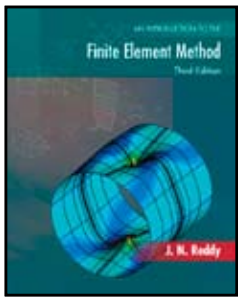
FEATURES

- Explanations are straight-forward and practically oriented. The math level is considered, just to be at the right level—not too easy or rigorous, just right.
- Extensive use of engineering examples, case studies, and applications are given throughout the text.
- Each chapter is well integrated with MATLAB® M-files. In addition, relevant MATLAB® functions are introduced in each chapter.
- MATLAB® is used as the primary computing environment. All algorithms are presented as m-files.
- A text Web site is available at http://www.mhhe.com/chapra

CONTENTS

Methods and Stiff Systems / 22 Boundary-Value Problems / Appendices / A: Eigenvalues Appendix / B: MATLAB® Built-in Functions / C: MATLAB® M-File Functions / Bibliography / Index

An Introduction to the Finite Element Method, 3E



J. N. Reddy, Texas A & M University

2006 / Hardcover / 912 pgs / ISBN 0-07-246685-5

The Instructor and Student Resource Web site contains general textbook information, solutions to end-of-chapter problems, executables and supplementary chapters on the FEM1D and FEM2D computer programs. (Browse http://www.mhhe.com/reddy3e)

J.N. Reddy's, *An Introduction to the Finite Element Method*, third edition is an update of one of the most popular FEM textbooks available. The book retains its strong conceptual approach, clearly examining the mathematical underpinnings of FEM, and providing a general approach of engineering application areas.

Known for its detailed, carefully selected example problems and extensive selection of homework problems, the author has comprehensively covered a wide range of engineering areas making the book appropriate for all engineering majors, and underscores the wide range of use FEM has in the professional world.

NEW TO THIS EDITION

- Approximately 30% of the problems have been revised or are new to this edition.
- The previous Chapter 3, Second-Order Boundary Value Problems, has been split into two chapters for the third edition. Chapter 3 is now Second-Order Differential Equations in One-Dimension: Finite Element Models, and Chapter 4 is now Second-Order Differential Equations in One-Dimension: Applications.

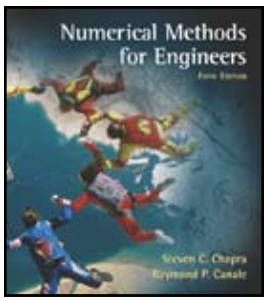
FEATURES

- Worked examples are said to be one of the best features of this text. The examples are detailed, carefully selected and a number of examples that show FEM applications are included in this text.
- Strong coverage of FEM's mathematical foundations.
- Comprehensive coverage of material from general field problems as well heat transfer, fluid mechanics, and solid and structural mechanics (bars, beams, frames, plane elasticity and plate bending).
- The text includes a variety of problems including some for hand calculation, some to be solved using the computer, and others of the class project variety, which can be done with commercial FEM packages if the professor so chooses. The problems are a major feature of this text.

CONTENTS

1 Introduction / 2 Mathematical Preliminaries, Integral Formulations, and Variational Methods / 3 Second-order Differential Equations in One Dimension: Finite Element Models / 4 Second-order Differential Equations in One Dimension: Applications / 5 Beams and Frames / 6 Eigenvalue and Time-Dependent Problems / 7 Computer Implementation / 8 Single-Variable Problems in Two Dimensions / 9 Interpolation Functions, Numerical Integration, and Modeling Considerations / 10 Flows of Viscous Incompressible Fluids / 11 Plane Elasticity / 12 Bending of Elastic Plates / 13 Computer Implementation of Two-Dimensional Problems / 14 Prelude to Advanced Topics

Numerical Methods for Engineers, 5E



Steven C. Chapra, Tufts University
Raymond Canale, Emeritus University of Michigan

2006 / Hardcover / 960 pgs / ISBN 0-07-310156-7

The text website features MATLAB® Appendix from Chapra's brief 2005 text; helpful web links; Study Objectives; COSMOS, PowerPoint images and lecture notes from the text; and a Solutions Manual. Browse http://www.mhhe.com/chapra

The fifth edition of *Numerical Methods for Engineers* continues its tradition of excellence. Instructors love this text because it is a comprehensive text that is easy to teach from. Students love it because it is written for them—with great pedagogy and clear explanations and examples throughout. The text features a broad array of applications, including all engineering disciplines.

The revision retains the successful pedagogy of the prior editions. Chapra and Canale's unique approach opens each part of the text with sections called Motivation, Mathematical Background, and Orientation, preparing the student for what is to come in a motivating and engaging manner. Each part closes with an Epilogue containing sections called Trade-Offs, Important Relationships and Formulas, and Advanced Methods and Additional References. Much more than a summary, the Epilogue deepens understanding of what has been learned and provides a peek into more advanced methods. Users will find use of software packages, specifically MATLAB® and Excel with VBA. This includes material on developing MATLAB® m-files and VBA macros.

The expanded breadth of engineering disciplines covered is especially evident in the problems, which now cover such areas as biotechnology and biomedical engineering.

NEW TO THIS EDITION

- Approximately 80% of the problems are new or revised for this edition.
- Users have access to an Online Learning Center which will house PowerPoint slides of all text figures, M-Files, general textbook information and more!
- Available to instructors only, the detailed solutions for all text problems will be delivered via CD-ROM, in our new, Complete Online Solutions Manual Organization System (COSMOS).

FEATURES

- Challenging problems drawn from all engineering disciplines are included in the text.
- Chapra is known for his clear explanations and elegantly rendered examples.
- The text includes a helpful appendix chapter, Getting Started with MATLAB®.

CONTENTS

Part 1 Modeling, Computers, and Error Analysis / 1 Mathematical Modeling and Engineering Problem Solving / 2 Programming and Software / 3 Approximations and Round-Off Errors / 4 Truncation Errors and the Taylor Series / **Part 2 Roots of Equations** / 5 Bracketing Methods / 6 Open Methods / 7 Roots of Polynomials / 8 Case Studies: Roots of Equations / **Part 3 Linear Algebraic Equations** / 9 Gauss Elimination / 10 LU Decomposition and Matrix Inversion / 11 Special Matrices and Gauss-Seidel / 12 Case Studies: Linear Algebraic Equations / **Part 4 Optimization** / 13 One-Dimensional Unconstrained Optimization / 14 Multidimensional Unconstrained Optimization / 15 Constrained Optimization / 16 Case Studies: Optimization / **Part 5 Curve Fitting** / 17 Least-Squares Regression / 18 Interpolation / 19 Fourier Approximation / 20 Case Studies: Curve Fitting/ **Part 6 Numerical Differentiation and Integration** / 21 Newton-Cotes Integration Formulas / 22 Integration of Equations / 23 Numerical Differentiation / 24 Case Studies: Numerical Integration and Differentiation / **Part 7 Ordinary Differential Equations** / 25 Runge-Kutta Methods / 26 Stiffness and Multistep Methods / 27 Boundary-Value and Eigenvalue Problems / 28 Case Studies: Ordinary Differential Equations / **Part 8 Partial Differential Equations** / 29 Finite Difference: Elliptic Equations / 30 Finite Difference: Parabolic Equations / 31 Finite-Element Method / 32 Case Studies: Partial Differential Equations / Appendices / A The Fourier Series / B Getting Started with MATLAB® / Bibliography / Index

SUPPLEMENT

COSMOS t/a Numerical Methods for Engineers

Engineering Formulas, 8E

New!

Kurt Gieck, Heilbronn A.N., Germany
Reiner Gieck

2006 / Hardcover / 580 pgs / ISBN 0-07-145774-7

McGraw-Hill Professional

This is a revision of the famed pocket guide giving engineers, scientists, technicians, and students thousands of essential technical and mathematical formulas and hundreds of diagrams to simplify and speed their calculations.

NEW TO THIS EDITION

- A one stop source of essential engineering and scientific formulas
- Blank pages provide space for notes
- Environment additions including, noise, water, soil pollution, waste recycling, and ozone tables
- Current symbols and standards revised and updated
- Electrical engineering additions including small electric motors
- HVAC applications added

CONTENTS
1 Units / 2 Areas / 3 Solid Bodies / 4 Arithmetic / 5 Functions of a Circle / 6 Analytical Geometry / 7 Statistics / 8 Differential Calculus / 9 Integral Calculus / 10 Differential Equations / 11 Statics / 12 Kinematics / 13 Dynamics / 14 Hydraulics / 15 Heat / 16 Strength / 17 Machine Parts / 18 Production Engineering / 19 Electrical Engineering / 20 Control Engineering / 21 Chemistry / 22 Radiation Physics / 23 Tables

Standard Handbook of Engineering Calculations, 4E

Tyler G. Hicks

2005 / Hardcover / 1200 pgs / ISBN 0-07-142793-7

McGraw-Hill Professional

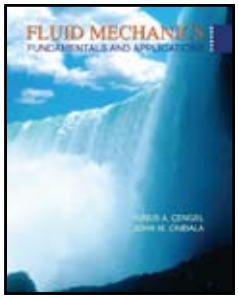
NEW TO THIS EDITION

- Wind-energy system calculations
- Complying with new environmental requirements in engineering
- Structural engineering changes in buildings to fight terrorism
- Data on suitable computer programs for solving repetitive computational problems
- Data on Websites containing useful engineering information on standards, units of measurement, design methodology, dimensioning, vibrations, etc.
- New power plant cost saving calculations
- Finite element analysis methods of calculation
- Data on refrigerants required to replace Freon gases
- New design code calculations in civil engineering
- New pump material and calculation methods
- All ten major engineering fields included

CONTENTS
Contributors and Advisors / Preface / How to Use This Handbook/ Section 1. Civil Engineering *(Max Kurtz)* / Section 2. Architectural Engineering *(Max Kurtz)* / Section 3. Mechanical Engineering *(Joseph Leto, Gerald M. Eisenberg, Stephen M. Eber, Jerome F. Mueller, Tyler G. Hicks, Edgar J. Kates, B.G.A. Skrotzki, Raymond J. Roark, S.W. Spielvogel, Rufus Oldenburger, Lyman F. Scheel)* / Section 4. Electrical Engineering *(Andrew W. Edwards, Harold L. Rorden, Frederick W. Suhr)* / Section 5. Chemical and Process Plant Engineering *(Robert L. Davidson, John S. Rearick, Tyler G. Hicks)* / Section 6. Water and Waste-Water Engineering *(Edmund B. Besselievre, Tyler G. Hicks, Max Kurtz)* / Section 7. Environmental Engineering *(Tyler G. Hicks, Joseph Leto)*

FLUID MECHANICS

Fluid Mechanics w/Student Resources DVD



Yunus A. Cengel, University of Nevada-Reno
John M. Cimbala, Pennsylvania State University–University Park

2006 / Hardcover / 864 pgs / ISBN 0-07-304465-2

Browse http://www.mhhe.com/cengel

Fluid Mechanics: Fundamentals and Applications communicates directly with tomorrow's engineers in a simple yet precise manner. The text covers the basic principles and equations of fluid mechanics in the context of numerous and diverse real-world engineering examples. The text helps students develop an intuitive understanding of fluid mechanics by emphasizing the physics, and by supplying attractive figures, numerous photographs and visual aids to reinforce the physics.

FEATURES

- EMPHASIS ON PHYSICS. This text emphasizes the physical aspects of the subject matter in addition to mathematical representations and manipulations. The authors believe that the emphasis in undergraduate education should remain on developing a sense of the underlying physical mechanisms and a mastery of solving practical problems than an engineer is likely to face in the real world.
- VISUAL PROGRAM. fluid mechanics is a highly visual subject,and students learn more effectively by visual stimulation. Our text features more illustrations and photographs than other books in this category. Some of the figures and photographs in the text are intended to serve as a means of emphasizing key concepts that would otherwise go unnoticed; some serve as page summaries.
- VIDEO CLIPS AND ANIMATIONS. In addition to text figures and photographs, there are narrated video clips of fluid mechanics experiments that complement the text material. There are also dozens of animations created with computational fluid dynamics. Both the video clips and animations can be found on the DVD that accompanies the text.
- SYSTEMATIC SOLUTION PROCEDURE. A well-structured approach is used in problem solving while maintaining an informal conversational style. The problem is first stated and the objectives are identified, and the assumptions made are stated together with their justifications. The properties needed to solve the problem are listed separately. Numerical values are used together with their units to emphasize that numbers without units are meaningless, and unit manipulations are a important as manipulating the numerical values with a calculator. The significance of the findings is discussed following the solutions. This approach is also used consistently in the solutions presented in the Instructor's Solutions Manual.
- REALISTIC END-OF-CHAPTER PROBLEMS. End-of-chapter problems are grouped under specific topics in the order they are covered to make problem selection easier for both instructors and students. Within each group of problems are CONCEPT QUESTIONS, to check the students' level of understanding of basic concepts. The COMPREHENSIVE AND REVIEW PROBLEMS are not directly tied to any specific section of a chapter—in some cases they require review of material used in previous chapters.
- DESIGN AND ESSAY PROBLEMS. This special category of end-of-chapter problems encourages students to make engineering judgments, to conduct independent exploration of topics of interest, and to communicate their findings in a professional manner.
- COMPUTER PROBLEMS. Throughout the text comprehensive problems that require conducting extensive parametric studies are incorporated using either a spreadsheet or the enclosed EES (or other suitable) software. These problems are designated by a computer icon for easy recognition.
- CHAPTER ON CFD. Commercial CFD (Computational Fluid Dynamics) codes are used widely in engineering practice in the design and analysis of flow systems, and it has become exceedingly important for students to have a solid understanding of the fundamental aspects, capabilities, and common pitfalls of CFD. Chapter 15 describes the fundamental concepts of CFD, and shows students how to use commercial CFD codes as a tool to solve complex fluid mechanics problems. We emphasize the application of CFD rather than the algorithms used in CFD code.
- APPLICATIONS SPOTLIGHT. Written by guest authors, this feature is designed to show how fluid mechanics has diverse applications in a wide variety of fields. The Application Spotlights highlight industry and university research worldwide.
- CHOICE OF SI ALONE OR SI/ENGLISH UNITS. In recognition of the fact that English units are still widely used in some industries, both SI and English units are used in this text, with an emphasis on SI. Problems, tables, and charts in English units are designated by "E" after the number for easy recognition, and they can be ignored easily by SI users.
- ACCURACY. The accuracy of the book will be insured by thorough testing.
- STUDENT DVD: Packaged free with the text, the Student Resources DVD features: 1) Limited Academic Version of EES (Engineering Equation Solver) software with scripted solutions to selected text problems, 2) Video Clips of fluid mechanics experiments; and 3) Animations Library (Courtesy of Fluent, Inc.) offering dozens of animations created with CFD.
- INSTRUCTOR'S RESOURCE CD. This CD provides all of the text images in Jpeg and PowerPoint formats and the detailed solutions to all text problems are delivered in our electronic solutions manual and organization system—COSMOS. COSMOS is a database management tool geared toward assembling homework assignments, tests, and quizzes.

CONTENTS
1 Introduction and Basic Concepts / 2 Properties of Fluids / 3 Pressure and Fluid Statics / 4 Fluid Kinematics / 5 Bernoulli and Energy Equations / 6 Momentum and Analysis of Flow Systems / 7 Dimensional Analysis and Flow Systems / 8 Flow in Pipes / 9 Differential Analysis of Fluid Flow / 10 Approximations of the Navier-Stokes Equation / 11 Flow Over Bodies: Drag and Lift / 12 Compressible Flow / 13 Open-Channel Flow / 14 Turbomachinery / 15 Computational Fluid Dynamics (CFD)/ Appendices / 1 Property Tables and Charts (SI Units) / 2 Property Tables and Charts (English Units) / 3 Introduction to EES

SUPPLEMENTS
Student Resources DVD T/A Fluid Mechanic s
COSMOS t/a Fundamentals of Fluid Mechanics

Fluid Mechanics with Engineering Applications, 10E

E. John Finnemore, Santa Clara University
Joseph B. Franzini, Stanford University

2002 / Hardcover / 816 pgs / ISBN 0-07-243202-0

www.mhhe.com/engcs/civil/finnemore/

This book is for civil engineers that teach fluid mechanics both within their discipline and as a service course to mechanical engineering students. As with all previous editions this 10th edition is extraordinarily accurate, and its coverage of open channel flow and transport is superior. There is a broader coverage of all topics in this edition of *Fluid Mechanics with Engineering Applications*.

Furthermore, this edition has numerous computer-related problems that can be solved in MATLAB® and Mathcad®.

CONTENTS
1 Introduction / 2 Properties of Fluids / 3 Fluid Statics / 4 Basics of Fluid Flow / 5 Energy in Steady Flow / 6 Momentum and Forces in Fluid Flow / 7 Similitude and Dimensional Analysis / 8 Steady Incompressible Flow in Pressure Conduits / 9 Forces on Immersed Bodies / 10 Steady Flow in Open Channels / 11 Fluid Measurement / 12 Unsteady-Flow Problems / 13 Steady Flow of Compressible Fluids / 14 Ideal Flow Mathematics / 15 Hydraulic Machinery—Pumps / 16 Hydraulic Machinery—Turbines

SUPPLEMENT
Solutions Manual

Surveying: Theory andPractice, 7E

James M. Anderson, University of California–Berkeley
Edward M. Mikhail, Purdue University–West Lafayette

1998 / Hardcover / 1200 pgs / ISBN 0-07-015914-9

This updated edition contains the same breadth and depth as previous editions with pertinent chapter topics divided into two parts. Part A covers elementary topics and Part B covers advanced topics. This innovative design, coupled with the most recent developments in technology, complements first- and second-level courses in surveying without losing its value as a reference textbook.

CONTENTS
I Concepts / 1 Surveying and Mapping / 2 Survey Measurements and Adjustments / 3 Planning and Data Acquisition / **II Basic Survey Measurements** / 4 Distance Measurement / 5 Vertical Distance Measurement Leveling / 6 Angle and Direction Measurements / 7 Combined Distance and Angle Measurement System / **III Survey Operations** / 8 Traverse / 9 Standard Methods for Horizontal Positioning / 10 Astronomy / **IV Modern Surveying and Mapping** / 11 Map Projections / 12 Global Positioning System (GPS) / 13 Photogrammetric Surveying and Mapping / 14 Mapping, Digital Mapping, and Spatial Information Systems / **V Types of Surveys** / 15 Control and Topographic Surveying / 16 Route Surveying / 17 Construction Surveying / 18 Land Surveys / Appendices / A Elementary Mathematical Concepts / B Introduction to Vector and Matrix Algebra / C Coordinate Transformations (including transformations between geodetic reference systems) / D Introduction to Probability and Statistics / E Trigonometric Formulas and Statistical Tables

SUPPLEMENT
Solutions Manual

SURVEYING

Elements of Photogrammetry with Applications in GIS, 3E

Paul R. Wolf
Bon A. DeWitt, University of Florida–Gainesville

2000 / Hardcover / 624 pgs / ISBN 0-07-292454-3

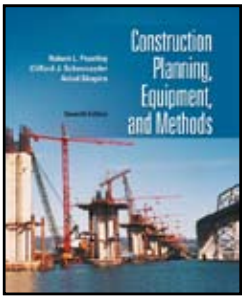
The edition incorporates recent changes on the subject of streamlining from advances in computers. Their ever increasing speed and storage capabilities have directly led to an entire new approach in photogrammetric mapping known as "Soft-Copy" photogrammetry. Digital Imaging systems, including those used in modern satellite programs, scanners for digitizing photographic images, and digital image processing techniques are new topics to be covered that are fundamental to soft copy photogrammetry.

CONTENTS
1 Introduction / 2 Principles of Photography and Imaging / 3 Cameras and Other Imaging Devices / 4 Image Measurements and Refinements / 5 Object Space Coordinate Systems / 6 Vertical Photographs / 7 Stereoscopic Viewing / 8 Stereoscopic Parallax / 9 Elementary Methods of Planimetric Mapping for GIS with Aerial and Satellite Imagery / 10 Tilted Photographs / 11 Introduction to Analytical Photogrammetry / 12 Stereoscopic Plotting Instruments / 13 Mapping and Data Collection for GIS Using Stereoscopic Plotting Instruments / 14 Principles of Digital Image Processing / 15 Principles of Softcopy Photogammetry / 16 Ground Control for Photogammetry / 17 Aerotrinagulation / 18 Project Planning / 19 Terrestrial and Close-Range Photogrammetry / 20 Introduction to GIS / 21 Photogrammetric Application in GIS / Appendices / A Units, Errors, Significant Figures and Error Propagation / B Introduction to Least Square Adjustment / C Coordinate Transformations / D Development of Collinearity Condition Equations / E Digital Resampling / F Conversions Between Coordinate Systems

SUPPLEMENT
Solutions Manual

CONSTRUCTION

Construction Planning, Equipment and Methods, 7E



Robert L. Peurifoy (deceased)
Cliff Schexnayder, Arizona State University–Tempe
Aviad Shapira, Technion – Israel Institute of Technology

2006 / Hardcover / 786 pgs / ISBN 0-07-296420-0

Browse http://www.mhhe.com/peurifoy7e

The seventh edition of *Construction Planning, Equipment, and Methods*, follows in the footsteps of the previous editions by providing the reader with the fundamentals of machine utilization and production estimating in a logical, simple, and concise format. Our text features expanded coverage of building in today's global environment. Hundreds of photos and illustrations have been added to the seventh edition to make this dynamic text even more accessible to both students and professionals. In addition, since technology is constantly evolving, this text provides an understanding of machine capabilities and how to properly apply those capabilities to construction challenges.

The media package includes:

Web-based exercises have been added to many chapters to draw attention to the expanding volume of information available over the Internet. The computer monitor icon in the text margin will direct you to the text website (http://www.mhhe.com/engcs/civil/peurifoy). In addition, extensive web resources are provided at the end of every text chapter.

NEW TO THIS EDITION
- Two new chapters: "Forming Systems" and "Planning for Building Construction" have been added. "Forming Systems" focuses on advanced modular and industrialized forming systems. "Planning for Building Construction" discusses critical topics such as material procurement, operations sequencing, site logistics, and project schedules.
- The chapters on "Compressed Air" and "Equipment for Pumping Water" have been combined to apply the concept of calculating friction losses to both air and water in designing systems.

- Web resource information for machine data is provided at the end of every chapter of the text. In addition, web based exercises, which in some cases direct the student to specific machine information on the web, have been added to many of the chapters.
- New! A Safety discussion is now included in each equipment chapter
- The pictures in all of the chapters have been updated to illustrate the latest equipment and methods, and more pictures of operating equipment have been used in this edition.
- All chapters have undergone revision, ranging from simple clarification to major modifications, depending on the need to improve organization and presentation of concepts.

CONTENTS

1 Machines Make It Possible / 2 Fundamental Concepts of Equipment Economics / 3 Planning for Earthwork Construction / 4 Soil and Rock / 5 Compaction and Stabilization Equipment / 6 Machine Equipment Power Requirements / 7 Dozers / 8 Scrapers / 9 Excavators / 10 Trucks and Hauling Equipment / 11 Finishing Equipment / 12 Drilling Rock and Earth / 13 Blasting Rock / 14 Aggregate Production / 15 Asphalt Mix Production and Placement / 16 Concrete and Concrete Equipment / 17 Cranes / 18 Draglines and Clamshells / 19 Piles and Pile-Driving Equipment / 20 Air Compressors and Pumps / 21 Planning for Building Construction / 22 Forming Systems / Appendices / A Alphabetical List of Units with Their Si Names and Conversion Factors / B Selected English-to-Si Conversion Factors / C Selected U.S. Customary (English) Unit Equivalents / D Selected Metric Unit Equivalents

Construction Management Fundamentals

Cliff Schexnayder, *Arizona State University–Tempe*
Richard Mayo *(deceased)*

2004 / Hardcover / 648 pgs / ISBN 0-07-292200-1

This website will contain the Instructor's Manual. (Browse http://highered.mcgraw-hill.com/sites/0072922001)

Construction management is about controlling time, cost, quality, and safety, and acting in a socially, politically, and environmentally acceptable manner. Undergraduate non-construction majors and graduate Construction Management students need a general, yet comprehensive, text that covers the fundamentals of construction so that they may operate within the aforementioned parameters.

The first edition of *Construction Management Fundamentals* gives students a solid understanding of construction so that, as designers and constructors, they will be better prepared to make intelligent design decisions and to interact in a meaningful and productive manner. For those students who may take only one or two construction courses, the material is covered in a logical, simple, and concise format.

FEATURES

- The first two chapters in the book introduce the entire industry. Chapter one is a historical perspective of the industry and chapter two is an overview.
- All terminology is clearly explained. For example, important issues such as bonds and insurance are covered in depth, not just mentioned and defined.
  Key terms and concepts are clearly defined in the text, redefined in the margins, listed at the end of the chapter, and reinforced in a comprehensive (and sometimes humorous) end-of-book Glossary.
- Schexnayder discusses technological use and developments in the industry. In addition, the last chapter highlights trends such as e-commerce and automation.
- Divided into two parts, Construction Management and Construction Practice, this text covers management, scheduling, estimating, and contracts as well as equipment selection/cost and building material/methods.
- A chapter on the important topic of Safety is also included.
- Comprehensive website resources are included in every chapter.
- Lecture notes in Power Point format are included on the EngineeringCS website.

CONTENTS

1 Historical Perspective / Construction Management / 2 Overview of the Construction Industry / 3 Construction Management Functions / 4 Scheduling Techniques for Construction Projects / 5 Construction Cost Estimates / 6 Estimating Heavy/Civil Projects / 7 Estimating Building Projects / 8 Construction Contracts / 9 Construction Accounting / Construction Practice / 10 Machine Power / 11 Equipment Selection and Utilization / 12 Equipment Cost / 13 Building Materials / 14 Building Construction Methods / 15 Quality and Productivity / 16 Safety / 17 Trends / Appendices / A Glossary / B Selected Unit Equivalents / C AIA Document A101-1997 / D AIA Document A201-1997

Estimating Construction Costs w/CD-ROM, 5E

Robert L. Peurifoy *(deceased)*
Garold D Oberlender, *Oklahoma State University-Stillwater*

2002 / Hardcover / 576 pgs / ISBN 0-07-253626-8

Robert Peurifoy was a giant in the field of construction engineering and authored several books during his lifetime. In this edition, computer calculations of costs and of modeling have been added as well as updated statistics, computer related examples and new problems.

Civil, Environmental, and Construction Management Engineering Majors and Professionals will benefit from having this title on their shelf.

This edition retains the conceptual strengths of the Peurifoy approach and organization from the previous edition but the new problems and computer-based examples and new up-to-date construction data make it the only choice in academia or industry.

CONTENTS

1 Introduction / 2 Bid Documents / 3 Estimating Process / 4 Conceptual Cost Estimating / 5 Cost of Construction Labor and Equipment / 6 Handling and Transporting Material / 7 Earthwork and Excavation / 8 Highways and Pavements / 9 Foundations / 10 Concrete Structures / 11 Steel Structures / 12 Carpentry / 13 Interior Finish, Millwork, and Wallboards / 14 Roofing and Flashing / 15 Masonry / 16 Floor Systems / 17 Floor Finishes / 18 Glass and Glazing / 19 Painting / 20 Plumbing / 21 Electrical Wiring / 22 Sewerage Systems / 23 Water Distribution Systems / 24 Total Cost of Engineering Projects / 25 Computer Estimating / Appendices / A Abbreviations / B Example Project

Professional Construction Management, 3E

Donald S. Barrie, *Late of C.M. Consultants Inc.*
Boyd C. Paulson, *Stanford University*

1992 / Hardcover / 672 pgs / ISBN 0-07-003889-9

The subjects covered in this book include those normally studied in an introductory overview course on construction management, and there is enough depth and added material to serve as the basis for a more advanced course, focusing on organizational and contractual approaches to project management, and the related planning and control systems.

CONTENTS

1 Management in the Engineering and Construction Industry / 2 Development and Organization of Projects / 3 Applications and Requirements For Management Organizations / 4 Introduction to an Example Project / 5 Preconstruction Site Investigation, Planning Scheduling, Estimating and Design / 6 Bidding and Award / 7 Construction / 8 Application of Controls / 9 Selecting A Construction Manager / 10 Concepts of Project Planning and Control / 11 Estimating Project Costs / 12 Planning and Control of Operations and Resources / 13 Cost Engineering / 14 Procurement / 15 Value Engineering / 16 Quality Assurance / 17 Safety and Health in Construction / 18 Risk Management, Insurance, Bonding, Liens and Licensing / 19 Industrial Relations / 20 Current State of The Art of Professional Construction Management / Appendices

Practical Manual of Land Development, 4E

Barbara C. Colley, *Consulting Engineer*

2005 / Hardcover / 416 pgs / ISBN 0-07-144866-7

McGraw-Hill Professional

NEW TO THIS EDITION

- New Chapter—Putting it all Together.
- New Chapter—Stormwater Drainage Controls.
- Numerous illustration added and updated.
- Updated checklists.
- Expanded use of the internet, web site and email addresses included to facilitate research.
- Best Management Practice (BMP) for Clean Water Act and National Pollution Discharge Elimination System (NPDES).
- Expanded use of CADD.
- Metric units used and the primary units with English parenthetically.
- Expansion of requirements to satisfy compliance with the Americans with Disabilities Act (ADA).

CONTENTS
1 Land Development / 2 Resources / 3 Site Analysis / 4 Maps and Plans / 5 Preliminary Engineering / 6 Earthwork / 7 Roadways and Parking Lots / 8 Sanitary Sewers / 9 Storm Drainage / 10 Protecting and Conserving Water Resources / 11 Water Supply Lines / 12 The Finished Plans, Specifications, and Estimates / 13 The Construction Phase / 14 Putting It All Together / 15 Useful Websites / 16 Helpful Trigonometry / 17 Helpful Geometry / 18 Sewage System Calculation Examples / 19 Storm Drain System Calculation Examples

CPM in Construction Management, 6E

James J. O'Brien, Civil Engineering
Fredric L. Plotnick

2006 / Hardcover with CD-ROM / 576 pgs / ISBN 0-07-145769-0

McGraw-Hill Professional

NEW TO THIS EDITION

- Develop hands-on understanding of proper construction scheduling processes.
- Primavera sample software included on CD-ROM.
- A complete "John Doe" example included, showing how to develop and use proper scheduling methods.
- CPM (Critical Path Movement) is a tool to help management stay on top of the project from the outset to the conclusion and closeout.
- Updates the examples of CPM used in litigation.
- "How to" perform calculations of CPM to understand what the software is doing.
- Illustrates various tabular and graphic reports.
- CPM can be used to save big money through delay avoidance, accurate cost and time predictions, and claims avoidance and/or reduction.

CONTENTS
1 Introduction / 2 Fundamentals of CPM / 3 Network Construction Example Project / 4 Event Time Computations / 5 Activity Time Computation / 6 Procurement / 7 Preconstruction / 8 The CPM Schedule / 9 Preparation of CPM Network / 10 CPM by Computer / 11 Monitoring Project Progress / 12 CPM and Cost Control / 13 Updating of the John Doe Project / 14 Cost Updating of the John Doe Project / 15 Equipment and Work Force Planning / 16 Precedence Networks / 17 Computer Programs and Systems / 18 Application and Advantages of CPM / 19 Specifying CPM / 20 CPM Costs / 21 Case Histories / 22 CPM in Claims and Litigation

CONSTRUCTION: CONTRACTS/LEGAL

Construction Contracts, 2E

Jimmie Hinze, University of Florida–Gainesville

2001 / Hardcover / 512 pgs / ISBN 0-07-232172-5

www.mhhe.com/engcs/civil/hinze

In *Construction Contracts*, 2nd Edition, the most important aspects of contract administration are detailed and critical issues are supported with case/legal principles.

This book was written to serve as a learning tool and a reference guide. The fundamentals of contract law are presented, along with an in-depth treatment of the construction topics which most frequently result in litigation. In addition, an overview is provided of other important construction-related topics, including the procurement process for construction contract, methods of dispute resolution, surety bonds, construction insurance, construction safety, and construction labor laws. The second edition incorporates some of the changes that have occurred during the past decade.

In comparison with other books on contract, two distinguishing features of this text should become apparent. First, this text includes summaries of a large number of legal cases involving construction and discusses many topics that are germane to contract disputes. Well over 100 cases are described to help illustrate key points.

The second feature not found in most texts is that many contract provisions are isolated for the reader.

CONTENTS
1 Description of the Construction Industry / 2 Construction Contracting Methods / 3 The Nature of Contracts / 4 Issues Concerning Real Property / 5 Agents / 6 Forms of Organizations / 7 Contract Disputes and Torts / 8 Surety Bonds / 9 Acquiring Contractor Services / 10 Construction Contract Documents / 11 Unit Price, Cost-Plus, and Lump Sum Contracts / 12 Changes / 13 Changed Conditions / 14 Matters of Time / 15 Payments / 16 Warranty / 17 Construction Insurance / 18 Subcontractors and Subcontracts / 19 International Construction Contracts / 20 Methods of Dispute Resolution / 21 Professional Ethics / 22 Construction Safety / 23 Labor Relations in Construction

Contracts and the Legal Environment for Engineers and Architects, 6E

Joseph T. Bockrath, Louisiana State University–Baton Rouge

2000 / Hardcover / 576 pgs / ISBN 0-07-039363-X

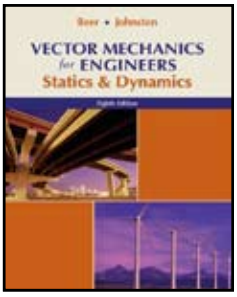
This sixth edition has been written for students of engineering and architecture and for practicing design professionals. The material has been divided into three parts. Part 1 explains the basic principles of the law of contracts. Part 2 is a discussion of the application of contract principles to construction contracts, together with data on the preparation of specifications and other documents that form an essential part of construction contracts. Part 3 considers fields of law that are of special interest to engineers, architects, and contractors in their professional lives.

CONTENTS
I Law of Contracts / 1 Introduction / 2 Types of Contracts / 3 Formation Principles / 4 Conditions and Third-Party Beneficiaries / 5 Construction and Interpretation / 6 Performance or Breach of Contract Obligations / 7 Termination of Contracts / **II Application to Construction Contracts** / 8 Contracts for Construction and Engineering Services / 9 Advertising for Bids / 10 Proposals / 11 Contract Clauses-General Conditions / 12 Contract Clauses Relating to Finances / 13 Specifications for Workmanship / 14 Specifications for Materials / 15 Drawings / **III Some Legal Matters of Concern to Design Professionals** / 16 Agency / 17 Partnerships / 18 Corporations / 19 Torts / 20 Professional Liability of Architects and Engineers / 21 Insurance and Bonds / 22 Real Property / 23 Water Rights / 24 Intellectual Property / 25 Evidence / 26 The Engineer's Role in a Lawsuit Before and During Trail / 27 Arbitration of Disputes / 28 Federal Law of Importance to Design Professionals

SUPPLEMENT
Instructor's Solutions Manual

STRUCTURES

Vector Mechanics for Engineers: Statics and Dynamics, 8E



Ferdinand P. Beer (deceased)
E. Russell Johnston, Jr., University of Connecticut
Elliot R. Eisenberg, Pennsylvania State University
William E. Clausen, Ohio State University
David Mazurek, U S Coast Guard Academy
Phillip J. Cornwell, Rose-Hulman Institute of Technology

2007 / Hardcover / 1312 pgs / ISBN 0-07-321222-9

Browse http://www.mhhe.com/beerjohnston

For the past fifty years Beer and Johnston have been the uncontested leaders in the teaching of undergraduate engineering mechanics. Over the years their textbooks have introduced significant theoretical and pedagogical innovations in statics, dynamics, and mechanics of materials education. At the same time, their careful presentation of content, unmatched levels of accuracy, and attention to detail have made their texts the standard for excellence.

The new Eighth Edition of *Vector Mechanics for Engineers: Statics and Dynamics* marks the fiftieth anniversary of the Beer/Johnston series. Continuing in the spirit of its successful previous editions, the Eighth Edition provides conceptually accurate and thorough coverage together with a significant addition of new problems, including biomechanics problems, and the most extensive media resources available.

NEW TO THIS EDITION

- The 8th editions offer a 48% new or revised homework problem set, with biomechanics-focused problems added appropriately throughout the texts.
- The photo program continues to be expanded in each edition, with new chapter opener and in chapter photos added to each chapter.
- A C.O.S.M.O.S. Solutions Manual, provided to instructors on DVD, allows for assignment generation, tracking, and distribution. Instructors also have the ability to edit homework problems.
- A robust ARIS website provides both student and instructor resources including algorithmic problems, S.M.A.R.T. tutorials, lecture powerpoints, and images from the text, among other resources.
- McGraw-Hill's web-based Hands-on Mechanics teaching demonstration library provides instructors with instructions for building hands-on physical models used to demonstrate important Statics and Dynamics concepts in class.
- yourotherteacher.com provides access to hours of online tutorials for statics and dynamics.

FEATURES

- A careful, step-by-step presentation is followed in each lesson of each chapter; every chapter is organized as follows: an opening photograph to help students visualize key concepts is followed by a chapter introduction with a chapter outline previewing what will be covered in each lesson. After each lesson there are 1-4 Sample Problems (set up to serve as a model for student solutions) followed by a Solving Problems On Your Own section giving solution guidelines before the lesson's problems set. At the end of each chapter students find a Review and Summary section with notes for review and examples and cross references to key sections. Finally, a Review Problem section ties together several concepts from that chapter and a Computer Problems section also has many problems relevant to the design process, encouraging open-ended solutions.
- A signature Beer and Johnston text feature, Sample Problems allow students to see important key problem types with their solution laid out on a single page, and organized to provide a model for student problem solving. Sample Problems serve the dual purpose of amplifying the text and demonstrating the type of neat and orderly work that students should cultivate in their own solutions.
- Liberal use of free-body diagrams (graphical representation of objects where arrows indicate forces acting on object) in Statics and effective-forces diagrams in Dynamics. By placing the emphasis on "free-body-diagram equations" rather than on the standard algebraic equations of motion, a more intuitive and more complete understanding of fundamental principles is achieved.
- Review and Summary sections at the end of each chapter provide students with a valuable study tool. Reviewers found these chapter reviews to be one of the strongest features of the text and the best available in the market.
- Computer Problems, relevant to the design process, are offered at the end of each chapter. While the problems will be generic, they will be designed to be easily solved using popular computational programs such as MATLAB®, Mathcad, Maple, etc. The computer problems focus on symbolic manipulation and plotting, as opposed to the more programming-based computer problems in the current editions. Computer problems help students gain a better understanding of basic principles because most require integration of several concepts, much like one does in design. They also allow for open-ended parametric studies.
- A Fundamentals of Engineering Examination Appendix helps prepare students for the FE/EIT exam.
- Effective use of 4-color helps students distinguish between different vectors: red=accelerations and forces (applied and effective) green=velocities, blue=displacements.
- Instructors enjoy a clearer presentation and organization of problem solutions with a typeset print solutions manual in a clear 1-2 solution per page format. In addition, Instructors are provided with assignment grids, designed so that instructors can assign different homework problems each semester for up to six semesters.

CONTENTS

1 Introduction / 2 Statics of Particles / 3 Rigid Bodies: Equivalent Systems of Forces / 4 Equilibrium of Rigid Bodies / 5 Distributed Forces: Centroids and Centers of Gravity / 6 Analysis of Structures / 7 Forces in Beams and Cables / 8 Friction / 9 Distributed Forces: Moments of Inertia / 10 Method of Virtual Work / 11 Kinematics of Particles / 12 Kinetics of Particles: Newton's Second Law / 13 Kinetics of Particles: Energy and Momentum Methods / 14 Systems of Particles / 15 Kinematics of Rigid Bodies / 16 Plane Motion of Rigid Bodies: Forces and Accelerations / 17 Plane Motion of Rigid Bodies: Energy and Momentum Methods / 18 Kinetics of Rigid Bodies in Three Dimensions / 19 Mechanical Vibrations / Appendix: Fundamentals of Engineering Examination

SUPPLEMENTS

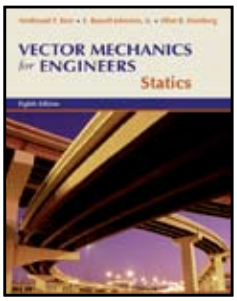
Instructor's and Solutions Manual (Four volumes): Instructors materials and solutions to all text homework problems.
Statics (vol 1.); (vol 2)
Dynamics (vol 1); (vol 2)

ARIS (Assessment, Review, and Instruction System): A complete, online tutorial, electronic homework, and course management system to accompany Beer; featuring algorithmic homework and teaching tools.

Hands-on Mechanics: An online library of three-dimensional teaching demonstrations for Statics and Dynamics.

COSMOS: A complete electronic solutions manual for the text on DVD allows instructors to edit homework problems, as well as generate and track assignments.

Vector Mechanics for Engineers: Statics, 8E

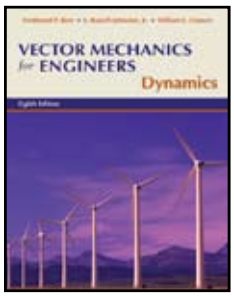


2007 / Hardcover / 648 pgs / ISBN 0-07-321219-9

CONTENTS

1 Introduction / 2 Statics of Particles / 3 Rigid Bodies: Equivalent Systems of Forces / 4 Equilibrium of Rigid Bodies / 5 Distributed Forces: Centroids and Centers of Gravity / 6 Analysis of Structures / 7 Forces in Beams and Cables / 8 Friction / 9 Distributed Forces: Moments of Inertia / 10 Method of Virtual Work / Fundamentals of Engineering Examination / Index / Answers to Problems

Vector Mechanics for Engineers: Dynamics, 8E



2007 / Hardcover / 768 pgs / ISBN 0-07-321220-2

CONTENTS

11 Kinematics of Particles / 12 Kinetics of Particles: Newton's Second Law / 13 Kinetics of Particles: Energy and Momentum Methods / 14 Systems of Particles / 15 Kinematics of Rigid Bodies / 16 Plane Motion of Rigid Bodies: Forces and Accelerations / 17 Plane Motion of Rigid Bodies: Energy and Momentum Methods / 18 Kinetics of Rigid Bodies in Three Dimensions / 19 Mechanical Vibrations / Appendices / A Some Useful Definitions and Properties of Vector Algebra / B Moments of Inertia of Masses / C Fundamentals of Engineering Examination

Steel Structures: Behavior and LRFD

Ramulu S. Vinnakota, Marquette University

2006 / Hardcover / 928 pgs / ISBN 0-07-236614-1

Browse http://www.mhhe.com/vinnakota

Ramulu Vinnakota's *Steel Structures: Behavior and LRFD* stresses both the design of steel structures and the behavior of steel members under various loading conditions. The current editions of the American Institute of Steel Construction's Load and Resistance Factor Design Specifications (3e, 1999) and the LRFD Manual (3e, 2001) are used and extensively referenced in the Vinnakota text. Therefore covering the interaction of design and behavior of steel members and connections in one textbook is a unique approach. Designers must understand structural behavior as an integral part of the design process, and chapters 1 to 5 thoroughly cover this material. As Ramulu Vinnakota notes, "The heart and soul of design are the ability to conceive a structure that will behave as desired, and intuition regarding different framing options."

The balance of the chapters covers the elements that makeup a steel building structure: members and connections. In each chapter, discussion of theory and behavior of the member under various combinations of loads it must resist is followed by a discussion of design applications.

Throughout the text, a web icon references readers to the book's website (http://www.mhhe.com/vinnakota), which contains extensive additional coverage of advanced topics.

FEATURES

- This text integrates both design of steel structures with behavior of steel.
- 450 carefully drawn figures of structural systems, members, and bolted and welded joints illustrate the text.
- The most recent editions of the LRFD Specifications and the LRFD Manual are used and extensively referenced throughout the text.
- 120 well explained worked out example problems emphasizing the application of design concepts are included.

• An accompanying website (http://www.mhhe.com/vinnakota) contains extensive advanced steel design and behavior coverage. These additional topics are closely integrated with the text.

CONTENTS
1 Introduction / 2 Steels / 3 Structures / 4 Design Loads and Design Philosophy / 5 Structural Analysis and Computation of Required Strengths / 6 Connectors / 7 Tension Members / 8 Axially Loaded Columns / 9 Adequately Braced Compact Beams / 10 Unbraced Beams / 11 Members under Combined Forces / 12 Joints and Connecting Elements / 13 Connections / Appendix to Chapter 5 Introduction to Second-Order Moments

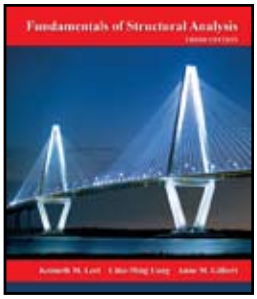
SUPPLEMENT
Instructor's Solutions Manual

Fundamentals of Structural Analysis, 3E

Kenneth M. Leet, Northeastern University
Chia-Ming Uang, University of California-San Diego
Anne Gilbert, Speigel Zamecnik & Shah

2008 / Hardcover / 784 pgs / ISBN 0-07-330538-3

The Online Learning Center contains instructor and student resources such as the RISA 2-D software, lecture outlines, an image bank, helpful web links and more! (Browse http://www.mhhe.com/leet3e)



New Edition

Fundamentals of Structural Analysis third edition introduces engineering and architectural students to the basic techniques for analyzing the most common structural elements, including beams, trusses, frames, cables, and arches. Leet et al cover the classical methods of analysis for determinate and indeterminate structures, and provide an introduction to the matrix formulation on which computer analysis is based. Third edition users will find that the text's layout has improved to better illustrate example problems, superior coverage of loads is give in Chapter 2 and over 25% of the homework problems have been revised or are new to this edition.

NEW TO THIS EDITION
- Design and layout has been improved to better illustrate example problems.
- Example problems are now on a two page spread, where in the past readers had to flip back and forth to follow examples. Now all the information in one place.
- The Solutions Manual has been revised and checked for accuracy.
- The text features an Online Learning Center at http://www.mhhe.com/leet3e.

FEATURES
- Free access to RISA software, which is beneficial since RISA is among the easiest to learn and utilize, and is a well-known anyalysis tool in the industry.
- The text contains a highly detailed, realistic art program with fully drawn, practical illustrations.
- Different types of Structural and Building Codes are described.
- Chapter Two, Design Loads, is devoted to a comprehensive discussion of loads that include dead and live loads, tributary areas and earthquake and wind forces. Wind specifications conform to the latest edition of the ASCE Standard.
- "Computer Problems" that require a computer solution, rather than a hand analysis, are found in various chapters. We also offer an academic version of RISA-2D software for free to adopters of the text.

CONTENTS
1 Introduction / 2 Design Loads / 3 Statics of Structures-Reactions / 4 Trusses / 5 Beams and Frames / 6 Cables / 7 Arches / 8 Live Load Forces: Influence Lines for Determinate Structures / 9 Deflections of Beams and Frames / 10 Work-Energy Methods for Computing Deflections / 11 Analysis of Indeterminate Structures by the Flexibility Method / 12 Analysis of Indeterminate Beams and Frames by the Slope-Deflection Method / 13 Moment Distribution / 14 Indeterminate Structures: Influence Lines / 15 Approximate Analysis of Indeterminate Structures / 16 Introduction to the General Stiffness Method / 17 Matrix Analysis of Trusses by the Direct Stiffness Method / 18 Matrix Analysis of Beams and Frames by the Direct Stiffness Method / Appendix A Review of Matrix Operations / Glossary / Answers to Odd-Numbered Problems / Credits / Index

Design of Wood Structures – ASD, 5E

Donald E. Breyer, Washington State University-Pullman
Kenneth J. Fridley, Washington State University-Pullman
Kelly Cobeen, Washington State University-Pullman
David G. Pollock, Jr., Washington State University-Pullman

2004 / Hardcover / 950 pgs / ISBN 0-07-137932-0

McGraw-Hill Professional

NEW TO THIS EDITION
- http://www.mcgrawhillengineeringcs.com
  Website contains general text information.

CONTENTS
1 Wood Buildings and Design Criteria / 2 Design Loads / 3 Behavior of Structures Under Loads and Forces / 4 Properties of Wood and Lumber Grades / 5 Structural Glued Laminated Timber / 6 Beam Design / 7 Axial Forces and Combined Bending and Axial Forces / 8 Wood Structural Panels / 9 Horizontal Diaphragms / 10 Shearwalls / 11 Wood Connections—Background / 12 Nailed and Stapled Connections / 13 Bolts, Lag Bolts, and Other Connectors / 14 Connection Hardware / 15 Diaphragm-to-Shearwall Anchorage / 16 Advanced Topics in Lateral Force Design / Appendices / A: Equivalent Uniform Weights of Wood Framing / B: Weights of Building Materials / C: Selected Tables from the *International Building Code*, 2003 Edition / D: Selected Tables from *Minimum Design Loads for Buildings and Other Structures* (ASCE 7-02) / E: SI Metric Units

STRUCTURAL FINITE ELEMENT METHODS

Fundamentals of Finite Element Analysis

David W. Hutton, Washington State University–Pullman

2004 / Hardcover / ISBN 0-07-292236-2

This text, intended for the senior undergraduate finite element course in civil or mechanical engineering departments, gives students a solid basis in the mechanical principles of the finite element method and provides a theoretical foundation for applying available software analysis packages and evaluating the results obtained.

Dr. Hutton discusses basic theory of the finite element method while avoiding variational calculus, instead focusing upon the engineering mechanics and mathematical background that may be expected of a senior undergraduate engineering student. The text relies upon basic equilibrium principles, introduction of the principle of minimum potential energy, and the Galerkin finite element method, which readily allows application of the FEM to nonstructural problems.

The text is software-independent, making it flexible enough for use in a wide variety of programs, and offers a good selection of homework problems and examples.

FEATURES
- Simple, straightforward approach to the FEM that is appropriate for undergraduates.
- Applied examples and problems.

CONTENTS
1 The Finite Element Method / 2 Stiffness Matrices: Spring and Spar Elements / 3 System Assembly: The Direct Stiffness Method / 4 Flexure Elements / 5 Method of Weighted Residuals / 6 Interpolation Functions for General Element / 7 Applications in Heat Transfer / 8 Applications in Fluid Mechanics / 9 Applications in Solid Mechanics / 10 Structural Dynamics / Appendices / Matrix Algebra / Equations of Elasticity / Solution Methods for Systems of Algebraic Equations / 3-D Beam Element Stiffness Matrix / Numerical Integration, Gauss Quadrature / Website Information/Computer Programs

STRUCTURES: CONCRETE

Concrete, 3E

P. Kumar Mehta
Paulo J.M. Monteiro

2006 / Hardcover / 659 pgs / ISBN 0-07-146289-9

McGraw-Hill Professional

NEW TO THIS EDITION

- A new chapter on non-destructive methods for concrete
- A new chapter on the future challenges in concrete technology
- New sections on: high-performance concrete, high-workability concrete, self-consolidating concrete, fiber-reinforced concrete, and roller-compacted concrete, high-volume fly-ash concrete
- Increased number of examples of application of concrete
- New developments in durability of concrete: damage of high-strength concrete by fire, frost damage of concrete, delayed ettringite formation, crystallization of salts in pores, alkali-silica reaction, concrete in seawater

CONTENTS

Part 1—Microstructure and Properties of Hardened Concrete / 1 Introduction / 2 Microstructure of Concrete / 3 Strength / 4 Dimensional Stability / 5 Durability/ **Part 2—Concrete Materials, Mix Proportioning, and Early-age Properties** / 6 Hydraulic Cements / 7 Aggregates / 8 Admixtures / 9 Proportioning Concrete Mixtures / 10 Concrete at Early Ages / 11 Non-Destructive Methods/ **Part 3—Recent Advances and Concrete in the Future** / 12 Progress in Concrete Technology / 13 Advances in Concrete Mechanics / 14 The Future Challenges in Concrete Technology / Index

Design of Concrete Structures, 13E

Arthur H. Nilson, Cornell University–Ithaca
David Darwin, University of Kansas–Lawrence
Charles W. Dolan, University of Wyoming–Laramie

2004 / Hardcover / 896 pgs / ISBN 0-07-292199-4

Contains supplementary resources for the book. (Browse http://highered.mcgraw-hill.com/sites/0072921994)

The 13th edition of the classic text, *Design of Concrete Structures*, is completely revised using the newly released 2002 American Concrete Institute (ACI) Code. This new edition has the same dual objectives as the previous editions: first to establish a firm understanding of the behavior of structural concrete, then to develop proficiency in the methods used in current design practice.

Design of Concrete Structures covers the behavior and design aspects of concrete and provides thoroughly updated examples and homework problems throughout. The 13th edition also features a new chapter, Chapter 10, covering strut-and-tie models. The text also presents the basic mechanics of structural concrete and methods for the design of individual members for bending, shear, torsion, and axial force, and provides detail in the various types of structural systems applications.

NEW TO THIS EDITION

- Completely updated text, examples, and problems following the newly released 2002 ACI Code.
- Redesigned interior of text makes for a new, open look, and the art program has been redrafted and updated.
- Thoroughly rewritten Chapter 3 on Flexural Analysis and Design.
- A thoroughly revised description of loading criteria and design requirements for seismic design (Chapter 20).
- Expanded guidance on preliminary design and guidelines for proportioning members (Chapter 12).
- Updated design procedures for prestressed concrete (Chapter 19).

FEATURES

- A brand new chapter on strut-and-tie models, Chapter 10, complements the emphasis on the approach throughout the text.
- Applications impart an "engineering" flavor which reflects the authors' practical experience.

CONTENTS

1 Introduction / 2 Materials / 3 Flexural Analysis and Design of Beams/ 4 Shear and Diagonal Tension in Beams / 5 Bond, Anchorage, and Developmental Length / 6 Serviceability / 7 Analysis and Design for Torsion / 8 Short Columns / 9 Slender Columns / 10 Strut-and-Tie Models / 11 Design of Reinforcement at Joints / 12 Analysis of Intermediate Beams and Frames / 13 Analysis and Design of Slabs / 14 Yield Line Analysis for Slabs / 15 Strip Method for Slabs / 16 Footings and Foundations / 17 Retaining Walls / 18 Concrete Building Systems / 19 Prestressed Concrete / 20 Seismic Design / Appendices / A Design Aids / B SI Conversion Factors: Inch-Pound Units to SI Units

SUPPLEMENT

Instructor's Solutions Manual

ENVIRONMENTAL/WATER/WASTEWATER

Introduction to Environmental Engineering, 4E

New Edition

Mackenzie L. Davis, Michigan State University-East Lansing
David A. Cornwell, Environmental Engineering & Technology

2008 / Hardcover / 928 pgs / 0-07-242411-7

Browse http://www.mhhe.com/davis

Introduction to Environmental Engineering, 4/e contains the essential science and engineering principles needed for introductory courses and used as the basis for more advanced courses in environmental engineering. Davis and Cornwell apply the concepts of sustainability and materials and energy balance as a means of understanding and solving environmental engineering issues. With 650 end-of-chapter problems, as well as provocative discussion questions, and a helpful list of review items found at the end of each chapter, the text is both a comprehensible and comprehensive tool for any environmental engineering course.

NEW TO THIS EDITION

- The new edition features the most up-to-date environmental regulations, standards, and laws, and an updated art and photo program throughout.
- A new chapter on Materials and Energy Balances (2) has been added to emphasize this important topic.
- Over 200 new homework problems have been added to the new edition, including over 60 problems on web based research and spreadsheet applications with MathCAD or MATLAB.
- discussions have been updated to include issues such as membrane technology for water treatment, endocrine disrupters as a pollution source, hydrogen fuel for automobiles, energy conservation as a pollution control alternative, and use of computer models for traffic noise prediction.

FEATURES

- The text provides a comprehensive overview of environmental engineering including a discussion on the nature of the profession and environmental ethics, a discussion of waste minimization techniques for each subject area, the presentation of legislative history and detailed regulatory requirements, and coverage of noise and ionizing radiation.
- The end of chapter review items provide a built-in study guide for students and make it easy for instructors to assess what students should have learned from the chapter.
- Numerous example problems throughout the chapter and discussion questions at the end of the chapter reinforce concepts for students.
- Supplements include a Unit Conversion Booklet (available as an optional package with the text) and a website featuring the solutions manual, lecture powerpoints, and image files for instructors, as well as animations and web links for students.

CONTENTS

1 Introduction / 2 Materials and Energy Balances / 3 Hydrology / 4 Water Treatment / 5 Water Quality Management / 6 Wastewater Treatment / 7 Air Pollution / 8 Noise Pollution / 9 Solid Waste Management / 10 Hazardous Waste Management / 11 Ionizing Radiation / Appendices / A Properties of Air, Water, and Selected Chemicals / B Noise Computation Nomographs

Principles of Environmental Engineering and Science

Mackenzie L. Davis, Michigan State University–East Lansing
Susan J. Masten, Michigan State University–East Lansing

2004 / Hardcover / ISBN 0-07-292186-2

Solutions Manual, Links to glossary and Environmental Learning Modules, Sample chapter, Overview, TOC, Author links/bio, Preface, Features, Supplement list, reviewer notes, PPT, and Page out. (Browse http://www.mhhe.com/davismasten)

Principles of Environmental Engineering and Science by Mackenzie Davis and Susan Masten is intended for a course in introductory environmental engineering for sophomore- or junior-level students. The emphasis of this new text is on engineering principles rather than on engineering design. The concept of mass balance is carried throughout the text as a tool for problem solving, and the text boasts extensive coverage of chemistry, biology, and hydrology than other books have. The chemistry review in Chapter 2 and coverage of ethics will aid students in better understanding the engineering topics presented in the book.

FEATURES

- The book teaches through an emphasis on concepts, definitions, descriptions, and abundant illustrations. Scientific principles are emphasized and design aspects are discussed in abbreviated form, freeing the student to focus on real environmental applications.
- Includes chapters on Ecosystems, Soil and Geological Resources, and Agricultural Impacts—topics that are of crucial importance to environmental engineering and related disciplines, but which are not covered in detail in other texts.
- Includes a chemistry review chapter, which has been highly praised by reviewers. Most say that their students need and would greatly benefit from the chapter.
- The concept of mass balance as a tool for problem-solving is a theme carried throughout the text. This theme motivates much of the text discussion and ties together a variety of subject areas including hydrology, soil, water quality, and waste audits.
- Exclusively uses SI units.

CONTENTS

Wastewater Engineering: Treatment and Reuse, 4E

Metcalf & Eddy, Inc.
George Tchobanoglous, University of California–Davis
Franklin L. Burton, Burton Environmental Engineering
H. David Stensel, University of Washington

2003 / Hardcover / 1848 pgs / ISBN 0-07-041878-0

www.mhhe.com/metcalf

Wastewater Engineering: Treatment and Reuse, 4/e is an update of McGraw-Hill's popular book on wastewater treatment for civil and environmental engineering majors. It describes the technological and regulatory changes that have occurred over the last ten years in this discipline, including: improved techniques for the characterization of wastewaters; improved fundamental understanding of many of the existing unit operations and processes used for wastewater treatment, especially those processes used for the biological removal of nutrients; greater implementation of several newer treatment technologies (e.g., UV disinfection, membrane filtration, and heat drying); greater concern for the long term health and environmental impacts of wastewater constituents; greater emphasis on advanced wastewater treatment and risk assessment for water reuse applications; changes in regulations and the development of new technologies for wastewater disinfection; and new regulations governing the treatment, reuse, and disposal of sludge (biosolids).

Greater concern for infrastructure renewal including upgrading the design and performance of wastewater treatment plants.

This revision contains a strong focus on advanced wastewater treatment technologies and stresses the reuse aspects of wastewater and biosolids.

FEATURES

- Theory and design issues are now integrated in the chapters on physical, chemical, and biological operations and processes. Combining this material presents a more unified approach to the subjects, and eliminates redundancies that appeared in the third edition.
- SI units are now the lead units, reflecting the global approach to wastewater engineering as it is taught in universities and presented in technical journals. This change addresses the volume of work being done by US consultants overseas, and supports the needs of engineering professionals outside the US for a comprehensive reference source.
- Data tables have been thoroughly updated, and approximately 40 new data tables have been added. Several new design examples have been added, reflecting the technological changes in process design that have occurred. Many new photos of facilities and equipment are included as well. Information is more organized and accessible than ever before.
- Design examples
- Chapters covering the theory and design of biological treatment systems have been expanded significantly.

CONTENTS

SUPPLEMENT

Solutions Manual

Chemistry for Environmental Engineering and Science, 5E

Clair N. Sawyer, Late of Massachusetts Institute of Technology
Perry L. McCarty, Stanford University
Gene F. Parkin, University of Iowa–Iowa City

2003 / Hardcover / 672 pgs / ISBN 0-07-248066-1

www.mhhe.com/sawyer/

This is the definitive text for senior and graduate environmental engineering students, as well as environmental science students.

This is divided into a chemistry fundamentals section and a section on water and wastewater analysis. In this new edition, the authors have retained the thorough, yet concise, coverage of basic chemical principles from general, physical, equilibrium, organic, biochemistry, colloid, and nuclear chemistry. In addition, the authors have retained their classic two-fold approach of (1) focusing on the aspects of chemistry that are particularly valuable for solving environmental problems, and (2) laying the groundwork for understanding water and wastewater analysis-a fundamental basis of environmental engineering practice and research.

FEATURES

- Chapter on Statistical Analysis of Analytical Data.
- Revised and additional new problems.
- Thoroughly updated all content to coincide with current environmental engineering practice.
- Retains the two-fold approach.
- Retain the thorough, yet concise coverage of basic chemical principles from general, physical, equilibrium, organic, bio, colloid and nuclear chemistry.

CONTENTS

Concepts from Organic Chemistry / 6 Basic Concepts from Biochemistry/ 7 Basic Concepts from Colloid Chemistry / 8 Basic Concepts from Nuclear Chemistry / **II Water and Wastewater Analysis** / 9 Introduction / 10 Statistical Analysis of Analytical Data / 11 Basic Concepts from Quantitative Chemistry / 12 Instrumental Methods of Analysis / 13 Turbidity / 14 Color / 15 Standard Solutions / 16 pH / 17 Acidity / 18 Alkalinity / 19 Hardness / 20 Residual Chlorine and Chlorine Demand / 21 Chloride / 22 Dissolved Oxygen / 23 Biochemical Oxygen Demand / 24 Chemical Oxygen Demand/ 25 Nitrogen / 26 Solids / 27 Iron and Manganese / 28 Fluoride / 29 Sulfate / 30 Phosphorus and Phosphate / 31 Oil and Grease / 32 Volatile Acids / 33 Gas Analysis / 34 Trace Contaminants / Appendices / A Thermodynamic Properties (25 degrees C) / B Symbols / Index

Water Chemistry

Mark M. Benjamin, University of Washington

2002 / Hardcover / 688 pgs / ISBN 0-07-238390-9

www.mhhe.com/engcs/civil/benjamin

This book effectively conveys the key concepts of equilibrium chemistry, particularly as they apply to natural and engineered aquatic systems. The coverage is rigorous and thorough, but the author assumes little prior knowledge of chemistry on the part of the readers, and writes in a style that is easily accessible to students.

CONTENTS
1 Concepts in Aquatic Chemistry / 2 Potentials, Energy, and Forces: Ways to Interpret Changes in Physical/Chemical Systems / 3 Acids and Bases, Part 1. Acid/Base Speciation and Exact Solutions to Acid/Base Problems / 4 Acids and Bases, Part 2. Use of Log C-pH Diagrams / 5 Titrations and Buffers / 6 Software for Solving Chemical Equilibrium Problems / 7 Gas/Liquid Equilibrium / 8 Chemistry of Metals in Aqueous Systems / 9 Redox Chemistry / 10 Adsorption Reactions

Environmental Biotechnology: Principles and Applications

Bruce E. Rittmann, Northwestern University
Perry L. McCarty, Stanford University

2001 / Hardcover / 768 pgs / ISBN 0-07-234553-5

www.mhhe.com/engcs/civil/rittmann

In *Environmental Biotechnology: Principles and Applications*, the authors connect the many different facets of environmental biotechnology. The book develops the basic concepts and quantitative tools in the first six chapters, which comprise the principles. The text consistently calls upon those principles as it describes the applications in Chapters 7 through 16. The theme is that all microbiological processes behave in ways that are understandable, predictable, and unified. At the same time, each application has its own special features that must be understood. The special features do not overturn or sidestep the common principles. Instead, they complement the principles and are most profitably understood in light of the principles.

CONTENTS
1 Basics of Microbiology / 2 Stoichiometry and Bacterial Energetics / 3 Microbial Kinetics / 4 Biofilm Kinetics / 5 Reactors / 6 Complex Systems / 7 The Activated Sludge Process / 8 Lagoons / 9 Aerobic Biofilm Process / 10 Nitrification / 11 Denitrification / 12 Phosphorus Removal / 13 Drinking Water Treatment / 14 Anaerobic Treatment by Methanogenesis / 15 Detoxification of Hazardous Chemicals / 16 Bioremediation

SUPPLEMENT
Solutions Manual

Introduction to Engineering and the Environment

Edward S. Rubin, Carnegie Mellon University

2001 / Softcover / 720 pgs / ISBN 0-07-235467-4

www.mhhe.com/engcs/civil/rubin

This book covers a broad range of topics for an introductory course in Environmental Engineering, as well as courses related to engineering design, sustainable development, and environmental policy. Through applications in different engineering domains, students develop the fundamental skills and insights needed to recognize and address environmental problem solving opportunities.

CONTENTS
I Motivation and Framework / 1 Engineering and the Environment / 2 Overview of Environmental Issues / **II Technology Design for the Environment** / 3 Automobiles and the Environment / 4 Batteries and the Environment / 5 Electric Power Plants and the Environment / 6 Refrigeration and the Environment / 7 Environmental Life Cycle Assessments / **III Modeling Environmental Processes** / 8 Controlling Urban Smog / 9 PCBs in the Aquatic Environment / 10 Human Exposure to Toxic Metals / 11 CFCs and the Ozone Hole / 12 Global Warming and the Greenhouse Effect / **IV Topics in Environmental Policy Analysis** / 13 Economics and the Environment / 14 Risk Assessment and Decision Analysis / 15 Environmental Forecasting / Appendices

Industrial Water Pollution Control, 3E

W. Wesley Eckenfelder, Jr.

2000 / Hardcover / 600 pgs / ISBN 0-07-039364-8

This classic text is intended for the student in courses related to industrial water pollution control, as well as a guide for someone in the industry. It is very strong on biological treatment and reflects better than any other book actual industrial treatment practices. This new revision contains new material on hazardous waste disposal and improved coverage of adsorption and partitioning.

CONTENTS
1 Source and Characteristics of Industrial Wastewaters / 2 Wastewater Treatment Processes / 3 Pre- and Primary Treatment / 4 Coagulation, Precipitation and Metals Removal / 5 Aeration and Mass Transfer / 6 Principles of Aerobic Biological Oxidation / 7 Biological Wastewater Treatment Processes / 8 Adsorption / 9 Ion Exchange / 10 Chemical Oxidation / 11 Sludge Handling and Disposal / 12 Miscellaneous Treatment Processes / Bibliography

Small & Decentralized Wastewater Management Systems

Ronald W. Crites
George Tchobanoglous, University of California–Davis

1998 / Hardcover / 1104 pgs / ISBN 0-07-289087-8

This text presents a comprehensive design of both conventional and innovative systems for the treatment and disposal or reuse of the treated effluent. Decentralized Wastewater Management focuses on smaller treatment plants, which most new engineers will deal with early in their professional careers.

CONTENTS
1 Decentralized Wastewater Management Systems and Management / 2 Constituents in Wastewater / 3 Fate of Wastewater Constituents in the Environment / 4 Introduction to Process Analysis and Design / 5 Wastewater Pretreatment Operations and Processes / 6 Alternative Wastewater Collection Systems / 7 Biological Treatment and Nutrient Removal / 8 Pond Treatment Systems / 9 Wetlands and Aquatic Treatment Systems / 10 Land Treatment Systems / 11 Intermittent and Recalculating Medium Filters / 12 Effluent Repurification and Reuse / 13 Effluent Reuse and Disposal for Decentralized Systems / 14 Biosolids and Septage Management / 15 Management of Decentralized Wastewater Systems / Appendices

SUPPLEMENT
Instructor's Solutions Manual

Environmental Impact Assessment, 2E

Larry Canter, University of Oklahoma–Norman

1996 / Hardcover / 480 pgs / ISBN 0-07-009767-4

The Canter text appeals mainly to Civil Engineering students taking course work in environmental assessment practice or impact assessment, usually taught at the junior/senior level as a popular elective. Some chemical and environmental engineers take the course as well. The author has specifically beefed up and improved the chapters on biological, cultural, and socioeconomic environmental factors. The book continues to emphasize both production and assessment aspects of environmental factors, i.e., air, water, and noise, together with some interesting case studies. The latest governmental methodologies and Environmental Impact Studies have been included in this timely revision.

CONTENTS
1 National Environmental Policy Act and Its Implementation / 2 Planning and Management of Impact Studies / 3 Simple Methods for Impact Identification Matrices, Networks and Checklists / 4 Description of Environmental

Setting / 5 Environmental Indices and Indicators for Describing the Affected Environment / 6 Prediction and Assessment of Impacts on the Air Environment / 7 Prediction and Assessment of Impacts on the Surface Water Environment / 8 Prediction and Assessment of Impacts on the Soil and Ground Water Environment / 9 Prediction and Assessment of Impacts on the Noise Environment / 10 Prediction and Assessment of Impacts on the Biological Environment / 11 Habitat Methods for Biological Impact Prediction and Assessment / 12 Prediction and Assessment of Impacts on the Cultural (Historical/Archaeological) Environment / 13 Prediction and Assessment of Visual Impacts / 14 Prediction and Assessment of Impacts on the Socioeconomic Environment / 15 Decision Methods for Evaluation of Alternatives / 16 Public Participation in Environmental Decision Making / 17 Environmental Monitoring

Integrated Solid Waste Management: Engineering Principles and Management Issues, 2E

George Tchobanoglous, University of California–Davis
Hilary Theisen
Samuel A. Vigil, California Polytechnic State University - San Luis Obispo

1993 / Hardcover / 992 pgs / ISBN 0-07-063237-5

A junior/senior-level introductory text aimed at civil and environmental engineers taking a basic introduction to Solid Waste Management. The text includes the latest 1990-1991 laws and regulations.

CONTENTS
I Perspectives / 1 Evolution of Solid Waste Management / 2 Legislative Trends and Impacts / **II Sources, Composition, and Properties of Solid Waste** / 3 Sources, Types, and Composition of Municipal Solid Waste / 4 Physical, Chemical, and Biological Properties of Municipal Solid Waste / 5 Sources, Types and Properties of Hazardous Wastes Found in Municipal Solid Waste / **III Engineering Principles** / 6 Generation of Solid Wastes / 7 Waste Handling and Separation, Storage, and Processing at the Source / 8 Collection of Solid Wastes / 9 Separation and Processing and Transformation of Waste Materials / 10 Transfer and Transport / 11 Disposal and Solid Wastes and Residual Matter / **IV Separation, Transformation, and Recycling of Waste Materials** / 12 Materials Separation and Processing Technologies / 13 Thermal Conversion Technologies / 14 Biological and Chemical Conversion Technologies / 15 Recycling of Materials Found in Municipal Solid Waste / **V Closure, Restoration, and Rehabilitation of Landfills** / 16 Remedial Actions for Abandoned Waste Disposal Sites / **VI Solid Waste Management and Planning Issues** / 17 Meeting Federal and State Mandated Diversion Goals / 18 Implementation of Solid Waste Management Options / 19 Planning, Siting, and Permitting of Waste Management Facilities / Appendices

SUPPLEMENT
Solutions Manual

Environmental Engineering

Howard S. Peavy, University of Idaho
Donald R. Rowe, Western Kentucky University
George Tchobanoglous, University of California–Davis

1985 / Hardcover / 640 pgs / ISBN 0-07-049134-8

CONTENTS
1 Introduction / 2 Water Quality; Definitions, Characteristics, and Perspectives / 3 Water Purification / 4 Engineered Systems for Wastewater Treatment and Disposal / 5 Environmental Engineering Hydraulics Design / 6 Air Quality Definitions, Characteristics, and Perspectives / 7 Engineered Systems for Air Pollution / 8 Solid Waste Definitions, Characteristics, and Perspectives / 9 Engineered Systems for Solid Waste Management / 10 Engineered Systems for Resource and Energy Recovery

SUPPLEMENT
Solutions Manual

AIR POLLUTION

Air Pollution Control Engineering, 2E

Noel de Nevers, University of Utah–Salt Lake City

2000 / Hardcover / 608 pgs / ISBN 0-07-039367-2

This text covers the whole air pollution field, from an engineering perspective. The principal topics are control devices and their theory. The book uses many more examples than other texts to help the student see the magnitudes of important quantities and to show and practice the practical application of theoretical treatments presented. The other half is devoted to topics that form some of the background for the selection of such devices, i.e., air pollution effects, the structure of U.S. air pollution law, atmospheric models, etc.

CONTENTS
1 Introduction to Air Pollution Control / 2 Air Pollution Effects / 3 Air Pollution Control Laws and Regulations, Air Pollution Control Philosophies / 4 Air Pollution Measurements, Emission Estimates / 5 Meteorology for Air Pollution Control Engineers / 6 Air Pollutant Concentration Models / 7 General Ideas in Air Pollution Control / 8 The Nature of Particulate Pollutants / 9 Control of Primary Particulates / 10 Control of Volatile Organic Compounds (VOCs) / 11 Control of Sulfur Oxides / 12 Control of Nitrogen Oxides / 13 The Motor Vehicle Problem / 14 Air Pollutants and Global Climate / 15 Other Topics / Appendixes / Answers to Selected Problems

SUPPLEMENT
Solutions Manual t/a Air Pollution Control Engineering

HAZARDOUS WASTE

Hazardous Waste Management, 2E

Michael D. LaGrega
Phillip L. Buckingham
Jeffrey C. Evans, Bucknell University
Environmental Resources Management

2001 / Hardcover / 1228 pgs / ISBN 0-07-039365-6

www.mhhe.com/engcs/civil/lagrega/

This book provides a comprehensive introduction to the complex, interdisciplinary field of hazardous waste management, with thoroughly updated information on the most current methods of treatment, disposal, and site remediation.

The management of hazardous waste has changed dramatically since the 1960's and continues to evolve as our knowledge of both the hazards and management methods grows. Since the last edition was published (1994), much of the emphasis has shifted: from site assessments to site remediation, from new facility siting to pollution prevention, and from a newly emerging market to a mature market. The new edition provides comprehensive coverage of these changes in the field.

CONTENTS
I Fundamentals / 1 Hazardous Waste / 2 The Legal Framework / 3 Process Fundamentals / 4 Fate and Transport of Contaminants / 5 Toxicology / **II Current Management Practices** / 6 Environmental Audits / 7 Pollution Prevention / 8 Facility Development and Operations / **III Treatment and Disposal Methods** / 9 Physicochemical Processes / 10 Biological Methods / 11 Stabilization and Solidification / 12 Thermal Methods / 13 Land Disposal / **IV Site Remediation** / 14 Quantitative Risk Assessment / 15 Site and Subsurface Characterization / 16 Remedial Technologies / 17 Evaluation and Selection of Remedial Actions and Corrective Measures / Appendices / A Basel Convention / B Contaminant Properties / C Thermodynamic Properties / D Conversion Factors

HYDROLOGY/SEDIMENT TRANSPORT

Open Channel Hydraulics

Terry W. Sturm, Georgia Institute of Technology

2001 / Hardcover / 512 pgs / ISBN 0-07-062445-3

www.mhhe.com/engcs/civil/sturm

The book is intended for advanced undergraduates and first-year graduate students in the general fields of water resources and environmental engineering. It offers a selective presentation of some of the most common problems encountered by practicing engineers with the inclusion of recent research advances and personal computer applications.

CONTENTS
1 Basic Principles / 2 Specific Energy / 3 Momentum / 4 Uniform Flow / 5 Gradually Varied Flow / 6 Hydraulic Structures / 7 Governing Equations of Unsteady Flow / 8 Numerical Solution of the Unsteady Flow Equations / 9 Simplified Methods of Flow Routing / 10 Flow in Alluvial Channels

Surface Water Quality Modeling

Steven C. Chapra, Tufts University

1997 / Hardcover / 784 pgs / ISBN 0-07-011364-5

Since the 1920's, scientists and engineers around the globe have been using mathematical models to simulate the transport and fate of pollutants in natural waters. Today, and in the foreseeable future, more of these applications are being generated in an effort to develop economical solutions to water-quality problems.

The primary audience for this book is first-year graduate students, including both MA and Ph.D. students. The book, however, could be used as a basis for a senior undergraduate course. The text is divided into seven major parts. The first two cover Modeling Fundamentals, (including material on mathematics, numerical methods, kinetics, diffusion, etc). The remaining parts deal with major water-quality modeling problems such as dissolved oxygen, eutrophication, and toxics. The text is written in lecture format, ideal for case study and teaching purposes. The book stresses theory and application. This edition has a strong computer orientation with a Visual Basic computer program available on the Internet.

CONTENTS
Part I: Completely-Mixed Systems / 1 Introduction / 2 Reaction Kinetics / 3 Mass Balance, Steady-State Solution and Response Time / 4 Particular Solutions / 5 Feedforward Systems of Reactors / 6 Feedback Systems of Reactors / 7 Computer Solutions: Completely-Mixed Reactors / **Part II: Incompletely-Mixed Systems** / 8 Diffusion / 9 Distributed Solutions (Steady-state) / 10 Distributed Solutions (Time Variable) / 11 Control-Volume Approach: Steady-state Solutions / 12 Simple Time-variable Solutions / 13 Advanced Time-variable Solutions / **Part III: Environments** / 14 Streams / 15 Estuaries / 16 Lakes / 17 Sediments / 18 The "Modeling" Environment / **Part IV: Dissolved Oxygen and Bacteria** / 19 BOD and Oxygen Saturation / 20 Gas Transfer and Oxygen Reaeration / 21 Streeter-Phelps: Point Sources / 22 Streeter-Phelps: Distributed Sources / 23 Nitrogen / 24 Photosynthesis/ Respiration / 25 Sediment Oxygen Demand / 26 Computer Methods / 27 Pathogens / **Part V: Eutrophication and Temperature** / 28 The Eutrophication Problem and Nutrients / 29 Phosphorus Loading Concept / 30 Heat Budgets / 31 Thermal Stratification / 32 Microbe/Substrate Modeling / 33 Plant Growth and Non-predatory Losses / 34 Predator-Prey and Nutrient/Food-Chain Interactions / 35 Nutrient-Food Chain Modeling / 36 Eutrophication in Flowing Waters / **Part VI: Chemistry** / 37 Equilibrium Chemistry / 38 Coupling Equilibrium Chemistry and Mass Balance / 39 pH Modeling / **Part VII: Toxic Substances** / 40 Introduction to Toxic Substance Modeling / 41 Mass-transfer Mechanisms: Sorption and Volatilization / 42 Reaction Mechanisms: Photolysis, Hydrolysis and Biodegradation / 43 Radionuclides and Metals / 44 Toxicant Modeling In Flowing Waters / 45 Toxicant/Food-chain Interactions / Appendices

SUPPLEMENT
Solutions Manual

Applied Hydrology

Ven T. Chow
David R. Maidment, University of Texas at Austin
Larry W. Mays, Arizona State University–Tempe

1988 / Hardcover / 572 pgs / ISBN 0-07-010810-2

This text is designed for a hydrologist, civil, or agricultural engineer. The text presents an integrated approach to hydrology, using the hydrologic/system or control volume as a mechanism for analyzing hydrologic problems.

CONTENTS
Part I: Hydrologic Processes, Introduction / 1 Hydrologic Processes / 2 Atmospheric Water / 3 Subsurface Water / 4 Surface Water / 5 Hydrologic Measurement / **Part II: Hydrologic Analysis** / 6 Unit Hydrograph / 7 Lumped Flow Routing / 8 Distributed Flow Routing / 9 Dynamic Wave Routing / 10 Hydrologic Statistics / 11 Frequency Analysis / **Part III: Hydrologic Design** / 12 Design Storms / 13 Design Flows

SUPPLEMENT
Solutions Manual

Hydrosystems Engineering Reliability Assessment and Risk Analysis

Yeou-Koung Tung
Ben-Chie Yen (deceased)

2006 / Hardcover / 512 pgs / ISBN 0-07-145158-7

McGraw-Hill Professional

FEATURES
- First book to integrate reliability analysis and risk assessment with planning, design, and management problems in hydrosystems.
- Presents reliability and risk analysis to determine how hydrosystem structures will perform under various design parameters.
- Most problems can be solved with basic knowledge of probability and statistics.
- Presents the tools required to design and predict the safety and reliability of various hydrosystems, such as dams, levees, storm sewers, or pollution control devices.
- Dual units used in all problems.
- Solutions manual available for problems and computer codes for various methods.

CONTENTS
1 Introduction / 2 Fundamentals of Probability and Statistics for Reliability Analysis / 3 Hydrologic Frequency Analysis / 4 Static Reliability Analysis / 5 Reliability of Systems / 6 Time-to-Failure Analysis / 7 Monte-Carlo Simulation / 8 Time-Dependent (Dynamic) Reliability Analysis / 9 Risk-Based Design of Hydrosystems

WATER RESOURCES

Water Resources Engineering, 4E

Ray K. Linsley
Joseph B. Franzini, Stanford University
David L. Freyberg, Stanford University
George Tchobanoglous, University of California–Davis

1992 / Hardcover / 768 pgs / ISBN 0-07-038010-4

This book covers all aspects of water resources engineering, from hydrology, hydraulics, and hydraulic structures to engineering economy studies and planning. It shows applications of these basics to water supply, irrigation, hydroelectric power, river navigation, drainage, waste water collection, treatment and disposal, and flood control. Multi-purpose projects are discussed in the chapter on planning. Over 400 problems are available for student homework assignments.

CONTENTS
1 Introduction / 2 Descriptive Hydrology / 3 Quantitative Hydrology / 4 Groundwater / 5 Probability Concepts in Planning / 6 Water Law / 7 Reservoirs / 8 Dams / 9 Spillways, Gates, and Outlet Works / 10 Open Channels / 11 Pressure Conduits / 12 Hydraulic Machinery / 13 Engineering Economy in Water-Resources Planning / 14 Irrigation / 15 Water-Supply Systems / 16 Hydroelectric Power / 17 River Navigation / 18 Drainage / 19 Sewerage and Wasterwater Treatment / 20 Flood-Damage Mitigation / 21 Planning for Water-Resources Development / Appendixes

SUPPLEMENT
Solutions Manual

STRESS ANALYSIS

Advanced Strength and Applied Stress Analysis, 2E

Richard Budynas, Rochester Institute Technology

1999 / Hardcover / 960 pgs / ISBN 0-07-008985-X

This book provides a broad and comprehensive coverage of the theoretical, experimental, and numerical techniques employed in the field of stress analysis. Designed to provide a clear transition from the topics of elementary to advanced mechanics of materials. Its broad range of coverage allows instructors to easily select many different topics for use in one or more courses. The highly readable writing style and mathematical clarity of the first edition are continued in this edition. Major revisions in this edition include: an expanded coverage of three-dimensional stress/strain transformations; additional topics from the theory of elasticity; examples and problems which test the mastery of the prerequisite elementary topics; clarified and additional topics from advanced mechanics of materials; new sections on fracture mechanics and structural stability; a completely rewritten chapter on the finite element method; a new chapter on finite element modeling techniques employed in practice when using commercial FEM software; and a significant increase in the number of end of chapter exercise problems some of which are oriented towards computer applications.

CONTENTS
1 Basic Concepts of Force, Stress, Strain, and Displacement / 2 Stress and Strain, Transformations, Equilibrium, and Compatibility / 3 Fundamental Formulations of Stress, Strain, and Deflection / 4 Concepts from the Theory of Elasticity / 5 Topics from Advanced Mechanics of Materials / 6 Energy Techniques in Stress Analysis / 7 Strength Theories and Design Methods / 8 Experimental Stress Analysis / 9 Introduction to the Finite Element Method / 10 Finite Element Modeling Techniques / Appendixes / A Si and USCU Conversions / B Properties of Cross Sections / C Beams in Bending / D Singularity Functions / E Principal Second-Area Moments / F Stress Concentration Factors / G Strain Gage Rosette Equations / H Corrections for Transverse Sensitivity of Strain Gages / I Matrix Algebra and Cartesian Tensors

SUPPLEMENT
Instructor's Solutions Manual

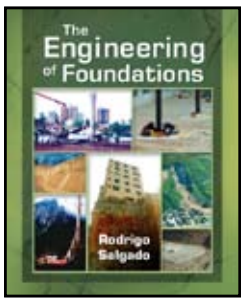
GEOTECH: FOUNDATIONS

The Engineering of Foundations

Rodrigo Salgado, Purdue University-West Lafayette

2008 / Hardcover / 896 pgs / ISBN 0-07-250058-1

Browse http://www.mhhe.com/salgado



New Edition

The Engineering of Foundations presents the subject of foundation engineering in a logical framework, in a natural sequence and in as simple a presentation as possible. The text emphasizes conceptual understanding and avoids an oversimplistic treatment of the subject. Estimation of soil parameters for use in design is given high priority. Users will find an up-to-date text that relates theory to real world practices and integrates concepts and continuity of examples across chapters. Illustrations, applications and hands-on examples are provided. Explains the "why" and the "how".

FEATURES
- Guides the reader/student in the selection of analyses appropriate for various design problems as well as in the choice or estimation of parameters to use in these analyses.
- Emphasizes conceptual understanding of the subject.
- The text has more detailed examples, illustrations and photographs than any other text on the market.
- Provides up-to-date, state-of-the-art information about foundation design.
- Organization is modular and self-contained.
- Unique (as compared to typical texts in this market) topics are presented in detail such as limit states design, load and resistance factor design (LRFD), the construction of shallow foundations and the installation of deep foundations.

PRELIMINARY CONTENTS
1 The World Of Foundation Engineering / 2 Foundation Design / 3 Soils, Rocks, and Groundwater / 4 Stress Analysis, Strain Analysis, and Shearing of Soils / 5 Shear Strength and Stiffness of Sands / 6 Consolidation, Shear Strength, and Stiffness of Clays / 7 Site Exploration / 8 Shallow Foundations in Soils: Types of Shallow Foundations and Construction Techniques / 9 Shallow Foundation Settlement / 10 Shallow Foundations: Limit Bearing Capacity / 11 Shallow Foundation Design / 12 Types of Piles and Their Installation / 13 Analysis and Design of Single Piles / 14 Pile Driving Analysis and Quality Control of Piling Operations / 15 Pile Groups and Piled Rafts / 16 Retaining Structures / 17 Soil Slopes / Appendices / A. Unit Conversions / B. Useful Relationships and Typical Values of Various Quantities / C. Hydraulic Conductivity / D. Consolidation / E. Stress Rotation Analysis

Foundation Analysis and Design, 5E

Joseph E. Bowles

1996 / Hardcover / 1024 pgs / ISBN 0-07-912247-7

The revision of this best-selling text for a junior/senior course in Foundation Analysis and Design now includes an IBM computer disk containing 16 compiled programs together with the data sets used to produce the output sheets, as well as new material on sloping ground, pile and pile group analysis, and procedures for an improved anlysis of lateral piles. Bearing capacity analysis has been substantially revised for footings with horizontal as well as vertical loads. Footing design for overturning now incorporates the use of the same uniform linear pressure concept used in ascertaining the bearing capacity. Increased emphasis is placed on geotextiles for retaining walls and soil nailing.

CONTENTS
1 Introduction / 2 Geotechnical Properties Laboratory testing, Index settlement and Strength Correlations / 3 Exploration, Sampling, and in Situ Soil Measurements / 4 Bearing Capacity of Foundations / 5 Foundation Settlements / 6 Improving Site Soils for Foundation Use / 7 Factors to Consider in Foundation Design / 8 Spread Footing Design / 9 Special Footing Design / 10 MAT Foundations / 11 Lateral Earth Pressure / 12 Mechanically Stabilized Earth and Concrete Retaining Walls / 13 Sheet Pile Walls Cantilevered and Anchored / 14 Walls for Excavation / 15 Cellular Cofferdams / 16 Single Piles-Static Capacity and Lateral Loads; Pile Pole Buckling / 17 Single Piles-Dynamic Analysis' Load Tests / 18 Pile Foundations-Groups / 19 Drilled Piers or Caissons / 20 Design of Foundations for Vibration Control / Appendices

GEOTECH: SOILS LAB

Engineering Properties of Soils and Their Measurement, 4E

Joseph E. Bowles

1992 / ISBN 0-07-911266-8

This fourth edition has been revised to reflect new industry standards and reference computer program usage. The lab book contains a wide variety of soils test and experiments.

CONTENTS
Soil Mechanics Definitions, Laboratory Procedures and Report Preparation / 1 Water-Content Determination / 2 Field Collection of a Soil Sample / 3 Liquid and Plastic Limits of a Soil / 4 Shrinkage Limit / 5 Grain Size Analysis-Mechanical Method / 6 Grain Size Analysis-Hydrometer Method / 7 Specific Gravity of Soil Solids / 8 Classification

of Soils / 9 Moisture-Unit Weight Relationships (Compaction Test) / 10 Determination of in-Place Soil Density / 11 Coefficient of Permeability-Constant Head Method / 12 Coefficient of Permeability-Falling Head Method / 13 Consolidation Test / 14 Unconfined Compression Testing / 15 Triaxial Test-Without Pore-Pressure Measurements / 16 Triaxial Test-With Pore-Pressure Measurements / 17 Direct Shear Test / 18 Relative-Density Determination / 19 California Bearing-Ratio (CBR) / 20 Flow-Net Construction Using an Electrical Analogy / 21 Volumetric-Gravimetric Relationships / 22 Unit Weight of Cohesive Soils

PROJECT MANAGEMENT SCHEDULING

Project Management for Engineers and Construction with ENR's Construction Management Schools Issue, 2E

Garold D. Oberlender, Oklahoma State University–Stillwater

2000 / Hardcover / 384 pgs / ISBN 0-07-039360-5

The purpose of this book is to present the principles and techniques of project management, beginning with the conceptual phase by the owner, through coordination of design and construction, to project completion.

Throughout this book the importance of management skills is emphasized to enable the user to develop his or her own style of project management. The focus is to apply project management at the beginning of a project, when it is first approved. Too often the formal organization to manage a project is not developed until the beginning of the construction phase. This book presents the information that must be assembled and managed during the development and engineering design phase to bring a project to successful completion by the owner.

CONTENTS
1 Introduction / 2 Working with Project Teams / 3 Project Initiation / 4 Early Estimates / 5 Project Budgeting / 6 Development of Work Plan / 7 Design Proposals / 8 Project Scheduling / 9 Project Tracking / 10 Design Coordination / 11 Construction Phase / 12 Project Close Out / 13 Tips for Making Things Happen / 14 Total Quality Management

SUPPLEMENT
Instructors Manual t/a Project Management for Engineers and Construction

TRANSPORTATION (INTRODUCTION)

Introduction to Transportation Engineering, 2E

James H. Banks, San Diego State University–San Diego

2002 / Hardcover / 512 pgs / ISBN 0-07-243188-1

www.mhhe.com/engcs/civil/banks

The second edition of *Introduction to Transportation Engineering* has been developed to provide a concise yet thorough introduction to intermodal transportation. One of its underlying concepts is that the basic techniques and principles of transportation engineering are of wide application. For practical reasons, the major emphasis is often on highways, but care is taken to show how basic concepts and techniques apply to different modes.

The book strives to provide a background in transportation planning, analysis, and design while emphasizing the social, economic, and political context of transportation engineering. It places major emphasis on important practical topics such as geometric design, *Highway Capacity Manual* methods, and traffic signal timing, and also emphasizes important theoretical topics such as the fundamental techniques of traffic analysis and the economic theory underlying transportation demand modeling.

The text has been revised and updated to reflect the 2000 revision of the *Highway Capacity Manual.*

The numbers of flow charts, diagrams, and photos have been increased from the previous edition. The text also offers new open-ended design exercises pertaining to common design problems in transportation such as horizontal and vertical alignment of roads, railways, or runways; traffic design for highways; planning and design of traffic control; and design of bus routes and schedules. These exercises respond to ABET-2000 accreditation requirements, particularly to civil engineering program criteria that require design experiences integrated throughout the professional component of the curriculum.

CONTENTS
1 Introduction / 2 Transportation System Issues and Challenges / 3 Introduction to Physical Design of Transportation Facilities / 4 Geometric Design / 5 Earthwork / 6 Surfaces and Guideways / 7 Mitigation of Environmental Impacts / 8 Traffic Analysis Technique / 9 Traffic Flow / 10 Capacity and Level of Service / 11 Traffic Control / 12 Transit Operations / 13 Transportation Demand Analysis / 14 Transportation Planning / 15 Transportation Project Evaluation / Appendices / A Statistical Tables / B Tables and Charts for Pavement Design / C Highway Capacity Manual Materials (Metric) / Index

TRANSPORTATION: PLANNING

Urban Transportation Planning, 2E

Michael Meyer, Massachusetts Institute of Technology
Eric J. Miller, University of Toronto

2001 / Hardcover / 656 pgs / ISBN 0-07-242332-3

www.mhhe.com/engcs/civil/meyer

The book can serve as an ideal textbook for both undergraduate and graduate courses in Urban Transportation Planning. It fills an appropriate and important niche by giving proper emphasis to what "actors" and activities can influence the quality of the planning process and its eventual impact on a community. The incorporation of major legislation (ISTEA, CAAA, etc.) and other developments (GIS, traffic impact analysis, 1000 Friends of Oregon, etc.)that affect transportation planning distinguishes the text among others in the area.

CONTENTS
1 Urban Transportation Planning: Definition and Context / 2 Transportation Planning and Decision Making / 3 Urban Travel and Transportation System Characteristics: A Systems Perspective / 4 Data Management and Use in Decision Making / 5 Demand Analysis / 6 Urban Activity Analysis / 7 Supply Analysis / 8 Transportation System and Project Evaluation / 9 Program and Project Implementation

McGraw-Hill Core Concepts in Electrical Engineering

Microwave Engineering

Annapurna Das

Head, EMC Division, Sameer Centre for Electromagnetics

2008 / 528 pgs / ISBN 0-07-352950-8

Embedded Systems: Architecture, Programming and Design

Kamal

2008 / Softcover / 672 pgs / ISBN 0-07-340456-X

Control Systems

Madan Gopal

Department of Electrical Engineering, Indian Institute of Technology

2008 / Hardcover / 992 pgs / ISBN 0-07-352951-6

Modern Power System Analysis

L. S. Kothari

University of Delhi

2008 / Softcover / 708 pgs / ISBN 0-07-340455-1

Modern Digital Electronics

Bijendra N. Jain

Director, B.M. Institute of Engineering & Technology

2008 / Softcover / 636 pgs / ISBN 0-07-340457-8

Circuits and Networks

A. Sudhakar

R. V. R. & J. C. O. P. College of Engineering, Guntur

2008 / Softcover / 852 pgs / ISBN 0-07-340458-6

core concepts in electrical engineering

Mc Graw Hill

Browse http://www.mhhe.com/coreconcepts

INTRODUCTION TO ELECTRICAL ENGINEERING

Design for Electrical and Computer Engineers

Ralph Ford
Chris Coulston
both of Penn State Erie Behrend College

New!

2008 / Softcover / 320 pgs / ISBN 0-07-338035-0

This book is written for students and teachers engaged in electrical and computer engineering (ECE) design projects, primarily in the senior year. It guides students and faculty through the steps necessary for the successful execution of design projects. The objective of the text is to provide a treatment of the design process in ECE with a sound academic basis that is integrated with practical application. It has a strong guiding vision—that a solid understanding of the Design Process, Design Tools, and the right mix of Professional Skills are critical for project and career success. This text is unique in providing a comprehensive design treatment for ECE.

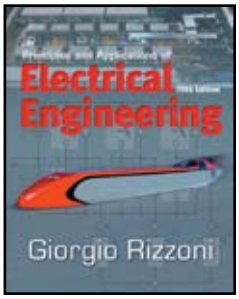
FEATURES

- Strong guiding vision—that a solid understanding of the Design Process, Design Tools, and the right mix of Professional Skills are critical for project and career success
- Ford does a good job at providing comprehensive design treatment for ECE.
- A text at the right level for senior design—based on reviewer feedback we have heard that no books existed that were at the level needed. Ford seems to now bridge that gap and will be the book of choice.

PRELIMINARY CONTENTS

Part I The Engineering Design Process / 1 The Engineering Design Process / 2 Project Selection and Needs Identification / 3 The Requirements Specification / 4 Concept Generation and Evaluation / Part II Design Tools / 5 System Design I: Functional Decomposition / 6 System Design II: Behavior Models / 7 Testing / 8 System Reliability / Part III Professional Skills / 9 Teams and Teamwork / 10 Project Management / 11 Ethical and Legal Issues / 12 Oral Presentations / Appendices / A Glossary / B Component Failure Rate Data / C Manufacturer Datasheets / References / Index

Principles and Applications of Electrical Engineering, 5E



Giorgio Rizzoni, Ohio State University

2007 / Hardcover / 1056 pgs / ISBN 0-07-322033-7

Rizzoni provides a solid overview of the electrical engineering discipline that is especially geared toward the many non-electrical engineering students who take this course. The hallmark feature of the text is its liberal use of practical applications to illustrate important principles. The applications come from every field of engineering and feature exciting technologies such as Ohio State's world-record setting electric car. The appeal to non-EE's is further heightened by such special features as the book's Focus on Measurement sections, Focus on Methodology sections, and Make the Connection sidebars.

NEW TO THIS EDITION

- A large number of new examples has been added throughout.
- Chapter 2 includes a new section on controls.
- Chapter 10 has been reorganized and now includes new information on current sources.
- Chapter 11 has been reworked to include new examples and an explanation of FETs that is absolutely simple and intuitive for students.
- Chapter 12 includes a new section on push-pull amplifiers.
- Chapter 13 includes new material on the half-adder.
- Two new chapters on Communications have been added.
- The number of "Find it onthe Web" links has been increased and the current links have been updated.
- The "Make the Connection" sidebars now include additional examples.
- Photos and figures have been added throughout.

FEATURES

- Rizzoni's experience as an electrical engineer teaching in a mechanical engineering department makes him the ideal author for an EE book for non majors. Through the use of a wide variety of applications and interesting problems, Rizzoni stimulates and motivates the non-majors audience.
- A list of learning objectives is presented after each chapter's introductory section. Reminders are provided in the margin when a key topic related to a learning objective is introduced.
- "Make the Connection" sidebars are used to present analogies between electric circuits and hydraulic, thermal, and mechanical systems. Examples that illustrate the analogies are included.
- "Focus on Methodology" boxes throughout the text enumerate and highlight the steps involved in using various methods of analysis. This feature reminds students to use the procedures for analysis properly, and highlights the methods (through the use of a shaded box)for easy reference.
- Each and every example in the text is followed by a "Check your Understanding" exercise. Answers are provided to these exercises so students can confirm their mastery of the concept in the preceding example.
- "Focus on Measurements" boxes. To emphasize the great relevance of electrical engineering to the science and practice of measurements. These examples often relate to disciplines outside electrical engineering (e.g., biomedical, mechanical, thermal, and fluid system measurements).
- "Find it on the Web" sections provide web links to global companies that manufacture the devices mentioned in the text. Students will be able to quickly look up manufacturer's data sheets and other useful information for use in design problems. This material will be revised and updated.
- Chapter 6 includes complete coverage of Fourier series and Bode plots.
- Chapters 10 (bipolar transistors) and 11 (field-effect transistors) can be covered (or not covered) in either order.
- A wealth of homework problems offers students repeated opportunities to apply the concepts they're learning.
- An Online Learning Center can be found at www.mhhe.com/rizzoni. This site contains resources for students and instructors. It includes such things as password-protected solutions for instructors, data sheets, new instrumentation examples, sample syllabi, web links, and more.

SUPPLEMENTS

COSMOS CD/Principles & Applications of Electrical Eng
Solutions Manual

Introduction to Computing Systems: From Bits & Gates to C & Beyond, 2E

Yale N. Patt, University of Texas at Austin
Sanjay J. Patel, University of Illinois-Champaign

2004 / Hardcover / 656 pgs / ISBN 0-07-246750-9

An expanded website for the text, www.mhhe.com/patt2, includes for instructors: the complete Solutions Manual, Source Code of the examples, JPEGs of all of the figures, and Test Questions for Efficient Grading. For instructors and students, the site has: the LC-3 Simulator (Windows and UNIX versions), lab manuals for both versions of the LC-3, PowerPoint presentations created by instructors using the book in their course, selected solutions (Appendix F), Appendices A, D & E (for easy reference) and a Message Board. (Browse http://www.mhhe.com/patt2)

Introduction to Computing Systems: From Bits & Gates to C & Beyond, now in its second edition, is designed to give students a better understanding of computing early in their college careers in order to give them a stronger foundation for later courses. The book is in two parts: (a) the underlying structure of a computer, and (b) programming in a high level language and programming methodology.

To understand the computer, the authors introduce the LC-3 and provide the LC-3 Simulator to give students hands-on access for testing what they learn. To develop their understanding of programming and programming methodology, they use the C programming language. The book takes a "motivated" bottom-up approach, where the students first get exposed to the big picture and then start at the bottom and build their knowledge bottom-up. Within each smaller unit, the same motivated bottom-up approach is followed. Every step of the way, students learn new things, building on what they already know. The authors feel that this approach encourages deeper understanding and downplays the need for memorizing. Students develop a greater breadth of understanding, since they see how the various parts of the computer fit together.

NEW TO THIS EDITION

- **Chapter 1**: Discussions have been added on the nature and importance of abstraction and the interplay of hardware and software.
- **Chapter 3**: A new section has been added on finite state control and its implementation as a sequential switching circuit to underline the importance of this topic.
- **Chapter 4**: This chapter now contains a section giving a preview of the underlying micro-architecture of the LC-3, which is spelled out in detail in the extensively revised Appendix C.
- **Chapter 5**: This chapter has been completely overhauled to accommodate two major improvements. First, the LC-2 has been replaced by the LC-3. Three more years of experience teaching this course has convinced the authors that the ISA studied in this book could be improved in several ways. The LC-3 is the result. Second, the explanations of each of the topics have been expanded to include more figures and more extensive explanations.
- **Chapters 8 & 10**: These chapters now include major new sections on interrupt-driven I/O.
- **Chapters 11-14**: These chapters are now more focused on the essential aspects of the language useful to a beginning programmer with more examples. [Specialized features like the C switch construct are now at the ends of chapters or in Appendix D.] There is a heavier emphasis on "how to program" via problem solving examples that demonstrate how newly introduced C constructs can be used in C programming.
- **Recursion**: The chapter on recursion (now Chapter 17) has been moved after the chapter on pointers and arrays in order to allow the students to gain more experience with basic programming concepts before making the leap to programming recursive functions.

FEATURES

- **Bottom-Up Organization**: For Patt and Patel, the bottom level abstraction is the switch level representation of a MOS transistor. From there, they quickly move to logic gates, latches, logic structures (MUX, decoder, full adder, and gated latches) finally culminating in an implementation of memory. Then the book moves on to finite state control, its implementation as a sequential circuit, the von Neumann model of execution, a simple computer (the LC-3), machine language programming and assembly language programming of the LC-3, the high level language C, recursion, and finally elementary data structures.
- **Debugging**: Because students are taught debugging techniques from the first program they write and are required to use the LC-3 Simulator's debugging tools from the start, they are better able to master the art of programming and can complete their programming assignments with a lot less help from the TA. (See expanded coverage in Chapter 15.)
- **The LC-3 Simulator**: Central to the student's learning is hands-on access to the LC-3 Simulator, which has been created specifically to aid the student's mastery of the concepts. Students can download the LC-3 simulator from the book website at no cost.
- **Programming Methodology**: Students are provided with numerous meaningful, simple examples on how to take a problem and transform it into a computer program via systematic decomposition. Students are exposed to the fundamental similarities in programming, whether it be in the LC-3 or in C, which provides the student with the useful ability to quickly understand other programming languages.
- **Website**: An expanded website for the text, www.mhhe.com/patt2, includes for instructors: the complete Solutions Manual, Source Code of the examples, JPEGs of all of the figures, and Test Questions for Efficient Grading. For instructors and students, the site has: the LC-3 Simulator (Windows and UNIX versions), lab manuals for both versions of the LC-3, PowerPoint presentations created by instructors using the book in their course, selected solutions (Appendix F), Appendices A, D & E (for easy reference) and a Message Board.

CONTENTS

SUPPLEMENTS

CPS Standalone Card for Science & Math
Reference Guide

Electrical Safety Handbook, 3E

John Cadick
Mary Capelli-Schellpfeffer
Dennis K. Neitzel

2006 / Hardcover / 560 pgs / ISBN 0-07-145772-0

McGraw-Hill Professional

NEW TO THIS EDITION

- New chapter on electrical maintenance
- Complete coverage of the new IEEE 1584
- NEC 2005
- NFPA 70E 2004
- NESC 2002

CONTENTS

Standard Handbook of Electronic Engineering, 5E

Donald Christiansen
Charles Alexander, Cleveland State University
Ronald K. Jurgen

2005 / Hardcover with CD-ROM / 2200 pgs / ISBN 0-07-138421-9

McGraw-Hill Professional

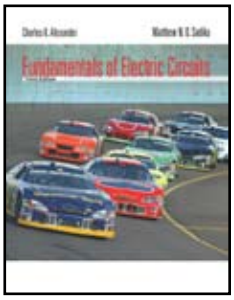
NEW TO THIS EDITION

- The complete handbook in searchable PDF on CD-ROM
- Massive updates including telecom/networking, DSP, and video
- Modularized table of contents
- Additional reference material on CD-ROM

CONTENTS

CIRCUITS

Fundamentals of Electric Circuits, 3E



Charles Alexander, *Cleveland State University*
Matthew Sadiku, *Prairie View A&M University*

2007 / Hardcover / 960 pgs / ISBN 0-07-325643-9

Browse http://www.mhhe.com/alexander

Alexander and Sadiku's third edition of *Fundamentals of Electric Circuits* continues in the spirit of its successful previous editions, with the objective of presenting circuit analysis in a manner that is clearer, more interesting, and easier to understand than the competition. Students are introduced to the sound, six-step problem solving methodology in chapter one, and are consistently made to apply and practice these steps in practice problems and homework problems throughout the text and online using the KCIDE for Circuits software.

A balance of theory, worked examples and extended examples, practice problems, and real-world applications, combined with over 300 new homework problems for the third edition and robust media offerings, renders the third edition the most comprehensive and student-friendly approach to linear circuit analysis.

NEW TO THIS EDITION

- A new four color design program brings circuit drawings to life and emphasizes important equations, margin notes, and examples.
- Extended examples in each chapter show an example problem worked using a detailed outline of the six-step method so students can see how to practice this technique.
- Over 300 new homework problems have been added to the new edition, with over 1800 total problems provided in the text.
- "Enhancing Your Skills and Your Career" chapter openers provide discussions about how to enhance skills that contribute to successful problem-solving, and career-oriented talks on a subdiscipline of electrical engineering to give students a sense of the real-world applications of electrical engineering.
- PSpice and MATLAB® are integrated throughout the text, with tutorials included in the appendix. Icons mark end of chapter problems that can be solved using PSpice or MATLAB®.
- McGraw Hill's Assessment, Review, and Instruction System (ARIS) is a complete, online tutorial, electronic homework, and course management system, designed for greater ease of use than any other system available.
- C.O.S.M.O.S. Solutions Manual, provided to instructors on CD, allows for assignment generation, tracking, and distribution. Instructors also have the ability to edit homework problems.
- Knowledge Capturing Integrated Design Environment for Circuits (KCIDE for Circuits) software provided on the Online Learning Center leads students through end of chapter problems using the six-step problem solving method, and keeps a record for how problems are solved so students can share and check their work. An appendix on KCIDE for Circuits has been added to the text.

FEATURES

- The six-step problem solving methodology is introduced in chapter one and carried throughout the text to promote sound problem solving practices.
- Each illustrative example is immediately followed by a practice problem and answer to test understanding of the preceding example.
- New algorithmic problems.
- The ARIS website also features a solutions manual, text image files, and transition guides to instructors and Network Analysis Tutorials, complete solutions to text practice problems, additional problems and solutions, and FE Exam questions to students. Visit www.mhhe.com/alexander.

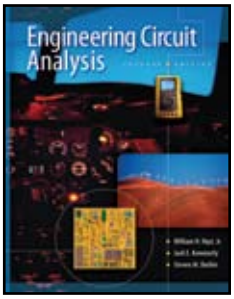
CONTENTS

Part 1 DC Circuits / 1 Basic Concepts / 2 Basic Laws / 3 Methods of Analysis / 4 Circuit Theorems / 5 Operational Amplifiers / 6 Capacitors and Inductors / 7 First-Order Circuits / 8 Second-Order Circuits / **Part 2 AC Circuits** / 9 Sinusoids and Phasors / 10 Sinusoidal Steady-State Analysis / 11 AC Power Analysis / 12 Three-Phase Circuits / 13 Magnetically Coupled Circuits / 14 Frequency Response/ **Part 3 Advanced Circuit Analysis** / 15 Introduction to the Laplace Transform / 16 Applications of the Laplace Transform / 17 The Fourier Series / 18 Fourier Transform / 19 Two-Port Networks / Appendices / A Simultaneous Equations and Matrix Inversion / B Complex Numbers / C Mathematical Formulas / D PSpice for Windows / E MATLAB® / F KCIDE / G Answers to Odd-Numbered Problems

SUPPLEMENTS

Solutions Manual
Cosmos/Fundamentals of Electric Circuits

Engineering Circuit Analysis, 7E



William H. Hayt (deceased)
Jack Kemmerly (deceased)
Steven M. Durbin, *University of Canterbury, New Zealand*

2007 / Hardcover / 800 pgs / ISBN 0-07-326318-4

The book website contains the solutions manual (instructors only), tutorials, Virtual Professor, COSMOS and much more. (Browse http://www.mhhe.com/hayt7e)

The hallmark feature of this classic text is its focus on the student—it is written so that students may teach the science of circuit analysis to themselves. Terms are clearly defined when they are introduced, basic material appears toward the beginning of each chapter and is explained carefully and in detail, and numerical examples are used to introduce and suggest general results. Simple practice problems appear throughout each chapter, while more difficult problems appear at the ends of chapters, following the order of presentation of text material. This introduction and resulting repetition provide an important boost to the learning process. Hayt's rich pedagogy supports and encourages the student throughout by offering tips and warnings, using design to highlight key material, and providing lots of opportunities for hands-on learning. The thorough exposition of topics is delivered in an informal way that underscores the authors' conviction that circuit analysis can and should be fun.

NEW TO THIS EDITION

- COSMOS gives instructors the ability to edit all text homework problems to create assignments, quizzes and tests.
- A new full color design has been implemented throughout.
- Many new examples have been added, particularly in the transient analysis chapters (7, 8, and 9), and closely related practice problems are provided alongside examples.
- PSpice examples are included in relevant chapters to introduce students to practical features such as DC sweeps, transient analysis, writing expressions in Probe, and also to show useful simulations that tie in to the text material.
- Practical Applications boxes throughout the book connect material to real-world situations and tie in concepts of design and problem-solving.
- McGraw-Hill's Assessment, Review, and Instruction System (ARIS) is a complete, online tutorial, electronic homework, and course management system, designed for greater ease-of-use than any other system available. It offers students eProfessor Videos, Algorithmic Problems, a Problem Solving Workbook, Network Analysis Tutorials, FE Exam Review Material, a PSpice Manual, an extra chapter on State-Variable Analysis, and text updates. For instructors, Solutions and PowerPoint files are available.
- Many basic level, "confidence building" end-of-chapter exercises have been added for the seventh edition, something specifically requested by students around the world.
- Design-oriented questions appear at the ends of selected chapters to help students grasp the complexities of the design process.
- Problem-solving techniques are introduced in Chapter One to prepare students for developing a methodical approach to circuit analysis. The step-by-step approach is used in each subsequent chapter, with a carefully selected example in each chapter re-stating the problem-solving methodology as a reminder to the students.

CONTENTS

1 Circuit Analysis and Electrical Engineering / 2 Basic Components and Electric Circuits / 3 Voltage and Curent Laws / 4 Basic Nodal and Mesh Analysis / 5 Useful Circuit Analysis Techniques / 6 The Operational Amplifier / 7 Capacitors and Inductors / 8 Basic RL and RC Circuits / 9 The RLC Circuit / 10 Sinusoidal Steady State Analysis / 11 AC Power Circuit Analysis / 12 Polyphase Circuits / 13 Magnetically Coupled Circuits / 14 Complex Frequency and The Laplace Transform / 15 Circuit Analysis in the s-Domain / 16 Frequency Response / 17 Two-Port Networks / 18 Fourier Circuit Analysis / 19 State-Variable Analysis—*on Web Site Only/ Appendices/ 1 An Introduction to Network Topology / 2 Solution of Simultaneous Equations / 3 A Proof of Thevenin's Theorem / 4 A PSpice Tutorial / 5 Complex Numbers / 6 A Brief MATLAB® tutorial / 7 Additional Laplace Transform Theorems / 8 Answers to Odd-Numbered Problems

Circuits and Networks

A. Sudhakar, R. V. R. & J. C. O. P. College of Engineering, Guntur

2008 / Softcover / 852 pgs / ISBN 0-07-340458-6

Browse http://www.mhhe.com/coreconcepts

McGraw-Hill Core Concepts in Electrical Engineering Series.

New!

Part of the McGraw-Hill Core Concepts in Electrical Engineering Series, *Circuits and Networks: Analysis and Synthesis* is designed as a textbook for an introductory circuits course at the intermediate undergraduate level. The book may also be appealing to a non-major survey course in electrical engineering course as well. A primary goal in Circuits and Networks is to establish a firm understanding of the basic laws of electrical circuits, and to provide students with a working knowledge of the commonly used methods of analysis in electrical engineering. The text assumes no mathematical knowledge, making it easy for students to immediately jump into circuit analysis. In addition, all of the "must have's" for a circuits text, such as an extensive introduction to PSPICE, are present in this book.

About the Core Concepts in Electrical Engineering Series: As advances in networking and communications bring the global academic community even closer together, it is essential that textbooks recognize and respond to this shift. It is in this spirit that we will publish textbooks in the McGraw-Hill Core Concepts in Electrical Engineering Series. The series will offer textbooks for the global electrical engineering curriculum that are reasonably priced, innovative, dynamic, and will cover fundamental subject areas studied by Electrical and Computer Engineering students. Written with a global perspective and presenting the latest in technological advances, these books will give students of all backgrounds a solid foundation in key engineering subjects.

FEATURES

- This book is designed for an introductory course in Electric Network Analysis.
- This book assumes no mathematical knowledge and can immediately jump into circuit analysis.
- All of the "must have's" for a circuits text like coverage of PSPICE are presented in this text.
- Text can be utilized as a potential brief intro to EE title

PRELIMINARY CONTENTS

1 Circuit Elements and Kirchhoff's Laws / 2 Methods of Analyzing Circuits / 3 Useful Theorems in Circuit Analysis / 4 Introduction to Alternating Currents and Voltages / 5 Complex Impedance / 6 Power and Power Factor / 7 Steady State AC Analysis / 8 Resonance / 9 Polyphase Circuits / 10 Coupled Circuits / 11 Differential Equations / 12 Transients / 13 Laplace Transforms / 14 Network Functions / 15 Two-Port Networks / 16 Filters and Attenuators / 17 Elements of Realizability and Synthesis of One-Port Networks / 18 An Introduction to PSPICE / Appendices / A: Fourier Series / B: The Fourier Transform / C: The j Type / Answers to Objective Type Questions

ELECTRONICS I: ANALOG/DIGITAL

Microelectronic Circuit Design, 3E

Richard C. Jaeger, Auburn University-Auburn
Travis Blalock, University of VA-Charlottesville

New Edition

2008 / Hardcover / 1120 pgs / ISBN 0-07-330948-6

Browse http://www.mhhe.com/jaeger

Microelectronic Circuit Design is known for being a technically excellent text. The new edition has been revised to make the material more motivating and accessible to students while retaining a student-friendly approach.

A pedagogical framework has been added that includes chapter opening vignettes, chapter objectives, "Electronics in Action" boxes, a problem solving methodology, and "design note" boxes. The number of examples, including new design examples, has been increased, giving students more opportunity to see problems worked out. Additionally, some of the less fundamental mathematical material has been moved to the website.

NEW TO THIS EDITION

- At the request of users and reviewers, the authors have focused on the fundamentals and given a briefer coverage of Electronics.
- A pedagogical framework has been added that includes chapter opening vignettes, chapter objectives, "Electronics in Action" boxes, a problem solving methodology, and "design note" boxes.

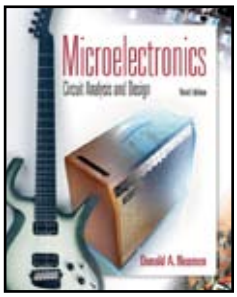
FEATURES

- Emphasis on design through the use of "Design Examples" and "Design ."
- "Electronics in Action" sections connect the student to the real world of Electronics with the use of practical applications.
- Consistent problem solving methodology.

CONTENTS

Part I Solid State Electronic and Devices / 1 Introduction to Electronics / 2 Solid-State Electronics / 3 Solid-State Diodes and Diode Circuits / 4 Field-Effect Transistors / 5 Bipolar Junction Transistors / Part II Digital Electronics / 6 Introduction to Digital Electronics / 7 Complementary MOS (CMOS) Logic Design / 8 MOS Memory and Storage Circuits / 9 Bipolar Logic Circuits / Part III Analog Circuit Design / 10 Analog Systems / 11 Operational Amplifiers / 12 Operational Amplifier Applications / 13 Small-Signal Modeling and Linear Amplification / 14 Single-Transistor Amplifiers / 15 Multistage Amplifiers / 16 Analog Integrated Circuits / 17 Frequency Response / 18 Feedback, Stability, and Oscillators / Appendices / A: Standard Discrete Component Values / B: Solid-State Device Models and SPICE Simulation Parameters

Microelectronic Circuit Analysis and Design, 3E



Donald Neamen, University of New Mexico–Albuquerque

2007 / Hardcover / 1248 pgs / ISBN 0-07-252362-X

Browse http://www.mhhe.com/neamen

This junior level electronics text provides a foundation for analyzing and designing analog and digital electronics throughout the book. Extensive pedagogical features including numerous design examples, problem solving technique sections, Test Your Understanding questions, and chapter checkpoints lend to this classic text. The author, Don Neamen, has many years experience as an Engineering Educator. His experience shines through each chapter of the book, rich with realistic examples and practical rules of thumb. The Third Edition continues to offer the same hallmark features that made the previous editions such a success. Extensive Pedagogy: A short introduction at the beginning of each chapter links the new chapter to the material presented in previous chapters. The objectives of the chapter are then presented in the Preview section and then are listed in bullet form for easy reference. Test Your Understanding Exercise Problems with provided answers have all been updated. Design Applications are included at the end of chapters. A specific electronic design related to that chapter is presented. The various stages in the design of an electronic thermometer are explained throughout the text. Specific Design Problems and Examples are highlighted throughout as well.

NEW TO THIS EDITION

- Preview Section Statements.
- Frequency Response of Transistor Circuits and Transistors themselves, will remain a separate chapter.
- Integration of PSpice. PSpice is integrated into the examples and problems in the text where appropriate.

FEATURES

- Exercise Problems follows each example.
- Design Application.
- For select electronic devices, industrial data sheets are included in the text. This helps students to read and interpret the specs from a data sheet and allows them to plug the specs into problems from the book.

- Each chapter concludes with a summary of important topics, including a checklist of concepts the students should have mastered. These Checklists will help students assess their progress, in accordance with recommendations of ABET 2000 guidelines.
- Each Part of the book opens with an Industry Insight box. Practicing engineers explain why the material that follows is important and how they use this information in their careers.

CONTENTS

ELECTRONICS II: ANALOG INTEGRATED CIRCUITS

Design of Analog CMOS Integrated Circuits

Behzad Razavi, *University of California–Los Angeles*

2001 / Hardcover / 704 pgs / ISBN 0-07-238032-2

www.mhhe.com/razavi

This textbook deals with the analysis and design of analog CMOS integrated circuits, emphasizing recent technological developments and design paradigms that students and practicing engineers need to master to succeed in today's industry. Based on the author's teaching and research experience in the past ten years, the text follows three general principles: (1) Motivate the reader by describing the significance and application of each idea with real-world problems; (2) Force the reader to look at concepts from an intuitive point of view, preparing him/her for more complex problems; (3) Complement the intuition by rigorous analysis, confirming the results obtained by the intuitive, yet rough approach.

CONTENTS

ELECTRONICS II: DIGITAL INTEGRATED CIRCUITS

Analysis and Design of Digital Integrated Circuits, 3E

David A. Hodges, *University of California–Berkeley*
Horace G. Jackson, *University of California–Berkeley*
Resve Saleh, *University of British Columbia*

2004 / Hardcover / 600 pgs / ISBN 0-07-228365-3

Website includes PowerPoints and a solutions manual for instructors only. (Browse http://www.mhhe.com/hodges)

The third edition of Hodges and Jackson's *Analysis and Design of Digital Integrated Circuits* has been thoroughly revised and updated by a new co-author, Resve Saleh of the University of British Columbia. The new edition combines the approachability and concise nature of the Hodges and Jackson classic with a complete overhaul to bring the book into the 21st century.

The new edition has replaced the emphasis on Bipolar with an emphasis on CMOS. The book focuses on the latest CMOS technologies and uses standard deep submicron models throughout the book.

The material on memory has been expanded and updated. As well the book now includes more on SPICE simulation and new problems that reflect recent technologies.

The emphasis of the book is on design, but it does not neglect analysis and has as a goal to provide enough information so that a student can carry out analysis as well as be able to design a circuit. This book provides an excellent and balanced introduction to digital circuit design for both students and professionals.

NEW TO THIS EDITION

- The book has been extensively revised to emphasize CMOS rather than Bipolar technology.
- The material on Memory has been thoroughly updated and expanded; the book now includes two chapters that cover memory design.
- Wires have become increasingly important over the last ten years. The revision includes coverage of this crucial topic.
- New material on optimization techniques is incorporated in the third edition.
- The outdated MOS transistor model used throughout the book has been replaced with the now standard deep submicron model.
- The third edition features increased emphasis on SPICE simulation
- The problems and examples are updated to reflect recent technology and design issues.
- Saleh brings his industry experience to bear by adding many new industry examples throughout the book.

CONTENTS

SUPPLEMENTS

Solutions Manual
Dictionary of Electrical and Computer Engineering

CMOS Digital Integrated Circuits Analysis & Design, 3E

Sung-Mo (Steve) Kang, *University of California–Santa Cruz*
Yusuf Leblebici, *Swiss Federal Institute of Technology*

2003 / Hardcover / 672 pgs / ISBN 0-07-246053-9

highered.mcgraw-hill.com/sites/0072460539

CMOS Digital Integrated Circuits: Analysis and Design is the most complete book on the market for CMOS circuits. Appropriate for electrical engineering and computer science, this book starts with CMOS processing, and then covers MOS transistor models, basic CMOS gates, interconnect effects, dynamic circuits, memory circuits, BiCMOS circuits, I/O circuits, VLSI design methodologies, low-power design techniques, design for manufacturability and design for testability.

This book provides rigorous treatment of basic design concepts with detailed examples. It typically addresses both the computer-aided analysis issues and the design issues for most of the circuit examples. Numerous SPICE simulation results are also provided for illustration of basic concepts. Through rigorous analysis of CMOS circuits in this text, students will be able to learn the fundamentals of CMOS VLSI design, which is the driving force behind the development of advanced computer hardware.

FEATURES

- An entirely re-written chapter on Memory Circuits (chapter 10).
- Extensive treatment of state-of-the-art memory technologies, such as deep-submicron DRAM arrays and Flash memories.
- A unified introduction into VLSI design methodologies.
- Increased emphasis on sub-micron CMOS technologies in every chapter.
- Strong emphasis on circuit design aspects throughout the text.
- Extensive coverage of CMOS fabrication technologies and mask-level layout design.
- Detailed summary of MOS transistor theory and modeling.
- Fundamentals of static and dynamic operation of CMOS logic gates.
- Extensive analysis of on-chip interconnect effects.
- An entire chapter devoted to low-power digital CMOS design.

- Dedicated chapters on BiCMOS circuits and Input/Output circuits.
- Treatment of advanced topics such as Design for Manufacturability and Design for Testability.
- A website includes a downloadable version of the solutions manual, password-protected for instructor use, PowerPoint slides and a CADENCE software tutorial. In addition, the website contains a set of color graphics to illustrate CMOS fabrication and mask-layout design.

CONTENTS
1 Introduction / 2 Fabrication of MOSFETS / 3 MOS Transistor / 4 Modeling of MOS Transistors Using SPICE / 5 MOS Inverters: Static Characteristics / 6 MOS Inverters: Switching Characteristics and Interconnect Effects / 7 Combinational MOS Logic Circuits / 8 Sequential MOS Logic Circuits / 9 Dynamic Logic Circuits / 10 Semiconductor Memories / 11 Low-Power CMOS Logic Circuits / 12 BiCMOS Logic Circuits / 13 Chip Input and Output (I/O) Circuits / 14 Design for Manufacturability / 15 Design for Testability

SUPPLEMENT
Solutions Manual

ELECTRONICS II: SOLID-STATE

An Introduction to Semiconductor Devices

Donald Neamen, University of New Mexico–Albuquerque

2006 / Hardcover / 720 pgs / ISBN 0-07-298756-1

Site contains solutions for instructors and image set. (Browse http://www.mhhe.com/neamen)

An Introduction to Semiconductor Devices by Donald Neamen provides an understanding of the characteristics, operations and limitations of semiconductor devices. In order to provide this understanding, the book brings together the fundamental physics of the semiconductor material and the semiconductor device physics.

This new text provides an accessible and modern presentation of material. Quantum mechanic material is minimal, and the most advanced material is designated with an icon. This modern approach means that coverage of the MOS transistor precedes the material on the bipolar transistor, which reflects the dominance of MOS technology in today's world.

Excellent pedagogy is present throughout the book in the form of interesting chapters openers, worked examples, a variety of exercises, key terms, and end of chapter problems.

FEATURES
- Book features up-to-date coverage. MOSFETs are covered before the BiPolar Junction Transistor, reflecting the MOSFETs predominant role in modern technology.
- Many worked examples are included throughout the text. Each is followed by an exercise problem that tests mastery of what was covered in the example.
- Accessible Coverage-does not use a lot of Quantum Mechanics. More difficult material is marked off by an icon and can be included or skipped.
- Chapter openers contain both "Historical Insight" and "Present-day Insight" boxes. The historical boxes put the topics about to be learned in historical perspective, and the present-day boxes show how what will be learned is relevant in today's world.
- Test Your Understanding Exercises are included at the end of each major section, providing students with an opportunity to practice what they've learned.

CONTENTS
1 The Crystal Structure of Solids / 2 Theory of Solids / 3 The Semiconductor in Equilibrium / 4 Carrier Transport Phenomena / 5 The pn Junction / 6 Fundamentals of the MOS Transistor / 7 The MOSFET: Additional Concepts / 8 Nonequilibrium Excess Carriers in Semiconductors / 9 The pn Junction Diode / 10 The Bipolar Transistor / 11 Additional Semiconductor Devices and Device Concepts / 12 Optical Devices / Appendices / A Selected List of Symbols / B System of Units, Conversion FActors, and General Constants / C The Periodic Table / D "Derivation" of Schrodinger's Wave Equation / E Units of Energy-The Electron-Volt / F Derivation of Density of States Function / G Derivation of Shockley-Read-Hall Recombination Rates / H Answers to Selected Problems

Semiconductor Physics and Devices, 3E

Donald Neamen, University of New Mexico–Albuquerque

2003 / Hardcover / 768 pgs / ISBN 0-07-232107-5

The book website contains the solutions manual (password protected for instructor use) and PowerPoint slides. (Browse http://www.mhhe.com/neamen)

Neamen's *Semiconductor Physics and Devices, Third Edition*. deals with the electrical properties and characteristics of semiconductor materials and devices. The goal of this book is to bring together quantum mechanics, the quantum theory of solids, semiconductor material physics, and semiconductor device physics in a clear and understandable way.

NEW TO THIS EDITION
- Test Your Understanding Exercises are included throughout each chapter. These exercise or drill problems reinforce concepts taught in preceding examples. The answers to the Check Your Understanding exercises are given so that students may check their work.
- Each chapter ends with a bulleted Summary section, a Glossary of Important terms, a Checkpoint list, and Review Questions. These pedagogical tools will help students review their progress and test their understanding before moving on to the next chapter.
- The book website contains the solutions manual (password protected for instructor use), PowerPoint slides and computer simulations.

FEATURES
- Design examples and homework problems help students grasp more practical and open ended problem solving methods. The examples contain all the details of the analysis or design, so the reader does not have to fill in missing steps. These design-oriented examples are marked with an icon.
- A Preview Section introduces each chapter. This preview links the chapter to previous chapters and states the chapter's goals, i.e. what the reader should gain from the chapter.
- Comprehensive coverage of semiconductor devices is presented from Chapter 7 onward. Each chapters treats a different device family. The organization of this book is flexible to accommodate different preferences and teaching styles.
- Extensive coverage of physics and quantum theory in chapters 2 and 3 prepares students for a deeper understanding and perhaps in developing new semiconductor devices. The coverage flows quite naturally and can be covered fairly quickly and efficiently.

CONTENTS
Prologue Semiconductor and the Integrated Circuit / 1 The Crystal Structure of Solids / 2 Introduction to Quantum Mechanics / 3 Introduction to the Quantum Theory of Solids / 4 The Semiconductor in Equilibrium / 5 Carrier Transport Phenomena / 6 Nonequilibrium Excess Carriers in Semiconductors / 7 The pn Junction / 8 The pn Junction Diode / 9 Metal-Semiconductor and Semiconductor Heterojunctions / 10 The Bipolar Transistor / 11 Fundamentals of the Metal-Oxide-Semiconductor Field-Effect Transistor / 12 Metal-Oxide-Semiconductor Field-Effect Transistor: Additional Concepts / 13 The Junction Field-Effect Transistor / 14 Optical Devices / 15 Semiconductor Power Devices / Appendices / A Selected List of Symbols / B System of Units, Conversion Factors, and General Constants / C The Periodic Table / D The Error Function / E "Derivation" of Schrodinger's Wave Equation / F Unit of Energy- The Electron-Volt / G Answers to Selected Problems

SUPPLEMENTS
Dictionary of Electrical and Computer Engineering
Solutions Manual

Semiconductor Heterojunctions and Nanostructures

Omar Manasreh

2005 / Hardcover / 556 pgs / ISBN 0-07-145228-1

McGraw-Hill Professional

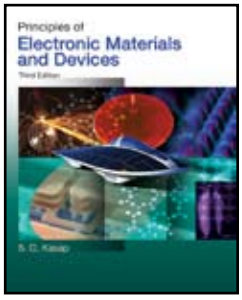
FEATURES
- Introduction to quantum mechanics
  - Electrical properties, techniques and measurements
  - Distribution functions and density states
  - Optical properties of interband and intersubband transitions
- Introduction to quantum mechanics
  - Electrical properties, techniques and measurements
  - Distribution functions and density states
  - Optical properties of interband and intersubband transitions

CONTENTS

Preface / Acknowledgments / List of Symbols and Abbreviations/ 1 Introduction to Quantum Mechanics / 2 Potential Barriers and Wells / 3 Electronic Energy Levels in a Periodic Potential / 4 Tunneling Through Potential Barriers / 5 Distribution Functions and Density of States / 6 Optical Properties / 7 Electrical and Transport Properties / 8 Semiconductor Growth Technologies Bulk, Thin Films, and Nanostructures / 9 Electronic Devices / 10 Optoelectronic Devices / Appendix: Tables / Bibliography / Index

ELECTRONICS II: SOLID-STATE MATERIALS

Principles of Electronic Materials and Devices, 3E



Safa O. Kasap, University of Saskatchewan

2006 / Hardcover / 768 pgs / ISBN 0-07-310464-7

The site includes: Selected Topics in Electronic Materials & Devices, useful formulas, Illustrated Color Dictionary, Tables of Selected Properties of Materials, Worked Examples & Solved Problems, and a Solutions Manual and extensive PowerPoints for the instructor. (Browse http://www.mhhe.com/kasap3)

Principles of Electronic Materials and Devices, Third Edition, is a greatly enhanced version of the highly successful text *Principles of Electronic Materials and Devices*, Second Edition. It is designed for a first course on electronic materials given in Materials Science and Engineering, Electrical Engineering, and Physics and Engineering Physics Departments at the undergraduate level.

The third edition has numerous revisions that include more beautiful illustrations and photographs, additional sections, more solved problems, worked examples, and end-of-chapter problems with direct engineering applications. The revisions have improved the rigor without sacrificing the original semiquantitative approach that both the students and instructors liked and valued. Some of the new end-of-chapter problems have been specially selected to satisfy various professional engineering design requirements for accreditation across international borders. Advanced topics have been collected under Additional Topics, which are not necessary in a short introductory treatment.

NEW TO THIS EDITION

- New Sections such as diffusion, conduction in thin films, interconnect technology, electromigration, piezoresistivity, amorphous semiconductors, Debye relaxation, Pauli spin paramagnetism, giant magneto resistance (GMR), magnetic data storage, Reststrahlen absorption, luminescence, white LEDs, have been added. With these new sections and additional topics, the third edition is one of the most comprehensive introductory textbooks on electronic materials devices.
- Chapter 6 has been revised for a better coverage of heterostructure LEDs and photovoltaics that includes practical examples. The coverage is explained at the undergraduate level with clear diagrams.
- Chapter 7 has more additional topics to provide a wider coverage that includes dielectric mixtures.
- Two new appendices cover Bragg's x-ray diffraction and luminous flux (brightness).
- Thorough coverage including up-to-date topics: This text offers in-depth discussions of topics which are important to both electrical engineering majors as well as materials science majors. From fresh treatment of piezo- and pyro-electric phenomena and dielectric devices, to coverage of relatively new materials such as the Buckminsterfullerene crystal, high Tc superconductors, the complicated concepts are always stated in plain language for students with different backgrounds.
- While aimed primarily at the junior undergraduates, the text with its advanced topics under Additional Topics, and Selected Topics in the CD, can easily be used at the senior undergraduate and graduate level.
- By selecting suitable topics from end-of-chapter Selected Topics lists that appear in the CD (such as mechanical properties, diffusion, thermal properties etc.) the text can also serve as a first course in Materials Science aimed at electrical engineers and engineering physics students. It is suitable for both one- and two-semester courses. By focusing only on those topics relevant to materials that make up electronic and optoelectronic devices, the book offers students a deeper and more meaningful discussion of this material than is offered in general materials science textbooks.
- Explanatory illustrations and comparative tables: The excellent illustrations clearly depict the concepts, further assisting in the learning process. Throughout the text, comparative tables of different materials and their properties can be used as references in solving problems. Such tables also give the student a "feel" for the concepts and materials discussed.
- Interesting photographs of materials, devices and inventions, including the inventors, make the book enjoyable to read.
- Chapter flexibility: The chapters are designed such that they lend themselves to allowing instructors to teach out of sequence or skip topics as desired. Extensive explanatory section headings and limited references to other chapters make this possible. The "Additional Topics" sections also allow instructors to go into more detail when detail is required.
- The following features are available on www.mhhe.com/kasap3: Numerous Selected Topics in Materials Science and Electronic Materials and Devices, Illustrated Color Dictionary of Electronic Materials and Devices, Tables of Selected Properties of Materials, Worked Examples and Solved Problems, Professional color diagrams in Power Point and an extensive Solutions Manual in PDF for instructors.
- Many worked examples and application problems: A three-step approach is used to show students how to apply concepts discussed. Examples with solutions appear within most sections of every chapter. These examples demonstrate both physical concepts and mathematical foundations.
- Questions and Problems sections are found at the end of every chapter. These offer in-depth questions about concepts introduced, then follow up with problems, which require the student to apply mathematical skills. Each question and problem cites the main subject for reference. An asterisk is used next to the question if more advanced mathematical skills are required.

CONTENTS

1 Elementary Materials Science Concepts / 2 Electrical and Thermal Conduction in Solids / 3 Elementary Quantum Physics / 4 Modern Theory of Solids / 5 Semiconductors / 6 Semiconductor Devices / 7 Dielectric Materials and Insulation / 8 Magnetic Properties and Superconductivity / 9 Optical Properties of Materials / Appendices / A Bragg's Diffraction Law and X-Diffraction / B Flux, Luminous Flux and the Brightness of Radiation / C Major Symbols and Abbreviations / D Elements to Uranium / E Constants and Useful Information

SUPPLEMENT

CD-ROM

ELECTRONICS III: OP AMPS (ANALOG)

Design with Operational Amplifiers and Analog Integrated Circuits, 3E

Sergio Franco, San Francisco State University

2002 / Hardcover / 672 pgs / ISBN 0-07-232084-2

www.mhhe.com/franco3

Franco's *Design with Operational Amplifiers and Analog Integrated Circuits*, 3e is intended for a design-oriented course in applications with operational amplifiers and analog ICs. It also serves as a comprehensive reference for practicing engineers.

This new edition includes enhanced pedagogy (additional problems, more in-depth coverage of negative feedback, more effective layout), updated technology (current-feedback and folded-cascode amplifiers, and low-voltage amplifiers), and increased topical coverage (current-feedback amplifiers, switching regulators and phase-locked loops).

CONTENTS

1 Operational Amplifier Fundamentals / 2 Circuits with Resistive Feedback / 3 Active Filters: Part I / 4 Active Filters: Part II / 5 Static Op Amp Limitations / 6 Dynamic Op Amp Limitations / 7 Noise / 8 Stability / 9 Nonlinear Circuits / 10 Signal Generators / 11 Voltage References and Regulators / 12 D-A and A-D Converters / 13 Nonlinear Amplifiers and Phase-Locked Loops

ELECTRONICS III: (ADVANCED)

Micromachined Transducers Sourcebook

Gregory T. Kovacs, Stanford University

1998 / Hardcover / 944 pgs / ISBN 0-07-290722-3

This is the first textbook to provide a comprehensive overview of the field, beginning with micromachining approaches and then covering all major categories of transduction. The book takes a practical approach to the subject and studies key design issues by examining the fabrication of different devices.

CONTENTS
1 Introduction and Overview / 2 Micromachining Techniques / 3 Mechanical Transducers / 4 Optical Transducers / 5 Ionizing Radiation Transducers / 6 Thermal Transducers / 7 Magnetic & Electromagnetic Transducers / 8 Chemical & Biological Transducers / 9 Microfluidic Devices

ELECTRONICS III: OPTICS

Design of Integrated Circuits for Optical Communications

Behzad Razavi, University of California–Los Angeles

2003 / Hardcover / 352 pgs / ISBN 0-07-282258-9

highered.mcgraw-hill.com/sites/007822589

Design of Integrated Circuits for Optical Communications deals with the design of high-speed integrated circuits for optical communication systems. Written for both students and practicing engineers, the book systematically takes the reader from basic concepts to advanced topics, establishing both rigor and intuition. The text emphasizes analysis and design in modern VLSI technologies, particularly CMOS, and presents numerous broadband circuit techniques. Leading researcher Behzad Razavi is also the author of *Design of Analog CMOS Integrated Circuits*.

FEATURES
- This book addresses analysis and design from architecture level to circuit and device level.
- This book covers end-to-end optical communication systems, presenting interactions and trade-offs between optical and electronic components.
- This book provides a detailed understanding of the state of the art in high-speed CMOS and bipolar design ranging from amplifiers to oscillators, phase-locked loops, clock and data recovery circuits, and multiplexing techniques.
- This book methodically describes the design of passive devices such as inductors, MOS varactors, and transmission lines.
- This is the most up-to-date book in this field, written by a leading researcher.
- Website for the book includes additional resources for the reader, including an image set and web links.

CONTENTS
1 Introduction to Optical Communications / 2 Basic Concepts / 3 Optical Devices / 4 Transimpedance Amplifiers / 5 Limiting Amplifiers / 6 Oscillator Fundamentals / 7 LC Oscillators / 8 Phase-Locked Loops / 9 Clock and Data Recovery Circuits / 10 Laser Drivers and Multiplexers

SUPPLEMENT
Solutions Manual

Optical Fiber Communications with CD-ROM, 3E

Gerd Keiser, PhotonicsComm Solutions, Inc.

2000 / Hardcover with CD-ROM / 624 pgs / ISBN 0-07-236076-3

www.mhhe.com/keiser

The third edition of this popular text and reference book presents the fundamental principles for understanding and applying optical fiber technology to sophisticated modern telecommunication systems.

Optical-fiber-based telecommunication networks have become a major information-transmission-system, with high capacity links encircling the globe in both terrestrial and undersea installations. Numerous passive and active optical devices within these links perform complex transmission and networking functions in the optical domain, such as signal amplification, restoration, routing, and switching. Along with the need to understand the functions of these devices comes the necessity to measure both component and network performance, and to model and stimulate the complex behavior of reliable high-capacity networks.

CONTENTS
1 Overview of Optical Fiber Communications / 2 Optical Fibers: Structures, Waveguiding, and Fabrication / 3 Signal Degradation in Optical Fibers / 4 Optical Sources / 5 Power Launching and Coupling / 6 Photodetectors / 7 Optical Receiver Operation / 8 Digital Transmission Systems / 9 Analog Systems / 10 WDM Concepts and Components / 11 Optical Amplifiers / 12 Optical Networks / 13 Measurements

SUPPLEMENT
Solutions Manual

SYSTEMS/CONTROLS

Control Systems

Madan Gopal, Department of Electrical Engineering, Indian Institute of Technology

2008 / Hardcover / 992 pgs / ISBN 0-07-352951-6

Browse http://www.mhhe.com/coreconcepts

McGraw-Hill Core Concepts in Electrical Engineering Series.

New!

Part of the McGraw-Hill Core Concepts Series, *Control Systems: Principles and Design* is a textbook for a control systems course at the advanced undergraduate level. The book presents a balanced approach, incorporating the frequency-response, root locus and state-variable methods as well as discussing the digital control of systems. MATLAB and real-world problems and examples are integrated throughout the book, so that practical applications are emphasized over theory.

About the Core Concepts in Electrical Engineering Series: As advances in networking and communications bring the global academic community even closer together, it is essential that textbooks recognize and respond to this shift. It is in this spirit that we will publish textbooks in the McGraw-Hill Core Concepts in Electrical Engineering Series. The series will offer textbooks for the global electrical engineering curriculum that are reasonably priced, innovative, dynamic, and will cover fundamental subject areas studied by Electrical and Computer Engineering students. Written with a global perspective and presenting the latest in technological advances, these books will give students of all backgrounds a solid foundation in key engineering subjects.

FEATURES
- Includes MATLAB and real-world problems and examples.
- • While often seen as a "dry" subject by students, controls is an important area
- Gopal has a good reputation within the community, and offers an approach that doesn't limit its use to the manufacturing community

- The Gopal text also is geared towards the process community.
- Gopal is not as theoretical in nature compared to Dorsey and has more pedagogy, which should help us as we target our current Dorsey users
- Thorough array of review questions and a Control Theory quiz, the Gopal text provides a lower priced alternative to PH's texts.

PRELIMINARY CONTENTS

1 Introduction to the Control Problem / 2 Dynamic Models and Dynamic Response / 3 Models of Industrial Control Devices and Systems / 4 Basic Principles of Feedback Control / 5 Concepts of Stability and the Routh Stability Criterion / 6 The Performance of Feedback Systems / 7 Compensator Design Using Root Locus Plots / 8 The Nyquist Stability Criterion and Stability Margins / 9 Feedback System Performance Based on the Frequency Response / 10 Compensator Design Using Bode Plots / 11 Hardware and Software Implementation of Common Compensators / 12 Control System Analysis Using State Variable Methods / Appendices / A: Mathematical Background / B: MATLAB Environment / C: Control Theory Quiz

The Fourier Transform & Its Applications, 3E

Ronald N. Bracewell, Stanford University

2000 / Hardcover / 640 pgs / ISBN 0-07-303938-1

This text is designed for use in a senior undergraduate or graduate level course in Fourier Transforms. This text differs from many other fourier transform books in its emphasis on applications. Bracewell applies mathematical concepts to the physical world throughout this text, equipping students to think about the world and physics in terms of transforms.

The pedagogy in this classic text is excellent. The author has included such tools as the pictorial dictionary of transforms and bibliographic references. In addition, there are many excellent problems throughout this book, which are more than mathematical exercises, often requiring students to think in terms of specific situations or asking for educated opinions. To aid students further, discussions of many of the problems can be found at the end of the book.

CONTENTS

1 Introduction / 2 Groundwork / 3 Convolution / 4 Notation for Some Useful Functions / 5 The Impulse Symbol / 6 The Basic Theorems / 7 Obtaining Transforms / 8 The Two Domains / 9 Waveforms, Spectra, Filters and Linearity / 10 Sampling and Series / 11 The Discrete Fourier Transform and the FFT / 12 The Discrete Hartley Transform / 13 Relatives of the Fourier Transform / 14 The Laplace Transform / 15 Antennas and Optics / 16 Applications in Statistics / 17 Random Waveforms and Noise / 18 Heat Conduction and Diffusion / 19 Dynamic Power Spectra / 20 Tables of sinc x, sinc2x, and exp(-71x2) / 21 Solutions to Selected Problems / 22 Pictorial Dictionary of Fourier Transforms / 23 The Life of Joseph Fourier

SUPPLEMENT

Instructor's Solutions Manual

POWER: MACHINERY

Electric Machinery Fundamentals, 4E

Stephen J. Chapman, BAE Systems, Australia

2005 / Hardcover / 768 pgs / ISBN 0-07-246523-9

The website includes the solutions manual password protected for instructors only, as well as source code, MATLAB® tools, and links to important sites for students. (Browse http://highered.mcgraw-hill.com/sites/0072465239)

Electric Machinery Fundamentals continues to be a best-selling machinery text due to its accessible, student-friendly coverage of the important topics in the field. Chapman's clear writing persists in being one of the top features of the book.

Although not a book on MATLAB®, the use of MATLAB® has been enhanced in the fourth edition. Chapman has also added some new applications, as well as many new problems have been added.

Electric Machinery Fundamentals is also accompanied by a website the provides solutions for instructors, as well as source code, MATLAB® tools, and links to important sites for students.

NEW TO THIS EDITION

- Many new problems and examples are included in the fourth edition.

FEATURES

- AC machines are emphasized over DC machines (throughout the text).
- Flexible topic coverage allows either AC or DC material to be covered first (AC-Chaps. 4-7; DC-Chaps. 8-9).
- MATLAB® is incorporated in examples, sample problems, and homework problems (throughout text, see torque-speed char. in Chap. 7).
- Revised homework problems (throughout text)
- Comprehensive coverage of topics not found in other texts (Chap. 3-Solid State Power Electronics, Chap. 5-Synchronous generators, and practical details of machinery use).

CONTENTS

1 Introduction to Machinery Principles / 2 Transformers / 3 Introduction to Power Electronics / 4 AC Machinery Fundamentals / 5 Synchronous Generators / 6 Synchronous Motors / 7 Induction Motors / 8 DC Machinery Fundamentals / 9 DC Motors and Generators / 10 Single-Phase and Special-Purpose Motors / Appendices / A Three-Phase Circuits / B Coil Pitch and Distributed Windings / C Salient-Pole Theory of Synchronous Machines / D Tables of Contents and Conversion Factors

SUPPLEMENTS

Solutions Manual
Dictionary of Electrical and Computer Engineering

Electric Machinery, 6E

A. E. Fitzgerald
Charles Kingsley, Jr.
Stephen D. Umans, Massachusetts Institute of Technology

2003 / Hardcover / 704 pgs / ISBN 0-07-366009-4

highered.mcgraw-hill.com/sites/0073660094

The exciting sixth edition of *Electric Machinery* has been extensively updated while retaining the emphasis on fundamental principles and physical understanding that has been the outstanding feature of this classic book.

This book covers fundamental concepts in detail as well as advanced topics for readers who wish to cover the material in more depth.

Several new chapters have been added, including a chapter on power electronics, as well as one on speed and torque control of DC and AC motors. This edition has also been expanded with additional examples and practice problems. The use of MATLAB® has been introduced to the new edition, both in examples within the text as well as in the chapter problems.

FEATURES

- Each chapter includes quantitative examples to illustrate important concepts. Practice problems with solutions accompany many of the examples for further reinforcement. These features have been clearly illuminated through the design to make it easy for both instructors and students to locate them.
- A new chapter on power electronics introduces the basic components of power electronics as well as typical circuit configurations for rectification and inversion that are found in modern motor drives.
- A new chapter on speed and torque control of DC and AC motors has also been added. This chapter introduces the basic concepts of motor drives for dc and ac machines and includes a discussion of the technique of field-oriented control, which is widely used in modern drive systems.
- The chapter on single- and two-phase motors now includes a generalized analytical formulation for unsymmetrical two-phase induction machines. This formulation is then applied to the general case of a single-phase induction motor running off both its main and auxiliary winding. This formulation is unique to Electric Machinery and is not found in other text books.
- The popular interactive computer software MATLAB® has been introduced in the new edition in both examples and practice problems. In addition, chapter problems have been added which specifically require the use of MATLAB®. An icon has been placed in the margin to indicate those places where MATLAB® is used.

- The website for this book includes a downloadable version of the solutions manual, password-protected for instructors. The website also serves as a source for additional examples, problems and MATLAB® examples. It also contains a set of PowerPoint slides of figures from the book for instructors to use in their lectures.

CONTENTS
1 Magnetic Circuits and Magnetic Materials / 2 Transformers / 3 Electromechanical Energy Conversion Principles / 4 Introduction to Rotating Machines / 5 Synchronous Machines / 6 Polyphase Induction Machines / 7 DC Machines / 8 Variable Reluctance Machines and Stepping Motors / 9 Single- and Two-Phase Motors / 10 Introduction to Power Electronics / 11 Speed and Torque Control / Appendices / A Three-Phase Circuits / B Voltages, Magnetic Fields, and Inductances of Distributed AC Windings / C The dq0 Transformation / D Engineering Aspects of Practical Electric Machine Performance and Operation / E Table of Constants and Conversion Factors for SI Units

Electric Machinery and Power System Fundamentals

Stephen J. Chapman, BAE Systems, Australia

2002 / Hardcover / 696 pgs / ISBN 0-07-229135-4

www.mhhe.com/chapman

Stephen J. Chapman is a leading author in the area of machines. This text is designed to be used in a course that combines machinery and power systems into one semester. Chapman's new book is designed to be flexible and allow instructors to choose chapters "a la carte," so the instructor controls the emphasis.

Chapman has written a book that give students what they need to know to be real-world engineers. It focuses on principles and teaches students how to use information as opposed to do a lot of calculations that would rarely be done by a practicing engineer. He compresses the material by focusing on its essence, underlying principles. MATLAB® is used throughout the book in examples and problems.

CONTENTS
1 Mechanical and Electromagnetic Fundamentals / 2 Three-Phase Circuits / 3 Transformers / 4 AC Machinery Fundamentals / 5 Synchronous Machines / 6 Parallel Operation of Synchronous Generators / 7 Induction Motors / 8 DC Motors / 9 Transmission Lines / 10 Power System Representation and Equations / 11 Introduction to Power-Flow Studies / 12 Symmetrical Faults / 13 Unsymmetrical Faults

SUPPLEMENT
Solutions Manual

POWER SYSTEMS

Power System Analysis

John Grainger, North Carolina State University–Raleigh
William Stevenson, Jr., North Carolina State University

1994 / Hardcover / 784 pgs / ISBN 0-07-061293-5

Based on William Stevenson's classic, *Elements of Power System Analysis*, this new senior/graduate text offers a completely modern update of this popular textbook. Covering such topics as power flow, power-system stability and transmission lines, the book teaches the fundamental topics of power system analysis accompanied by logical discussions and numerous examples.

CONTENTS
1 Basic Concepts / 2 Transformers / 3 The Synchronous Machine / 4 Series Impedance of Transmission Lines / 5 Capacitance of Transmission Lines / 6 Current and Voltage Relations on a Transmission Line / 7 The Admittance Model and Network Calculations / 8 The Impedance Model and Network Calculations / 9 Power Flow Solutions / 10 Symmetrical Faults / 11 Symmetrical Components and Sequence Networks / 12 Unsymmetrical Faults / 13 Economic Operation of Power Systems / 14 Zbus Methods in Contingency Analysis / 15 State Estimation of Power Systems / 16 Power System Stability

SUPPLEMENT
Solutions Manual

Modern Power System Analysis

New!

L. S. Kothari, University of Delhi

2008 / Softcover / 708 pgs / ISBN 0-07-340455-1

Browse http://www.mhhe.com/coreconcepts

McGraw-Hill Core Concepts in Electrical Engineering.

Part of the McGraw-Hill Core Concepts Series, *Modern Power System Analysis* is one of the most current Power Systems texts available, incorporating MATLAB® and SIMULINK. In simple, straightforward language, the book provides a modern introduction to power system operation, control and analysis. With up-to-date chapters on power system security, load forecasting, and voltage stability, Modern Power System Analysis offers a well-priced alternative to older, more expensive texts. The text includes helpful pedagogy such as numerous figures and a wide variety of exercises and solved examples. Authored by one of the leading Power Systems authorities in India, D.P. Kothari, the book takes into account the global perspective of this critical discipline.

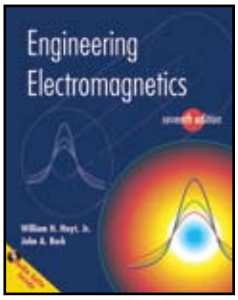
About the Core Concepts in Electrical Engineering Series: As advances in networking and communications bring the global academic community even closer together, it is essential that textbooks recognize and respond to this shift. It is in this spirit that we will publish textbooks in the McGraw-Hill Core Concepts in Electrical Engineering Series. The series will offer textbooks for the global electrical engineering curriculum that are reasonably priced, innovative, dynamic, and will cover fundamental subject areas studied by Electrical and Computer Engineering students. Written with a global perspective and presenting the latest in technological advances, these books will give students of all backgrounds a solid foundation in key engineering subjects.

FEATURES
- Kothari is the leading Power Systems person in all of India.
- Kothari takes into account the global perspective of this critical discipline, where the market leader lacks a global perspective.
- Professors in the past have had to rely on more advanced texts to teach their students. Kothari is a great alternative.
- With its coverage of MATLAB® and SIMULINK, this book is truly the most current Power Systems text.

PRELIMINARY CONTENTS
1 Introduction / 2 Inductance and Resistance of Transmission Lines / 3 Capacitance of Transmission Lines / 4 Representation of Power System Components / 5 Characteristics and Performance of Power Transmission Lines / 6 Load Flow Studies / 7 Optimal System Operation / 8 Automatic Generation and Voltage Control / 9 Symmetrical Fault Analysis / 10 Symmetrical Components / 11 Unsymmetrical Fault Analysis / 12 Power System Stability / 13 Power System Security / 14 An Introduction to State Estimation of Power Systems / 15 Compensation in Power Systems / 16 Load Forecasting Technique / 17 Voltage Stability / Appendices / A: Introduction to Vector and Matrix Algebra / B: Generalized Circuit Constants / C: Triangular Factorization and Optimal Ordering / D: Elements of Power System Jacobian Matrix / E: Kuhn-Tucker Theorem / F: Real-time Computer Control of Power Systems / G: Introduction to MATLAB® and SIMULINK

ELECTROMAGNETICS (INTRODUCTION)

Engineering Electromagnetics with CD, 7E



William H. Hayt (deceased)
John A. Buck, Georgia Institute of Technology

2006 / Hardcover / 608 pgs / ISBN 0-07-310463-9

The book website contains the solutions manual, image set and other resources.
(Browse http://www.mhhe.com/haytbuck7)

Engineering Electromagnetics is a "classic" book that has been updated for electromagnetics in today's world. It is designed for introductory courses in electromagnetics or electromagnetic field theory at the junior-level, but can also be used as a professional reference. This widely respected book stresses fundamentals and problem solving and discusses the material in an understandable, readable way. Numerous illustrations and analogies are provided to the aid the reader in grasping difficult concepts. In addition, independent learning is facilitated by the presence of many examples and problems.

NEW TO THIS EDITION

- The book comes packaged with an extensive multi-media CD-ROM. Key components of the CD include: illustrations, animations, interactives, and quizzes. These resources will be of great use to both the student and the instructor.
- The material is more than adequate for a one-semester course. Professors can omit portions of some of the chapters depending on the instructional level. Also, the more difficult material has been placed near the ends of chapters or at the end of the study of some definite phase of the subject to help bring along varying levels of students.
- The book has an expanded Web site which includes the solutions manual (for instructors only), downloadable JPEG files of the figures, as well as other helpful student and instructor resources.
- The book has been written with the goal of making it as easy as possible for the student to learn independently. This has been done by applying a carefully graduated scale of difficulty within each chapter and among the chapters themselves, by providing numerical examples, a large number of drill problems with answers, as well as end-of-chapter problems.
- Other additions to the 7e include new sections on microstrip lines and optical fibers in the waveguides chapter.
- One of the most significant changes in the seventh edition is the re-positioning of the transmission lines chapter ahead of the plane waves chapter. The transmission lines chapter has also been re-written and expanded so that it can be used at any point in the course outline (including its use as the initial topic). To facilitate this, the fields description of transmission line waves is now located in the waveguides chapter. Also, the topic of transmission line losses has been added to the transmission lines chapter.
- The two plane waves chapters have been modified to accommodate the new ordering. An instructor can still use them ahead of transmission lines if desired.
  - Many new end-of-chapter problems have been included. The drill problems have also been updated. In addition, new examples and applications have been added.
  - COSMOS—contains the entire book problem set, enhanced to include any referenced images or text, as well as the entire solution set for the book. In addition, this application will help you organize, distribute, and track problem sets from the text book as you assign them to your students.

CONTENTS
1 Vector Analysis / 2 Coulomb's Law and Electric Field Intensity / 3 Electric Flux Density, Gauss's Law, and Divergence / 4 Energy and Potential / 5 Current and Conductors / 6 Dielectrics and Capacitance / 7 Poisson's and Laplace's Equations / 8 The Steady Magnetic Field / 9 Magnetic Forces, Materials, and Inductance / 10 Time-Varying Fields and Maxwell's Equations / 11 Transmission Lines / 12 The Uniform Plane Wave / 13 Plane Wave Reflection and Dispersion / 14 Guided Waves and Radiation / Appendices / A Vector Analysis / B Units / C Material Constants / D Origins of the Complex Permittivity / E Answers to Selected Problems

SUPPLEMENTS
CD-ROM
COSMOS T/A Engineering Electromagnetics

ELECTROMAGNETICS (ADVANCED)

Introduction to Radar Systems, 3E

Merrill I. Skolnik

2001 / Hardcover / 784 pgs / ISBN 0-07-288138-0

Since the publication of the second edition of "Introduction to Radar Systems," there has been continual development of new radar capabilities and continual improvements to the technology and practice of radar. This growth has necessitated the addition and updating of the following topics for the third edition: digital technology, automatic detection and tracking, doppler technology, airborne radar, and target recognition. The topic coverage is one of the great strengths of the text. In addition to a thorough revision of topics, and deletion of obsolete material, the author has added end-of-chapter problems to enhance the "teachability" of this classic book in the classroom, as well as for self-study for practicing engineers.

NEW TO THIS EDITION

- This edition now includes problems and/or questions at the end of each chapter to assist in self-study by practicing engineers and in the teaching of graduate-level courses. Most are numerical problems that help the reader reinforce what has been learned in the text. Some ask the reader to go beyond the text and give some thought to what they have learned and build upon it.
- A complete solutions manual will be available with the new edition. In addition to worked out solutions, it will include a list of the term paper topics the author has used over the years in his graduate radar course to further challenge the students.
- The book has been completely revised since the last edition. Almost every paragraph has had changes or been replaced entirely. The order of the chapters has been rearranged so as to reflect how the author covers the material in his own course. Many topics have been expanded from the second edition.
- While there are many specialized courses on detailed electrical engineering subjects, there are very few that are concerned with the systems that are the reason electrical engineering exists. Radar is a classic example of an electronic engineering system that uses many specialized elements of technology practiced by electrical engineers, like signal processing, probability, antennas and receivers. All of these topics are covered in Skolnik, in addition to the standard radar topics.

CONTENTS
1 An Introduction to Radar / 2 The Radar Equation / 3 MTI and Pulse Doppler Radar / 4 Tracking Radar / 5 Detection of Signals in Noise / 6 Information from Radar Signals / 7 Radar Clutter / 8 Propogation of Radar Waves / 9 The Radar Antenna / 10 Radar Transmitters / 11 Radar Receiver

SUPPLEMENTS
Solutions Manual
Dictionary of Electrical and Computer Engineering

Radar Signal Processing

Mark Richards, Georgia Institute of Technology

2005 / Hardcover / 528 pgs / ISBN 0-07-144474-2

McGraw-Hill Professional

FEATURES

- State of the art Fourier analysis techniques
- Target and interference models
- Synthetic aperture imaging
- Adaptive array processing
- Detailed examples throughout

CONTENTS
1 Introduction to Radar Systems / 2 Signal Models / 3 Sampling and Quantization of Pulsed Radar Signals / 4 Radar Waveforms / 5 Doppler Processing / 6 Detection Fundamentals / 7 Constant False Alarm Rate (CFAR) Detection / 8 Introduction to Synthetic Aperture Radar / 9 Introduction to Adaptive Beamforming and Space-Time Adaptive Processing / Appendix: Tracking / Bibliography

ELECTROMAGNETICS (ADVANCED): ANTENNAS

Antennas for All Applications, 3E

John D. Kraus, Ohio State University
Ronald J. Marhefka, Ohio State University

2002 / Hardcover / 960 pgs / ISBN 0-07-232103-2

antennas3.com

This is an exciting revision of John Kraus' classic book *Antennas*, which has been long known as the "Antenna Bible." A new co-author, Ronald Marhefka has joined the author team for this revision. Many new, modern applications have been added-thus the title change to Antennas with All Applications. As well, the references have been updated to include recent additions to the literature.

Additionally, the book has been reorganized to make it more user-friendly for both students and professionals. The book now covers the fundamentals of various antennas and concepts in the first half of the book and then gets into more details on those same topics later in the book. This allows a one-semester course to just cover the fundamentals if desired, and a professional to focus on advanced topics if he or she wants.

CONTENTS
1 Introduction / 2 Antenna Basics / 3 The Antenna Family / 4 Point Sources / 5 Arrays of Point Sources / 6 The Electric Dipole and Thin Linear Antennas / 7 The Loop Antenna / 8 End Fire Antennas: The Helical Beam Antenna and the Yagi-Uda Array / 9 Slot, Patch and Horn Antennas / 9II Slot and Horn Antennas II / 10 Flat Sheet, Corner and Parabolic Reflector Antennas / 11 Broadband and Frequency-Independent Antennas / 12 Antenna Temperature, Remote Sensing and Radar Cross-Section / 13 Self and Mutual Impedances / 14 The Cylindrical Antenna and the Moment Method (MM) / 15 The Fourier Transform Relation Between Aperture Distribution and Far-Field Pattern / 16 Arrays of Dipoles and of Apertures / 17 Lens Antennas / 18 Frequency-Selective Surfaces and Periodic Structures by Ben A. Munk / 19 Practical Design Considerations of Large Aperture Antennas / 20 Some Examples of Large or Unique Antennas / 21 Antennas for Special Applications / 22 Terahertz Antennas / 23 Baluns, etc. by Ben A. Munk / 24 Antenna Measurements. by Arto Lehto and Pertti Vainikainen

SUPPLEMENT
Solutions Manual

Microwave Engineering

New!

Annapurna Das, Head, EMC Division, Sameer Centre for Electromagnetics

2008 / 528 pgs / ISBN 0-07-352950-8

McGraw-Hill Core Concepts in Electrical Engineering.

Part of the McGraw-Hill Core Concepts Series, *Microwave Engineering* thoroughly covers the basic principles, analysis, design and measurement techniques necessary for an introductory undergraduate or graduate course in microwave engineering. The text includes comprehensive coverage, with chapters on the applications of microwave engineering, including antennae, radar, communication systems, and industrial applications of microwaves, as well as microwave measurements and microwave radiation hazards and safety measures. Pedagogy such as numerous illustrations, solved examples, and practice exercises reinforce practical design concepts.

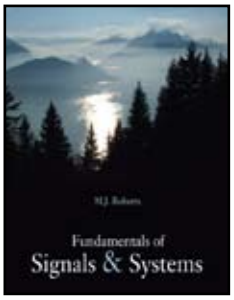
About the Core Concepts in Electrical Engineering Series: As advances in networking and communications bring the global academic community even closer together, it is essential that textbooks recognize and respond to this shift. It is in this spirit that we will publish textbooks in the McGraw-Hill Core Concepts in Electrical Engineering Series. The series will offer textbooks for the global electrical engineering curriculum that are reasonably priced, innovative, dynamic, and will cover fundamental subject areas studied by Electrical and Computer Engineering students. Written with a global perspective and presenting the latest in technological advances, these books will give students of all backgrounds a solid foundation in key engineering subjects.

FEATURES
- Text presents the fundamental concepts and principles behind microwave engineering, along with a large number of solved problems geared towards design.
- Das' background and current research into the more cutting edge area of Microstrip antennas provide a solid base for a well authored microwave text.
- Das has a sound background in Electromagnetic Research, which is key, since this subject area is tied to EM
- Das is economically priced significantly lower than most other texts.

PRELIMINARY CONTENTS
1 Introduction / 2 Basic Transmission Line Theory / 3 Propagation of Electromagnetic Waves / 4 Microwave Transmission Lines / 5 Impedance Transformations for Matching / 6 Microwave Network Theory and Passive Devices / 7 Microwave Resonators / 8 Microwave Filters / 9 Microwave Vacuum Tube Devices / 10 Microwave Solid State Devices and Circuits / 11 Applications of Microwaves / 12 Microwave Radiation Hazards / 13 Microwave Measurements

COMMUNICATIONS I: SIGNALS AND SYSTEMS

Fundamentals of Signals and Systems



New!

M.J. Roberts, University of Tennessee-Knoxville

2008 / Hardcover / 800 pgs / ISBN 0-07-330950-8

Browse http://www.mhhe.com/roberts

As in most areas of science and engineering, the most important and useful theories are the ones that capture the essence, and therefore the beauty, of physical phenomena. This is true of signals and systems. *Signals and Systems: Analysis Using Transform Methods and MATLAB* captures the mathematical beauty of signals and systems and offers a student-centered, pedagogically driven approach. The author has a clear understanding of the issues students face in learning the material and does a superior job of addressing these issues. The book is intended to cover a one-semester sequence in Signals and Systems for juniors in engineering. This text is created in modular format, so instructors can select chapters within the framework that they teach this course.

FEATURES
- The new brief version of Roberts is somewhat shorter than the comprehensive version and, most importantly, has been modularized to allow reduced topic coverage without loss of continuity.
- This version includes many exciting new examples with a practical flavor.
- Roberts continues to offer alternating parallel coverage of continuous-time and discrete-time signals and systems, something most professors want.
- Roberts includes unified and consistent notation for all transform methods to aid retention and understanding of relations among transform methods.
- Since MATLAB is key to many Signals and Systems courses, a large number of MATLAB examples and a comprehensive Appendix on the important MATLAB operators and functions used in signal and system analysis have been included.
- An ARIS site accompanies the book and features such things as solutions and ppts for instructors, and concept simulators and algorithmic problems for students.

CONTENTS
1 Introduction / 2 Mathematical Description of Continuous-Time Signals / 3 Mathematical Description of Discrete-Time Signals / 4 Properties of Continuous-Time Systems / 5 Properties of Discrete-Time Systems / 6 Time-Domain Analysis of Continuous-Time Systems / 7 Time-Domain Analysis of Discrete-Time Systems / 8 The Continuous-Time Fourier Series / 9 The Discrete-Time Fourier Series / 10 The Continuous-Time Fourier Transform / 11 The Discrete-Time Fourier Transform / 12 Continuous-Time Fourier Transform Analysis of Signals and Systems / 13 Discrete-Time Fourier Transform Analysis of Signals and Systems / 14 Sampling and the Discrete Fourier Transform / 15 The Laplace Transform / 16 The z Transform / Appendices / A: Useful Mathematical Relations / B: The Continuous-Time Fourier Series Pairs / C: Discrete-Time Fourier Series Pairs / D: Continuous-Time Fourier Transform Pairs / E: Discrete-Time Fourier Transform Pairs / F: Laplace Transform Pairs / G: z Transform Pairs

Signals and Systems: Analysis of Signals Through Linear Systems

M.J. Roberts, University of Tennessee-Knoxville

2004 / Hardcover with access card / 1054 pgs / ISBN 0-07-293044-6

The website contains solutions, pdf files of figures, concept simulations. (Browse http://www.mhhe.com/roberts)

Signals and Systems by M.J. Roberts offers a student-centered, pedagogically driven approach to teaching Signals and Systems. The author has a clear understanding of the issues students face in learning the material and does a superior job of addressing these issues. The book is intended to cover a two-semester sequence in Signals and Systems for Juniors in engineering.

FEATURES

- Comprehensive coverage of all basic signal and system topics and analysis methods.
- Clear and effective narrative writing style.
- Alternating parallel coverage of continuous-time and discrete-time signals and systems.
- Unified and consistent notation for all transform methods to aid retention and understanding of relations among transform methods.
- Equal treatment of cyclic and radian frequency forms of transforms.
- Proofs of all significant mathematical results.
- Demonstrations of interrelations among transform methods.
- Coverage of discrete-time fourier series properties that are important in sampling theory.
- Extensive examples illustrating all topics.
- Many MATLAB® examples and a comprehensive Appendix on the important MATLAB® operators and functions used in signal and system analysis.
- More than 500 exercises including drill exercises with answers and more challenging problems without answers.

CONTENTS

1 Introduction / 2 Mathematical Description of Signals / 3 Description and Analysis of Systems / 4 The Fourier Series / 5 The Fourier Transform / 6 Fourier Transform Analysis of Signals and Systems / 7 Sampling and the Discrete Fourier Transform / 8 Correlation, Energy Spectral Density, and Power Spectral Density / 9 The Laplace Transform / 10 Laplace Transform Analysis of Signals and Systems / 11 The z Transform / 12 z-Transform Analysis of Signals and Systems / Appendices / A Useful Mathematical Relations / B Introduction to MATLAB® / C Method of Finding Least Common Multiples / D Convolution Properties / E Table of Fourier Pairs / F Table of Laplace Transform Pairs / G Table of z Transforms / H Complex Numbers and Complex Functions / I Differential and Difference Equations / J Vectors and Matrices

SUPPLEMENTS

Science, Engineering and Math Classroom Performance System for two terms
Dictionary of Electrical and Computer Engineering

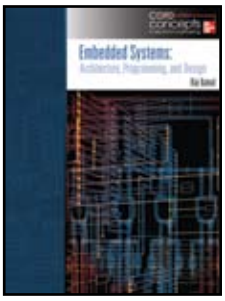
Embedded Systems: Architecture, Programming and Design

Kamal

2008 / Softcover / 672 pgs / ISBN 0-07-340456-X

Browse http://www.mhhe.com/coreconcepts

McGraw-Hill Core Concepts in Electrical Engineering Series.



New!

Part of the McGraw-Hill Core Concepts Series, *Embedded Systems: Architecture, Programming, and Design*, describes an embedded system as one with embedded hardware and software and describes the fundamentals of the architecture, design, and applications for these systems. The authors provide thorough explanations of embedded system programming concepts, OS, RTOS functions, and inter-process synchronization. Case studies in consumer electronics, communications, automobile electronics, and secure transaction systems-on-chip help readers understand how embedded systems are used in everyday life. Other pedagogical components include extensive illustrations, solved examples, defined keywords, review questions, and numerous exercises.

About the Core Concepts in Electrical Engineering Series: As advances in networking and communications bring the global academic community even closer together, it is essential that textbooks recognize and respond to this shift. It is in this spirit that we will publish textbooks in the McGraw-Hill Core Concepts in Electrical Engineering Series. The series will offer textbooks for the global electrical engineering curriculum that are reasonably priced, innovative, dynamic, and will cover fundamental subject areas studied by Electrical and Computer Engineering students. Written with a global perspective and presenting the latest in technological advances, these books will give students of all backgrounds a solid foundation in key engineering subjects.

FEATURES

- Kamal's text provides the basics, so that the student can understand basic embedded system architecture, its hardware and software, programming models and software engineering practices that are used during the system development process
- Dr. Kamal is well known for his expertise in Embedded Processors and Systems, Multiprocessors, Microcontrollers, Computer Architecture and his 30 years of teaching experience.
- Text offers the fundamentals and is intended to explain the concepts necessary for designing high performance response time constrained sophisticated systems
- Kamal is not chip specific. Because of this the text will cover chips that have developed into VLSI Chips (Very Lare Scale Integration). This is used for cameras for example.

PRELIMINARY CONTENTS

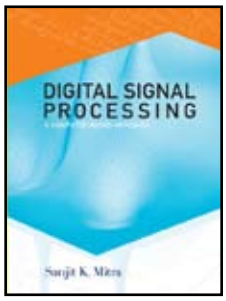
1 Introduction to Embedded Systems / 2 Processor and Memory Organization / 3 Devices and Buses for Device Networks / 4 Device Drivers and Interrupts Servicing Mechanism / 5 Programming Concepts and Embedded Programming in C and C++ / 6 Program Modeling Concepts in Single and Multiprocessor Systems Software-Development Process / 7 Software Engineering Practices in the Embedded Software Development Process / 8 Inter-Process Communication and Synchronisation of Processes, Tasks and Threads / 9 Real Time Operating Systems / 10 Real Time Operating System Programming Tools: Micro C/OS-II and VxWorks / 11 Case Studies of Programming with RTOS / 12 Hardware-Software Co-design in an Embedded System / Appendices / A: CISC and RISC Processor Architectures and an Exemplary Instruction Set / B: Embedded System High-performance Processors / C: Embedded System 8/16/32 Bit Microcontrollers and an Overview of their Architecture / D: Embedded Digital Signal Processors / E: New Innovative Processors for Embedded Systems

COMMUNICATIONS II: DIGITAL SIGNAL PROCESSING

Digital Signal Processing, 3E

Sanjit K. Mitra, University of California-Santa Barbara

2006 / Hardcover with CD-ROM / 896 pgs / ISBN 0-07-304837-2



The expanded Web site for the book includes a downloadable version of the solutions manual (available to instructors only) and a link to the author's FTP site for updated versions of the MATLAB® M-files. (Browse http://www.mhhe.com/mitra3)

Digital Signal Processing: A Computer-Based Approach is intended for a two-semester course on digital signal processing for seniors or first-year graduate students. Based on user feedback, a number of new topics have been added to the third edition, while some excess topics from the second edition have been removed. The author has taken great care to organize the chapters more logically by reordering the sections within chapters. More worked-out examples have also been included. The book contains more than 500 problems and 150 MATLAB® exercises.

New topics in the third edition include: short-time characterization of discrete-time signals, expanded coverage of discrete-time Fourier transform and discrete Fourier transform, prime factor algorithm for DFT computation, sliding DFT, zoom FFT, chirp Fourier transform, expanded coverage of z-transform, group delay equalization of IIR digital filters, design of computationally efficient FIR digital filters, semi-symbolic analysis of digital filter structures, spline interpolation, spectral factorization, discrete wavelet transform.

NEW TO THIS EDITION

- A key feature of the book is the extensive use of MATLAB®-based examples that illustrate the program's powerful capability to solve signal processing problems. The book uses a three-state pedagogical structure with MATLAB®: each chapter begins by developing the essential theory and algorithms, the material is then illustrated with examples solved by hand calculation, and finally solutions are derived using MATLAB®. From the start, MATLAB® codes are provided with enough detail to allow the students to repeat the examples on their computer.
- The original MATLAB® programs of the second edition have been updated to run on the newer versions of MATLAB® and the Signal Processing ToolBox. In addition, brand new MATLAB® programs and code fragments have been added to this edition.
- The text makes extensive use of examples to illustrate theory, design and applications. The 353 simple, but practical examples expose the reader to real-life signal processing problems throughout the book. The book concludes with a chapter focused on several important practical applications of DSP. These applications are easy to follow and do not require knowledge of other advanced level courses.
- The expanded Web site for the book includes a link to the solutions manual & PowerPoints (available to instructors only) and MATLAB® M-files.
- The main text includes a CD-ROM containing all MATLAB® programs, a short tutorial on MATLAB®, real-life signals that can be used by the reader for processing, additional exercises, and review materials.
- A laboratory manual, Digital Signal Processing Laboratory Using MATLAB®, is available free online at the book's website. The manual is intended for a computer-based DSP laboratory course that supplements a lecture course on Digital Signal Processing.

  The lab book includes 11 laboratory exercises, with each exercise containing a number of projects to be carried out on a computer. The book assumes that the reader has no background in MATLAB® and teaches the reader, through tested programs in the first half of the book, the basics of this powerful language in solving important problems in signal processing. In the second half of the book, the student is asked to write the necessary MATLAB® programs to carry out the projects.

CONTENTS
1 Signals and Signal Processing / 2 Discrete-Time Signals and Systems / 3 Discrete-Time Fourier Transform / 4 Digital Processing of Continuous-Time Signals / 5 Finite-Length Discrete Transforms / 6 z-Transform / 7 LTI Discrete-Time Systems in the Transform Domain / 8 Digital Filter Structures / 9 IIR Digital Filter Design / 10 FIR Digital Filter Design / 11 DSP Algorithm Implementation / 12 Analysis of Finite Wordlength Effects / 13 Multirate Digital Signal Processing Fundamentals / 14 Multirate Filter Banks and Wavelets / 15 Applications of Digital Signal Processing / Appendix A: Discrete-Time Random Signals

SUPPLEMENT
CD-ROM T/A Digital Signal Processing

Digital Filters, 2E

Andreas Antoniou, University of Victoria, Canada

2000 / Softcover / 710 pgs / ISBN 0-07-243281-0

with the analysis, design, realization, implementation, and applications of digital filter in a straightforward and easy style, this text can serve either as a textbook on digital signal processing (DSP) with a strong emphasis on the design aspects of the discipline or as a state-of-the-art toolbox for researchers, engineers, and scientists. The analysis aspects include the study of finite-wordlength effects ranging from roundoff noise to limit-cycle oscillations. The design algorithms treated include both highly precise closed-form algorithms that yield standard filter types, e.g., elliptic recursive filters, as well as some very versatile iterative algorithms that can be used to design practically any type of recursive or non-recursive (IIR or FIR) filter. Among the iterative algorithms, a powerful quasi-Newton algorithm due to Fletcher and a very fast Remez algorithm are to be found. The realizations treated range from the well known standard direct and lattice realizations to the low-noise state-space and low-sensitivity wave realizations. The textbook also deals with several modern applications of digital filters,
e. g., quadrature mirror-image channel banks and Hilbert transformers, and provides an introduction to two-dimensional and adaptive digital filters.

CONTENTS
1 Elementary Analysis / 2 The z Transform / 3 The Application of the z Transform / 4 Realization / 5 Analog-Filter Approximations / 6 Continuous-Time, Sampled, and Discrete-Time Signals / 7 Approximations for Recursive Filters / 8 Recursive Filters Satisfying Prescribed Specifications / 9 Design of Nonrecursive Filters / 10 Random Signals / 11 Effects of Finite Word Length in Digital Filters / 12 Wave Digital Filters / 13 The Discrete Fourier Transform / 14 Design of Recursive Filters Using Optimization Methods / 15 Design of Nonrecursive Filters Using Optimization Methods / 16 Digital Signal Processing Applications / Appendix A: Elliptic Functions

Digital Signal Processing

Andreas Antoniou, University of Victoria, Canada

2006 / Hardcover / 965 pgs / ISBN 0-07-145424-1

McGraw-Hill Professional

FEATURES

- Focus on DSP applications
- Includes advanced digital filter design
- All examples and problems can be worked in MATLAB® or DSP Lab
- DSP Lab allows students to work problems without purchasing MATLAB® or going to the computer center

CONTENTS
Preface/ 1 Introduction to Digital Signal Processing / 2 The Fourier Series and Fourier Transfer / 3 The z Transform / 4 Discrete-Time Systems / 5 Application of the z Transform / 6 The Sampling Process / 7 The Discrete Fourier Transform / 8 Realization of Digital Filters / 9 Design of Nonrecursive (FIR) Filters / 10 Approximations for Analog Filters / 11 Design of Recursive (IIR) Filters / 12 Recursive (IIR) Filters Satisfying Prescribed Specifications / 13 Random Signals / 14 Effects of Finite Word Length in Digital Filters / 15 Design of Nonrecursive Filters Using Optimization Methods / 16 Design of Recursive Filters Using Optimization Methods / 17 Wave Digital Filters / 18 Digital Signal Processing Applications / Appendices / A: Complex Analysis / B: Elliptic Functions / Index

COMMUNICATIONS III: COMMUNICATIONS

Communication Systems, 4E

A. Bruce Carlson, Rensselaer Polytech Institute–Troy
Paul B. Crilly, University of Tennessee–Knoxville
Janet Rutledge, University of Maryland at Baltimore

2002 / Hardcover / 864 pgs / ISBN 0-07-011127-8

www.mhhe.com/engcs/electrical/carlson

This exciting revision of *Communication Systems*, a classic text in the communications field, presents an introduction to electrical communication systems, including analysis methods, design principles, and hardware considerations.

The fourth edition has been completely updated to reflect current technology in this ever-evolving field. This edition also features two new co-authors: Janet Rutledge of the University of Maryland at Baltimore and Paul Crilly of the University of Tennessee at Knoxville, in addition to author Bruce Carlson of RPI.

The book is intended for an introductory communications course and is written at a level appropriate for advanced undergraduate and first-year graduate students. The fourth edition covers both analog and digital communications. It features worked examples and exercises for students to solve within chapters, helping them to master new concepts as they are introduced.

CONTENTS
1 Introduction / 2 Signals and Spectra / 3 Signal Transmission and Filtering / 4 Linear CW Modulation / 5 Exponential CW Modulation / 6 Sampling and Pulse Modulation / 7 Analog Communication Systems / 8 Probability and Random Variables / 9 Random Signals and Noise / 10 Noise in Analog Modulation Systems / 11 Baseband Digital Transmission / 12 Digitization Techniques for Analog Messages and Computer Networks / 13 Channel Coding and Encryption / 14 Bandpass Digital Transmission / 15 Spread Spectrum Systems / 16 Information and Detection Theory

Smart Antennas for Wireless Communications

Frank Gross

2006 / Hardcover / 270 pgs / ISBN 0-07-144789-X

McGraw-Hill Professional

FEATURES

- Sidelobe cancellers
- Beamsteering
- Direction of arrival estimation
- Channel characteristics
- Numerous worked examples
- Real world case studies

CONTENTS

1. Introduction / 1.1. What is a Smart Antenna? / 1.2. Why Are Smart Antennas Emerging Now? / 1.3. What are the Benefits of Smart Antennas? / 1.4. Smart Antennas Involve Many Disciplines / 1.5. Overview of the Book / References/ 2. Fundamentals of Electromagnetic Fields / 2.1. Maxwell's Equations / 2.2. The Helmholtz Wave Equation / 2.3. Propagation in Rectangular Coordinates / 2.4. Propagation in Spherical Coordinates / 2.5. Electric Field Boundary Conditions / 2.6. Magnetic Field Boundary Conditions / 2.7. Planewave Reflection and Transmission Coefficients / 2.7.1. Normal Incidence / 2.7.2. Oblique Incidence/ 2.8. Propagation Over Flat Earth / 2.9. Knife-Edge Diffraction / References / Problems/ 3. Antenna Fundamentals / 3.1. Antenna Field Regions / 3.2. Power Density / 3.3. Radiation Intensity / 3.4. Basic Antenna Nomenclature / 3.4.1. Antenna Pattern / 3.4.2. Antenna Boresight / 3.4.3. Principal Plane Patterns / 3.4.4. Beamwidth / 3.4.5. Directivity / 3.4.6. Beam Solid Angle / 3.4.7. Gain / 3.4.8. Effective Aperture/ 3.5. Friis Transmission Formula / 3.6. Magnetic Vector Potential and the Far Field / 3.7. Linear Antennas / 3.7.1. Infinitesimal Dipole / 3.7.2. Finite Length Dipole/ 3.8. Loop Antennas / 3.8.1. Loop of Constant Phasor Current/ References / Problems/ 4. Array Fundamentals / 4.1. Linear Arrays / 4.1.2. Two Element Array / 4.1.3. Uniform N-Element Linear Array / 4.1.2.1 Broadside Linear Array / 4.1.2.2 End-Fire Linear Array / 4.1.2.3 Beamsteered Linear Array / 4.1.4. Uniform N-Element Linear Array Directivity / 4.1.4.1. Broadside Array Maximum Directivity / 4.1.4.2. End-Fire Array Maximum Directivity / 4.1.4.3. Beamsteered Array Maximum Directivity/ 4.2. Array Weighting / 4.2.2. Beamsteered and Weighted Arrays/ 4.3. Circular Arrays / 4.3.2. Beamsteered Circular Arrays/ 4.4. Rectangular Planar Arrays / 4.5. Fixed Beam Arrays / 4.5.2. Butler Matrices/ 4.6. Fixed Sidelobe Canceling / 4.7. Retrodirective Arrays / References / Problems/ 5. Principles of Random Variables and Processes / 5.1. Definition of Random variables / 5.2. Probability Density Functions / 5.3. Expectation and Moments / 5.4. Common probability density functions / 5.5. Stationarity and ergodicity / 5.6. Autocorrelation and power spectral density / 5.7. Correlation matrix / References / Problems/ 6. Propagation Channel Characteristics / 6.1. Flat Earth Model / 6.2. Multipath Propagation Mechanisms / 6.3. Propagation Channel Basics / 6.3.1. Fading / 6.3.2. Fast Fading Modeling / 6.3.3. Channel Impulse Response / 6.3.4. Power Delay Profile / 6.3.5. Prediction of Power Delay Profiles / 6.3.6. Power Angular Profile / 6.3.7. Prediction of Angular Spread / 6.3.8. Power Delay-Angular Profile / 6.3.9. Channel Dispersion / 6.3.10. Slow Fading Modeling/ 6.4. Improving Signal Quality / 6.4.2. Equalization / 6.4.3. Diversity / 6.4.3.1. RAKE Receiver / 6.4.4. Channel Coding / 6.4.5. MIMO/ References / Problems/ 7. Angle-of-Arrival Estimation / 7.1. Fundamentals of Matrix Algebra / 7.1.2. Vector Basics / 7.1.3. Matrix Basics/ 7.2. Array Correlation Matrix / 7.3 AOA Estimation Methods / 7.3.1. Bartlett AOA Estimate / 7.3.2. Capon AOA Estimate / 7.3.3. Linear Prediction AOA Estimate / 7.3.4. Maximum Entropy AOA Estimate / 7.3.5. Pisarenko Harmonic Decomposition AOA Estimate / 7.3.6. Min-Norm AOA Estimate / 7.3.7. MUSIC AOA Estimate / 7.3.8 Root-MUSIC AOA Estimate / 7.3.9 ESPRIT AOA Estimate/ References / Problems/ 8. Smart Antennas / 8.1. Introduction / 8.2. The Historical Development of ?Smart Antennas? / 8.3. Fixed Weight Beamforming Basics / 8.3.1. Maximum Signal-to-Interference Ratio / 8.3.2. Minimum Mean-Square Error / 8.3.3. Maximum Likelihood / 8.3.4. Minimum Variance/ 8.4. Adaptive Beamforming / 8.4.1. Least Mean Squares / 8.4.2. Sample Matrix Inversion / 8.4.3. Recursive Least Squares / 8.4.4. Constant Modulus / 8.4.5. Least Squares Constant Modulus / 8.4.6. Conjugate Gradient Method / 8.4.7. Spreading Sequence Array Weights / 8.4.7.1. Description of the New SDMA Receiver / 8.4.7.2. Example using bi-phase chipping/ References / Problems

Complete Wireless Design

Cotter W. Sayre

2001 / Hardcover / 547 pgs / ISBN 0-07-137016-1

McGraw-Hill Professional

CONTENTS

1 Wireless Essentials / 2 Modulation / 3 Amplifier Design / 4 Oscillator Design / 5 Frequency Synthesizer Design / 6 Filter Design / 7 Mixer Design / 8 Support Circuit Design / 9 Communication Systems Design / 10 Wireless Issues

COMMUNICATIONS IV: DIGITAL

Digital Communications, 4E

John Proakis, Northeastern University

2001 / Hardcover / 1024 pgs / ISBN 0-07-232111-3

www.mhhe.com/engcs/electrical/proakis

Digital Communications is a classic book in the area that is designed to be used as a senior or graduate level text. The text is flexible and can easily be used in a one semester course or there is enough depth to cover two semesters. Its comprehensive nature makes it a great book for students to keep refer to in their professional careers.

This best-selling book in Digital Communications by John G. Proakis has been revised to reflect the current trends in the field. Some of the topics that have been added include Turbocodes, Antenna Arrays, Iterative Detection, and Digital Cellular Systems. Also new to this edition are electronic figures for presentation materials found on the website.

CONTENTS

1 Introduction / 2 Probability and Stochastic Processes / 3 Source Coding / 4 Characterization of Communication Signals and Systems / 5 Optimum Receivers for the Additive White Gaussian Noise Channel / 6 Carrier and Symbol Synchronization / 7 Channel Capacity and Coding / 8 Block and Convolutional Channel Codes / 9 Signal Design for Band-Limited Channels / 10 Communication through Band-Limited Linear Filter Channels / 11 Adaptive Equalization / 12 Multichannel and Multicarrier Systems / 13 Spread Spectrum Signals for Data Communications / 14 Digital Communication through Fading Multipath Channels / 15 Multiuser Communications

SUPPLEMENT

Solutions Manual

Principles of Digital Audio, 5E

Ken C. Pohlmann, Prof. of Music Engineering/University of Miami

2005 / Softcover / 842 pgs / ISBN 0-07-144156-5

McGraw-Hill Professional

NEW TO THIS EDITION

- Complete cover of MP3 and WMA codecs and formats
- MPEG-7 compression
- Digital radio formats
- PC-based Desktop recording and audio
- Virtual surround sound
- DVD audio

CONTENTS

Preface To The Fifth Edition / 1 Sound and Numbers / 2 Fundamentals of Digital Audio / 3 Digital Audio Recording / 4 Digital Audio Reproduction / 5 Error Correction / 6 Magnetic Storage Media / 7 Digital Audio Tape (DAT) / 8 Optical Disc Media / 9 The Compact Disc / 10 Perceptual Coding / 11 DVD / 12 The MiniDisc / 13 Audio Interconnection / 14 Desktop Audio / 15 Internet Audio / 16 Digital Radio and Television Broadcasting / 17 Digital Signal Processing / 18 Sigma-Delta Conversion and Noise Shaping / Appendix: The Sampling Theory / Bibliography / Index

COMMUNICATIONS IV: ADVANCED

Local Area Networks with CD-ROM, 2E

Gerd Keiser, PhotonicsComm Solutions, Inc.

2002 / Hardcover with CD-ROM / ISBN 0-07-251912-6

www.mhhe.com/engcs/electrical/keiser2

The second edition of Keiser's *Local Area Networks* has been updated extensively with the latest LANs technology. The book has been written with the purpose of providing the basic material for an introductory senior or first-year graduate course in the analysis and modeling of local area networks. The book will also serve as a working reference for practicing engineers dealing with local area network design and applications. The book is organized to give a clear and logical sequence of key LAN topics.

CONTENTS
1 Overview of LANs / 2 Network Architectures and Protocols / 3 Data Communication Concepts / 4 LAN Access Techniques / 5 Ethernet / 6 Token-Passing LANs / 7 ATM LANs / 8 Wireless LANs / 9 Fibre Channel and SANs / 10 Internetworking / 11 Network Management / 12 Network Security

Optical Fiber Communications with CD-ROM, 3E

Gerd Keiser, PhotonicsComm Solutions, Inc.

2000 / Hardcover with CD-ROM / 624 pgs / ISBN 0-07-236076-3

www.mhhe.com/keiser

The third edition of this popular text and reference book presents the fundamental principles for understanding and applying optical fiber technology to sophisticated modern telecommunication systems.

Optical-fiber-based telecommunication networks have become a major information-transmission-system, with high capacity links encircling the globe in both terrestrial and undersea installations. Numerous passive and active optical devices within these links perform complex transmission and networking functions in the optical domain, such as signal amplification, restoration, routing, and switching. Along with the need to understand the functions of these devices comes the necessity to measure both component and network performance, and to model and stimulate the complex behavior of reliable high-capacity networks.

CONTENTS
1 Overview of Optical Fiber Communications / 2 Optical Fibers: Structures, Waveguiding, and Fabrication / 3 Signal Degradation in Optical Fibers / 4 Optical Sources / 5 Power Launching and Coupling / 6 Photodetectors / 7 Optical Receiver Operation / 8 Digital Transmission Systems / 9 Analog Systems / 10 WDM Concepts and Components / 11 Optical Amplifiers / 12 Optical Networks / 13 Measurements

SUPPLEMENT
Solutions Manual

Modern Communication Circuits, 2E

Jack R. Smith, University of Florida–Gainesville

1998 / Hardcover / 608 pgs / ISBN 0-07-059283-7

This new edition combines material from the traditional electronic circuits course with communications theory. The revision focuses on three key areas: use of frequencies above 100MHz, use of digital receivers, and the use of SPICE for circuit analysis.

CONTENTS
1 Introduction to Radio Communication Systems / 2 Small-Signal Amplifiers / 3 Network Noise and Intermodulation Distortion / 4 Frequency-Selective Networks and Transformers / 5 High-Frequency Amplifiers and Automatic Gain Control / 6 Hybrid and Transmission-Line Transformers / 7 Oscillators / 8 Phase-Locked Loops / 9 Phase-Locked Loop Analysis / 10 Frequency Synthesizers / 11 Power Amplifiers / 12 Modulators and Demodulators

SUPPLEMENT
Instructor's Solutions Manual w/Solutions Aid Disk

Wireless and Cellular Communications, 3E

William C. Y. Lee, Chairman of Linkair, Inc.

2006 / Hardcover / 544 pgs / ISBN 0-07-143686-3

McGraw-Hill Professional

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- WLAN specs and operation
- Specifications for all major wireless systems, including cdmaOne
- The field's bestselling engineering reference completely updated for a new era

CONTENTS
1 Introduction to Wireless Communications / 2 Introduction to Cellular Systems / 3 Specification of Analog Cellular Systems / 4 Specification of Digital Cellular Systems / 5 Specification of Newly Mobile Systems / 6 Specification of WLL and WLAN Systems / 7 Cell Coverage and Antennas / 8 Cochannel Interferences / 9 Types of Non-Cochannel Interference / 10 Frequency Management and Channel Assignment / 11 Handoffs and Dropped calls / 12 Operational Technology and Techniques / 13 Switching and Traffic / 14 Data Links and Microwaves / 15 System Evaluations / 16 Intelligent Cell Concept / 17 Intelligent and All IP Network / 18 Mobile Communications Related Topics

Verilog Digital System Design, 2E

Zainalabedin Navabi, Northeastern University

2006 / Hardcover / 450 pgs / ISBN 0-07-144564-1

McGraw-Hill Professional

NEW TO THIS EDITION
- Uses Verilog 2001 throughout
- New chapters on test-bench development
- New OVL Verification Library
- New synthesis standards
- CD-ROM contains simulations and synthesis tools, including Aldec's complete verilog simulator
- Instructor's Manual for academic use

CONTENTS
1 Design Automation with Verilog / 2 Design with Verilog / 3 Combinational Circuits in Verilog / 4 Sequential Circuits in Verilog / 5 Language Utilities / 6 Test Methodologies / 7 Verification / 8 CPU Design and Verification

Cable Communications Technology

Eugene R. Bartlett

2006 / Hardcover / 384 pgs / ISBN 0-07-145781-X

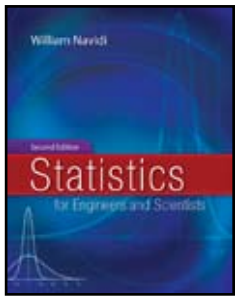
McGraw-Hill Professional

FEATURES
- Coaxial cable basics
- Cable modems
- DSP for cable
- Fiber optics
- Voice over IP
- Worked examples and problems at the end of each chapter

PRELIMINARY CONTENTS
1 Introduction to Cable Communications / 2 Coaxial Cable Systems / 3 Signal Processing and Head-Ends / 4 Digital Technology and Cable System Applications / 5 Fiber Optic Technology / 6 Subscriber Installations and Terminating Devices / 7 Cable Systems Testing and Maintenance

ENGINEERING MATH/STATISTICS

Statistics for Engineers and Scientists, 2E



New Edition

William C. Navidi, Colorado School of Mines

2008 / Hardcover / 675 pgs / ISBN 0-07-330949-4

Browse http://www.mhhe.com/navidi2

The second edition of this book is intended to extend the strengths of the first. Some of the changes include:

- More than 200 new exercises have been added.
- A new section on point estimation has been added to Chapter 4.
- The material on histograms in Chapter 1 has been completely revised.
- Chapter 2 now contains a discussion of Chebyshev's inequality.
- Chapter 4 now contains a discussion of the uniform distribution.
- The section on the normal distribution contains a discussion on linear functions of normal random variables.
- Chapter 7 contains additional material on the correlation coefficient.
- Chapter 10 contains a discussion of the relationship between control charts and hypothesis tests.
- The exposition has been improved in a number of places.

Also new for this edition is the ARIS online course management system. ARIS provides automatic grading of student assignments and keeps a record of students' grades. In addition, ARIS contains problems for student practice, along with Java applets that allow students to interactively explore ideas in the text. Customizable PowerPoint lecture notes for each chapter are available as well, along with suggested syllabi, and other features. More information can be found at aris.mhhe.com.

William Navidi is Professor of Mathematical and Computer Sciences at the Colorado School of Mines. He received the B.A. degree in mathematics from New College, the M.A. in mathematics from Michigan State University, and the Ph.D. in statistics from the University of California at Berkeley. Professor Navidi has authored more than 50 research papers both in statistical theory and in a wide variety of applications including computer networks, epidemiology, molecular biology, chemical engineering, and geophysics.

NEW TO THIS EDITION

- McGraw-Hill's ARIS online Homework Manager has been added to this edition and features algorithmic problems and gradebook capability. Instructors will have access to data sets, solutions, lecture powerpoints, and images from the text.
- Over 180 new homework problems have been added throughout.

FEATURES

- An engaging writing style explains difficult concepts clearly. While including the mathematics necessary for clear understanding, the text makes extensive use of examples to motivate fundamental concepts and to develop intuition.
- Contemporary, real world data sets are one of the defining features of this text. With a fresh approach to the subject, the author uses contemporary data sets to help motivate students and show direct connection to industry and research.
- In line with modern trends, the text contains exercises suitable for solving with computer software. These examples and exercises involve interpreting, as well as generating, computer output. The student edition of MINITAB, the widely used statistical software package, is available bundled with the text.
- A separate chapter provides **extensive coverage of propagation of error**, sometimes called "error analysis" or the "delta method." The coverage is more extensive than in most texts, with a flexible format allowing instructors to easily cover selected topics.
- The text presents an **extensive, self-contained introduction to simulation methods** at a level appropriate for introductory students, including the bootstrap and applications to estimating probabilities, estimating bias, computing confidence intervals, and testing hypotheses.
- The text provides **more extensive coverage of linear model diagnostic procedures** than is found in most competing texts including a lengthy section on checking model assumptions and transforming variables. The coverage emphasizes that linear models are appropriate only when the relationship between variables is linear. This point is all the more important since it is often overlooked in practice by engineers and scientists (not to mention statisticians).
- **Flexible presentation of probability** addresses the needs of different courses. Allowing for a mathematically rigorous approach, the major results are derived from axioms, with proofs given for most of them. Each result is illustrated with an example or two to promote intuitive understanding. Instructors who prefer a more informal approach may therefore focus on the examples rather than the proofs and skip the optional sections.

CONTENTS

1 Sampling and Descriptive Statistics / 2 Probability / 3 Propagation of Error / 4 Commonly Used Distributions / 5 Confidence Intervals / 6 Hypothesis Testing / 7 Correlation and Simple Linear Regression / 8 Multiple Regression / 9 Factorial Experiments / 10 Statistical Quality Control / A Tables / B Partial Derivatives / C Suggestions for Further Reading / Answers to Selected Exercises / Index

Probability, Random Variables and Stochastic Processes with Errata Sheet, 4E

Athanasios Papoulis, Late of Polytechnic University
S. Unnikrishna Pillai, Polytechnic University

2002 / Hardcover / ISBN 0-07-281725-9

www.mhhe.com/papoulis

The fourth edition of *Probability, Random Variables and Stochastic Processes* has been updated significantly from the previous edition, and it now includes co-author S. Unnikrishna Pillai of Polytechnic University. The book is intended for a senior/graduate level course in probability and is aimed at students in electrical engineering, math, and physics departments. The authors' approach is to develop the subject of probability theory and stochastic processes as a deductive discipline and to illustrate the theory with basic applications of engineering interest. Approximately 1/3 of the text is new material—this material maintains the style and spirit of previous editions. In order to bridge the gap between concepts and applications, a number of additional examples have been added for further clarity, as well as several new topics.

CONTENTS

Part 1 Probability and Random Variables / 1 The Meaning of Probability / 2 The Axioms of Probability / 3 Repeated Trials / 4 The Concept of a Random Variable / 5 Functions of One Random Variable / 6 Two Random Variables / 7 Sequences of Random Variables / 8 Statistics / **Part 2 Stochastic Processes** / 9 General Concepts / 10 Random Walk and Other Applications / 11 Spectral Representation / 12 Spectral Estimation / 13 Mean Square Estimation / 14 Entropy / 15 Markov Chains / 16 Markov Processes and Queueing Theory

Probability, Random Variables, and Random Signal Principles, 4E

Peyton Peebles Jr., University of Florida–Gainesville

2001 / Hardcover / 480 pgs / ISBN 0-07-366007-8

www.mhhe.com/peebles

The fourth edition of *Probability, Random Variables and Random Signal Principles* continues the success of previous editions with its concise introduction to probability theory for the junior-senior level course in electrical engineering. The book offers a careful, logical organization which stresses fundamentals and includes almost 900 student exercises and abundant practical applications for engineers to understand probability concepts.

The most important new material in this edition relates to discrete-time random processes and sequences, and other topics in the general area of digital signal processing, such as the DT linear system.

CONTENTS

1 Probability / 2 The Random Variable / 3 Operations on one Random Variable—Expectation / 4 Multiple Random Variables / 5 Operations of Multiple Random Variables / 6 Random Processes-Temporal Characteristics / 7 Random Processes-Spectral Characteristics / 8 Linear Systems with Random Inputs / 9 Optimum Linear Systems / 10 Some Practical Applications of the Theory

SUPPLEMENT

Instructor's Solutions Manual

Engineering Formulas, 8E

New!

Kurt Gieck, Heilbronn A.N., Germany
Reiner Gieck

2006 / Hardcover / 580 pgs / ISBN 0-07-145774-7

McGraw-Hill Professional

This is a revision of the famed pocket guide giving engineers, scientists, technicians, and students thousands of essential technical and mathematical formulas and hundreds of diagrams to simplify and speed their calculations.

NEW TO THIS EDITION

- A one stop source of essential engineering and scientific formulas
- Blank pages provide space for notes
- Environment additions including, noise, water, soil pollution, waste recycling, and ozone tables
- Current symbols and standards revised and updated
- Electrical engineering additions including small electric motors
- HVAC applications added

CONTENTS

Standard Handbook of Engineering Calculations, 4E

Tyler G. Hicks

2005 / Hardcover / 1200 pgs / ISBN 0-07-142793-7

McGraw-Hill Professional

NEW TO THIS EDITION

- Wind-energy system calculations
- Complying with new environmental requirements in engineering
- Structural engineering changes in buildings to fight terrorism
- Data on suitable computer programs for solving repetitive computational problems
- Data on Websites containing useful engineering information on standards, units of measurement, design methodology, dimensioning, vibrations, etc.
- New power plant cost saving calculations
- Finite element analysis methods of calculation
- Data on refrigerants required to replace Freon gases
- New design code calculations in civil engineering
- New pump material and calculation methods
- All ten major engineering fields included

CONTENTS

COMPUTER ENGINEERING: INTRO TO COMPUTING SYSTEMS

Introduction to Computing Systems: From Bits & Gates to C & Beyond, 2E

Yale N. Patt, University of Texas at Austin
Sanjay J. Patel, University of Illinois-Champaign

2004 / Hardcover / 656 pgs / ISBN 0-07-246750-9

An expanded website for the text, www.mhhe.com/patt2, includes for instructors: the complete Solutions Manual, Source Code of the examples, JPEGs of all of the figures, and Test Questions for Efficient Grading. For instructors and students, the site has: the LC-3 Simulator (Windows and UNIX versions), lab manuals for both versions of the LC-3, PowerPoint presentations created by instructors using the book in their course, selected solutions (Appendix F), Appendices A, D & E (for easy reference) and a Message Board. (Browse http://www.mhhe.com/patt2)

Introduction to Computing Systems: From Bits & Gates to C & Beyond, now in its second edition, is designed to give students a better understanding of computing early in their college careers in order to give them a stronger foundation for later courses. The book is in two parts: (a) the underlying structure of a computer, and (b) programming in a high level language and programming methodology.

To understand the computer, the authors introduce the LC-3 and provide the LC-3 Simulator to give students hands-on access for testing what they learn. To develop their understanding of programming and programming methodology, they use the C programming language. The book takes a "motivated" bottom-up approach, where the students first get exposed to the big picture and then start at the bottom and build their knowledge bottom-up. Within each smaller unit, the same motivated bottom-up approach is followed. Every step of the way, students learn new things, building on what they already know. The authors feel that this approach encourages deeper understanding and downplays the need for memorizing. Students develop a greater breadth of understanding, since they see how the various parts of the computer fit together.

NEW TO THIS EDITION

- **Chapter 1**: Discussions have been added on the nature and importance of abstraction and the interplay of hardware and software.
- **Chapter 3**: A new section has been added on finite state control and its implementation as a sequential switching circuit to underline the importance of this topic.
- **Chapter 4**: This chapter now contains a section giving a preview of the underlying microarchitecture of the LC-3, which is spelled out in detail in the extensively revised Appendix C.
- **Chapter 5**: This chapter has been completely overhauled to accommodate two major improvements. First, the LC-2 has been replaced by the LC-3. Three more years of experience teaching this course has convinced the authors that the ISA studied in this book could be improved in several ways. The LC-3 is the result. Second, the explanations of each of the topics have been expanded to include more figures and more extensive explanations.
- **Chapters 8 & 10**: These chapters now include major new sections on interrupt-driven I/O.
- **Chapters 11-14**: These chapters are now more focused on the essential aspects of the language useful to a beginning programmer with more examples. [Specialized features like the C switch construct are now at the ends of chapters or in Appendix D.] There is a heavier emphasis on "how to program" via problem solving examples that demonstrate how newly introduced C constructs can be used in C programming.
- **Recursion**: The chapter on recursion (now Chapter 17) has been moved after the chapter on pointers and arrays in order to allow the students to gain more experience with basic programming concepts before making the leap to programming recursive functions.

FEATURES

- **Bottom-Up Organization**: For Patt and Patel, the bottom level abstraction is the switch level representation of a MOS transistor. From there, they quickly move to logic gates, latches, logic structures (MUX, decoder, full adder, and gated latches) finally culminating in an implementation of memory. Then the book moves on to finite state control, its implementation as a sequential circuit, the von Neumann model of execution, a simple computer (the LC-3),

machine language programming and assembly language programming of the LC-3, the high level language C, recursion, and finally elementary data structures.

- **Debugging**: Because students are taught debugging techniques from the first program they write and are required to use the LC-3 Simulator's debugging tools from the start, they are better able to master the art of programming and can complete their programming assignments with a lot less help from the TA. (See expanded coverage in Chapter 15.)
- **The LC-3 Simulator**: Central to the student's learning is hands-on access to the LC-3 Simulator, which has been created specifically to aid the student's mastery of the concepts. Students can download the LC-3 simulator from the book website at no cost.
- **Programming Methodology**: Students are provided with numerous meaningful, simple examples on how to take a problem and transform it into a computer program via systematic decomposition. Students are exposed to the fundamental similarities in programming, whether it be in the LC-3 or in C, which provides the student with the useful ability to quickly understand other programming languages.
- **Website**: An expanded website for the text, www.mhhe.com/patt2, includes for instructors: the complete Solutions Manual, Source Code of the examples, JPEGs of all of the figures, and Test Questions for Efficient Grading. For instructors and students, the site has: the LC-3 Simulator (Windows and UNIX versions), lab manuals for both versions of the LC-3, PowerPoint presentations created by instructors using the book in their course, selected solutions (Appendix F), Appendices A, D & E (for easy reference) and a Message Board.

CONTENTS

1 Welcome Aboard / 2 Bits, Data Types, and Operations / 3 Digital Logic Structures / 4 The Von Neumann Model / 5 The LC-3 / 6 Programming / 7 Assembly Language / 8 I/O / 9 TRAP Routines and Subroutines / 10 And, Finally...The Stack / 11 Introduction to Programming in C / 12 Variables and Operators / 13 Control Structures / 14 Functions / 15 Testing and Debugging / 16 Pointers and Arrays / 17 Recursion / 18 I/O in C / 19 Data Structures / Appendices / A The LC-3 ISA / B From LC-3 to x86 / C The Microarchitecture of the LC-3 / D The C Programming Language / E Useful Tables / F Selected Solutions (available at website)

SUPPLEMENT

Reference Guide

COMPUTER ENGINEERING: INTRODUCTION/LOGIC DESIGN

Introduction to Logic and Computer Design with CD

New!

Alan B. Marcovitz, Florida Atlantic University-Boca Raton

2008 / Hardcover with disk / ISBN 0-07-331417-X

Browse http://www.mhhe.com/marcovitz

Introduction to Logic and Computer Design by Alan Marcovitz takes the successful formula realized in the author's previous books and makes it even better. With the inclusion of several chapters on computer design, Marcovitz now offers everything a fundamentals-oriented logic design course might include. Further, this new book is supported by an ARIS site and a host of new media supplements to make both the instructor's and the student's job easier. As with Marcovitz's previous books, the clear presentation of concepts and well-paced writing style make Introduction to Logic and Computer Design the ideal companion to any first course in digital logic. Users rave about the book's extensive set of examples?well integrated into the body of the text and included at the end of each chapter in sections of solved problems? that give students multiple opportunities to understand the topics being presented.

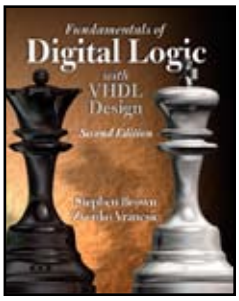
FEATURES

- Includes coverage of computer design.
- Marcovitz is accompanied by an ARIS website: www.mhhe.com/marcovitz. The site features a test bank for instructors (over a semester's worth of tests keyed to material in the text) as well as online quizzing for students. It also includes solutions, PowerPoint slides of most figures and key material, instructor notes, parallel examples so the instructor can do a different example in class from the one offered in the book, algorithmic problems to give students unlimited practice, links, and more.
- An extensive set of examples, well integrated into the body of the text as well as at the end of each chapter in sections of solved problems, gives students multiple opportunities to understand the topics being presented.
- "Test Yourself" sections, designed to help students measure their comprehension of key material, are included at the end of chapters.
- Answers to selected exercises are included in an easy-to-reference appendix for the second edition.
- A clear and well-paced writing style makes this text especially well-suited for students who might otherwise find this course area particularly challenging.

PRELIMINARY CONTENTS

Introduction to Logic and Computer Design / 1 Introduction / 2 Design Process for Combinational Systems / 3 The Karnaugh Map / 4 Decoders, Encoders, Multiplexers / 5 Analysis of Sequential Systems / 6 Design of Sequential Circuits / 7 Larger Sequential Problems / 8 Computer Organization / 9 Computer Design Fundamentals / 10 The Design of a CPU / 11 Beyond the Central Processing Unit

Fundamentals of Digital Logic with VHDL Design with CD-ROM, 2E



Stephen Brown, University of Toronto, Canada
Zvonko Vranesic, University of Toronto, Canada

2005 / Hardcover with CD-ROM / ISBN 0-07-249938-9

This website contains: PowerPoint Slides, Solutions Manual, and PageOut
(Browse http://www.mhhe.com/brown)

Fundamentals of Digital Logic With VHDL Design teaches the basic design techniques for logic circuits. It emphasizes the synthesis of circuits and explains how circuits are implemented in real chips. Fundamental concepts are illustrated by using small examples, which are easy to understand. Then, a modular approach is used to show how larger circuits are designed. VHDL is used to demonstrate how the basic building blocks and larger systems are defined in a hardware description language, producing designs that can be implemented with modern CAD tools.

The book emphasizes the concepts that should be covered in an introductory course on logic design, focusing on:

- Logic functions, gates, and rules of Boolean algebra
- Circuit synthesis and optimization techniques
- Number representation and arithmetic circuits
- Combinational-circuit building blocks, such as multiplexers, decoders, encoders, and code converters
- Sequential-circuit building blocks, such as flip-flops, registers, and counters
- Design of synchronous sequential circuits
- Use of the basic building blocks in designing larger systems

It also includes chapters that deal with important, but more advanced topics:

- Design of asynchronous sequential circuits
- Testing of logic circuits

For students who have had no exposure to basic electronics, but are interested in learning a few key concepts, there is a chapter that presents the most basic aspects of electronic implementation of digital circuits.

Major changes in the second edition of the book include

- new examples to clarify the presentation of fundamental concepts
- over 50 new examples of solved problems provided at the end of chapters
- NAND and NOR gates now introduced in Chapter 2
- more complete discussion of techniques for minimization of logic functions in Chapter 4 (including the tabular method)
- a new chapter explaining the CAD flow for synthesis of logic circuits

- Altera's Quartus II CAD software provided on a CD-ROM
- three appendices that give tutorials on the use of Quartus II software

NEW TO THIS EDITION

- The book emphasizes CAD through the use of Altera's Quartus II CAD software, a state of the art digital circuit design package. This software provides automatic mapping of designs written in VHDL into Field Programmable Gate Arrays (FPGAs) and Complex Programmable Logic Devices (CPLDs). The user will be able to enter a design into the CAD system, compile the design into a selected device, simulate the functionality and timing of the resulting circuit, and implement the designs in actual devices (using the school's laboratory facilities).
- A chapter is included that illustrates the most basic aspects of electronic implementation of digital circuits for students who have had no exposure to basic electronics.
- New examples have been added to the second edition to help clarify the presentation of fundamental concepts.
- Over 50 new examples of solved problems appear at the end of chapters in the second edition.
- The second edition features a new chapter explaining CAD flow for synthesis of logic circuits.
- Three new appendices give tutorials on the use of Quartus II software.

FEATURES

- The book teaches the basic design techniques for logic circuits, emphasizing the synthesis of circuits and explaining how circuits are implemented in real chips.
- Small, easy-to-understand examples illustrate fundamental concepts.
- A modular approach is used to show how larger circuits are designed.
- VHDL is used to demonstrate how the basic building blocks and larger systems are defined in a hardware description language, producing designs that can be implemented with modern CAD tools.

CONTENTS

1 Design Concepts / 2 Introduction to Logic Circuits / 3 Implementation Technology / 4 Optimized Implementation of Logic Functions / 5 Number Representation and Arithmetic Circuits / 6 Combinational-Circuit Building Blocks / 7 Flip-Flops, Registers, Counters, and a Simple Processor / 8 Synchronous Sequential Circuits / 9 Asynchronous Sequential Circuits / 10 Digital System Design / 11 Testing of Logic Circuits / 12 Computer Aided Design Tools / Appendices / A VHDL Reference / B Tutorial 1—Using Quartus II CAD Software / C Tutorial 2—Implementing Circuits in Altera Devices / D Tutorial 3—Physical Implementations in a PLD / E Commercial Devices

SUPPLEMENT

Dictionary of Electrical and Computer Engineering

Fundamentals of Digital Logic with Verilog Design with CD-ROM

Stephen Brown, University of Toronto
Zvonko Vranesic, University of Toronto, Canada

2003 / ISBN 0-07-283878-7

www.mhhe.com/brown

Fundamentals of Digital Logic with Verilog Design is intended for an introductory course in digital logic design, which is a basic course in most Electrical and Computer Engineering programs. The authors provide a desirable balance between classical and modern design approaches. Basic concepts are introduced using simple logic circuits, which are designed by using both manual techniques and modern CAD-tool-based methods. Having established the fundamental concepts, more complex, realistic circuits are then designed with the CAD tools. The Verilog language is an integral part of design techniques used throughout the book. Altera's advanced Max plus II CAD system (on CD-ROM) and a series of step-by-step tutorials are included.

FEATURES

- Numerous detailed examples, ranging from circuits with only a few basic logic elements to digital systems such as a simple processor.
- In-depth presentation of modern digital circuit technology with an emphasis on CMOS circuits and programmable logic devices.
- Verilog language will be an integral part of design techniques used throughout the book. The language will be introduced gradually in a way that is easily understood by beginning designers.
- Altera's Max Plus II CAD System on CD is included. The CD-ROM will include all verilog examples presented in the book.
- The book website will contain the solutions manual (password protected for instructors only), PowerPoint slides and web links.

CONTENTS

1 Design Concepts / 2 Introduction to Logic Circuits / 3 Implementation Technology / 4 Optimized Implementation of Logic Functions / 5 Number Representation and Arithmetic Circuits / 6 Combinational Circuit Building Blocks / 7 Flip-Flops, Registers, Counters, and a Simple Processor / 8 Synchronous Sequential Circuits / 9 Asynchronous Sequential Circuits / 10 Digital System Design / 11 Testing of Logic Circuits / Appendices / A Verilog Reference / B Tutorial 1 / C Tutorial 2 / D Tutorial 3 / E Commercial Devices

SUPPLEMENT

Solutions Manual

Digital Principles and Design with CD-ROM

Donald D. Givone, University at Buffalo, The State University of New York

2003 / ISBN 0-07-255132-1

www.mhhe.com/givone

This exciting first edition provides more depth than existing digital design books, using a traditional approach to the subject. *Digital Principles and Design* contains introductory material in digital principles with emphasis on logic design, as well as more advanced material. With the exception of the digital circuits appendix, it assumes no background on the part of the reader. The text can be used by readers in computer science, computer engineering and electrical engineering.

The emphasis in the book is on the thorough presentation of basic principles of logic design and the illustration of these principles. While many introductory texts only provide the mechanics of classical logic design, Givone provides justifications behind these procedures to give students the understanding they need for the advanced topics they will learn about in subsequent courses. Some of the topics that the book thoroughly presents include: the simplification of Boolean expressions with Karnaugh maps, variable-entered Karnaugh maps, and the analysis and design of both clocked synchronous sequential networks and asynchronous sequential networks.

Every book contains a CD-ROM with Altera's advanced MAX+plus II 10.1 Student Edition CAD system, as well as Multisim 2001 Textbook Edition from Electronics Workbench. An appendix and the book website provide additional resources on these software tools, as well as LogicWorks.

FEATURES

- A unique and thorough presentation of the simplification of Boolean expressions with Karnaugh maps and the Quine-McCluskey methods for both single output and multiple output networks has been included.
- The book includes more in-depth coverage of variable-entered Karnaugh maps—a key topic in this course area—than existing texts in the field.
- The author provides a thorough presentation of the analysis and design of both clocked synchronous sequential networks and asynchronous sequential networks including the modeling of sequential networks from word statements. In addition, there is comprehensive treatment of the algorithmic state machine model and its application to the design of larger clocked synchronous sequential networks.
- The many design constraints that must be satisfied to achieve a functional design of an asynchronous network are discussed in-depth—coverage includes static and dynamic hazards, the concepts of races, the importance of state assignment and the effects of essential hazards.
- A CD-ROM containing Altera's advanced Max plus II CAD system is included free with every book. The CD-ROM also contains Multisim 2001 Textbook Edition from Electronics Workbench. This software provides powerful, easy-to-use schematic capture and accurate SPICE/VHDL/Verilog HDL/RF simulation.
- A website for the book includes labs using Altera and LogicWorks, a downloadable version of the solutions manual, password-protected for instructor use. The website also contains PowerPoint slides. In addition, Altera, LogicWorks and Multisim sample circuit files are available for download.
- The book also has an appendix with simple tutorials to get the reader up and running on Altera and LogicWorks.
- Pedagogy—figures and tables are used extensively to accompany the written text. Numerous examples have been included and clearly marked in the book to provide reinforcement of the topics. More than 300 end-of-chapter problems have also been included.

CONTENTS
1 Introduction / 2 Number Systems, Arithmetic, and Codes / 3 Boolean Algebra and Combinational Networks / 4 Simplification of Boolean Expressions / 5 Logic Design with MSI Components and Programmable Logic Devices / 6 Flip-flops and Simple Flip-flop Applications / 7 Synchronous Sequential Networks / 8 Algorithmic State Machines / 9 Asynchronous Sequential Networks / Appendix Digital Circuits / Appendix Altera and LogicWorks Tutorials

SUPPLEMENTS
Solutions Manual
MAX+PLUS II
Multisim 2001

Modern Digital Electronics

New!

Bijendra N. Jain, Director, B.M. Institute of Engineering & Technology

2008 / Softcover / 636 pgs / ISBN 0-07-340457-8

Browse http://www.mhhe.com/coreconcepts

McGraw-Hill Core Concepts in Electrical Engineering Series.

Part of the McGraw-Hill Core Concepts Series, *Modern Digital Electronics* is an ideal textbook for a course on digital electronics at the undergraduate level. The text introduces digital systems and techniques through a bottom-up approach that allows users to start out with the basics of integrated circuits/circuit design and delve into topics such as digital design, flip flops, A/D and D/A. The book then moves on to explore elements of complex digital circuits with material like FPGAs, PLDs, PLAs, and more. Rich pedagogical features include review question with answers, a glossary of key terms, a large number of solved examples, and numerous practice problems.

About the Core Concepts in Electrical Engineering Series: As advances in networking and communications bring the global academic community even closer together, it is essential that textbooks recognize and respond to this shift. It is in this spirit that we will publish textbooks in the McGraw-Hill Core Concepts in Electrical Engineering Series. The series will offer textbooks for the global electrical engineering curriculum that are reasonably priced, innovative, dynamic, and will cover fundamental subject areas studied by Electrical and Computer Engineering students. Written with a global perspective and presenting the latest in technological advances, these books will give students of all backgrounds a solid foundation in key engineering subjects.

FEATURES

- Bottom up approach allows users to spend time on the basics of integrated circuits design.
- Text assumes only a basic working knowledge of circuit theory and electronics
- Jain's text solves the problem that most students and professors experience—written in a way that covers BOTH the basics from Electronics and Digital Circuits Courses.
- Text covers the most up to date microprocessors to be included in a text.
- Jain's Digital Electronics could be used for an electronics course where analog is not being covered. Also a significant price advantage over the competition.
- Jain's text has been systematically organized and the presentation is at a level suitable for a student with the basic knowledge of circuit theory and electronics.

PRELIMINARY CONTENTS
1 Fundamental Concepts / 2 Number Systems and Codes / 3 Semiconductor DevicesSwitching Mode Operation / 4 Digital Logic Families / 5 Combinatorial Logic Design / 6 Combinational Logic Design Using MSI Circuits / 7 FLIP-FLOPs / 8 Sequential Logic Design / 9 Timing Circuits / 10 A/D and D/A Converters / 11 Semiconductor Memories / 12 Programmable Logic Devices / 13 Fundamentals of Microprocessors / 14 Computer-Aided Design of Digital Systems

COMPUTER ENGINEERING: NEURAL NETWORKS/FUZZY LOGIC

Principles of Neurocomputing for Science and Engineering

Fredric M. Ham, Florida Institute of Technology–Melbourne
Ivica Kostanic, Agilent Technologies, Inc.

2001 / Hardcover / 672 pgs / ISBN 0-07-025966-6

www.mhhe.com/ham

This exciting text covers artificial neural networks, but more specifically, neurocomputing. Neurocomputing is concerned with processing information, which involves a learning process within an artificial neural network architecture. This neural architecture responds to inputs according to a defined learning rule and then the trained network can be used to perform certain tasks depending on the application. Neurocomputing can play an important role in solving certain problems such as pattern recognition, optimization, event classification, control and identification of nonlinear systems, and statistical analysis.

Principles of Neurocomputing for Science and Engineering, unlike other neural networks texts, is written specifically for scientists and engineers who want to apply neural networks to solve complex problems. For each neurocomputing concept, a solid mathematical foundation is presented along with illustrative examples to accompany that particular architecture and associated training algorithm.

The book is primarily intended for graduate-level neural networks courses, but in some instances may be used at the undergraduate level. The book includes many detailed examples and an extensive set of end-of-chapter problems.

CONTENTS
1 Introduction to Neurocomputing / 2 Fundamental Neurocomputing Concepts / 3 Mapping Networks / 4 Self-Organizing Networks / 5 Recurrent Networks and Temporal Feedforward Networks / 6 Neural Networks for Optimization Problems / 7 Solving Matrix Algebra Problems with Neural Networks / 8 Solution of Linear Algebraic Equations Using Neural Networks / 9 Statistical Methods Using Neural Networks / 10 Identification, Control, and Estimation Using Neural Networks

SUPPLEMENT
Solutions Manual

COMPUTER ENGINEERING: INTELLIGENT SYSTEMS/ROBOTICS

Machine Vision

Ramesh C. Jain, University of California–San Diego
Rangacher Kasturi, Penn State University
Brian G. Schunck

1995 / Hardcover / 549 pgs / ISBN 0-07-032018-7

This introduction to the field of computer vision focuses on basic concepts and techniques. The thrust is to give practitioners what they need to know to develop a practical machine vision system. Binary vision, segmentation, constraint propagation techniques are presented as are camera calibration, color and texture, detection of motion, and object recognition. This text is appropriate for use in Computer Science and Electrical Engineering departments at the senior and graduate level.

CONTENTS
1 Introduction / 2 Binary Image Processing / 3 Regions / 4 Image Filtering / 5 Edge Detection / 6 Contours / 7 Texture / 8 Optics / 9 Shading / 10 Color / 11 Depth / 12 Calibration / 13 Surfaces / 14 Volumetric Representations / 15 Motion / 16 Object Recognition

SUPPLEMENT
Instructor's Manual

CONTENTS
1 Processor Design / 2 Pipelined Processors / 3 Memory and I/O Systems / 4 Superscalar Organization / 5 Superscalar Techniques / 6 The PowerPC 620 / 7 Intel's P6 Microarchitecture / 8 Survey of Superscalar Processors / 9 Advanced Instruction Flow Techniques / 10 Advanced Register Data Flow Techniques / 11 Executing Multiple Threads

COMPUTER ENGINEERING: COMPUTER ARCHITECTURE/MICROPROCESSORS

Modern Processor Design: Fundamentals of Superscalar Processors

John P. Shen, Carnegie Mellon University
Mikko Lipasti, University of Wisconsin–Madison

2005 / Hardcover / 656 pgs / ISBN 0-07-057064-7

Website includes a downloadable version of the solutions manual, password-protected for instructors. There is also presentation material for instructor use. (Browse http://www.mhhe.com/shen)

Modern Processor Design: Fundamentals of Superscalar Processors is an exciting new first edition from John Shen of Carnegie Mellon University & Intel and Mikko Lipasti of the University of Wisconsin—Madison. This book brings together the numerous microarchitectural techniques for harvesting more instruction-level parallelism (ILP) to achieve better processor performance that have been proposed and implemented in real machines. Other advanced techniques from recent research efforts that extend beyond ILP to exploit thread-level parallelism (TLP) are also compiled in this book. All of these techniques, as well as the foundational principles behind them, are organized and presented within a clear framework that allows for ease of comprehension.

This text is intended for an advanced computer architecture course or a course in superscalar processor design. It is written at a level appropriate for senior or first year graduate level students, and can be used by professionals as well.

FEATURES

- The book clearly conveys key concepts and fundamental principles by giving the necessary details and not just a mass of information.
- The first several chapters cover key fundamental topics that lay the foundation for the more modern topics. These fundamentals include: the art of processor design, the instruction set architecture as the specification of the processor, and microarchitecture as the implementation of the processor; pipelining; and superscalar organization.
- New for the First Edition: Chapter 3 on Memory and I/O Systems. This chapter examines the larger context of computer systems that incorporate advanced, high-performance processors. Basic components, such as memory systems, input and output, and virtual memory, and the ways in which they are interconnected are described in relative detail to enable a better understanding of the interaction between high-performance processors and the peripheral devices they are connected to.
- Chapter 5 on superscalar techniques is the heart of the book—this chapter presents issues related to superscalar processor organization first, followed by presentation of specific techniques for enhancing instruction flow, register data flow and memory data flow.
- Two case study chapters have been included to give the reader real-life examples of the concepts being studied in previous chapters. One of the case study chapters is written by the lead architects of the Intel P6 microarchitecture. This historic microarchitecture provided the foundation for numerous highly successful microprocessor designs.
- As the text progresses, it provides both a historical perspective on superscalar machines, as well as survey of existing machines. In addition, the book highlights emerging techniques and technologies in the last couple of chapters.
- New for the first edition: Chapter 9, Advanced Instruction Flow Techniques. This chapter focuses on the problem of predicting whether a conditional branch is taken or not-taken. There is brief discussion of branch target prediction, and other issues related to effective instruction delivery.
- Homework problems are included at the end of each chapter to provide reinforcement of the concepts presented.
- An expanded book website includes a downloadable version of the solutions manual, password-protected for instructors. It also contains PowerPoint slides, sample homework assignments with solutions and sample exams with answers.

Embedded Systems: Architecture, Programming and Design

Kamal

2008 / Softcover / 672 pgs / ISBN 0-07-340456-X

Browse http://www.mhhe.com/coreconcepts

McGraw-Hill Core Concepts in Electrical Engineering Series.

New!

Part of the McGraw-Hill Core Concepts Series, *Embedded Systems: Architecture, Programming, and Design*, describes an embedded system as one with embedded hardware and software and describes the fundamentals of the architecture, design, and applications for these systems. The authors provide thorough explanations of embedded system programming concepts, OS, RTOS functions, and inter-process synchronization. Case studies in consumer electronics, communications, automobile electronics, and secure transaction systems-on-chip help readers understand how embedded systems are used in everyday life. Other pedagogical components include extensive illustrations, solved examples, defined keywords, review questions, and numerous exercises.

About the Core Concepts in Electrical Engineering Series: As advances in networking and communications bring the global academic community even closer together, it is essential that textbooks recognize and respond to this shift. It is in this spirit that we will publish textbooks in the McGraw-Hill Core Concepts in Electrical Engineering Series. The series will offer textbooks for the global electrical engineering curriculum that are reasonably priced, innovative, dynamic, and will cover fundamental subject areas studied by Electrical and Computer Engineering students. Written with a global perspective and presenting the latest in technological advances, these books will give students of all backgrounds a solid foundation in key engineering subjects.

FEATURES

- Kamal's text provides the basics, so that the student can understand basic embedded system architecture, its hardware and software, programming models and software engineering practices that are used during the system development process
- Dr. Kamal is well known for his expertise in Embedded Processors and Systems, Multiprocessors, Microcontrollers, Computer Architecture and his 30 years of teaching experience.
- Text offers the fundamentals and is intended to explain the concepts necessary for designing high performance response time constrained sophisticated systems
- Kamal is not chip specific. Because of this the text will cover chips that have developed into VLSI Chips (Very Lare Scale Integration). This is used for cameras for example.

PRELIMINARY CONTENTS
1 Introduction to Embedded Systems / 2 Processor and Memory Organization / 3 Devices and Buses for Device Networks / 4 Device Drivers and Interrupts Servicing Mechanism / 5 Programming Concepts and Embedded Programming in C and C++ / 6 Program Modeling Concepts in Single and Multiprocessor Systems Software-Development Process / 7 Software Engineering Practices in the Embedded Software Development Process / 8 Inter-Process Communication and Synchronisation of Processes, Tasks and Threads / 9 Real Time Operating Systems / 10 Real Time Operating System Programming Tools: Micro C/OS-II and VxWorks / 11 Case Studies of Programming with RTOS / 12 Hardware-Software Co-design in an Embedded System / Appendices / A: CISC and RISC Processor Architectures and an Exemplary Instruction Set / B: Embedded System High-performance Processors / C: Embedded System 8/16/32 Bit Microcontrollers and an Overview of their Architecture / D: Embedded Digital Signal Processors / E: New Innovative Processors for Embedded Systems

Computer Organization, 5E

Carl Hamacher, *University of Toronto, Canada*
Zvonko Vranesic, *University of Toronto, Canada*
Safwat Zakay, *University of Toronto, Canada*

2002 / Hardcover / 832 pgs / ISBN 0-07-232086-9

www.mhhe.com/hamacher

This well-respected text for a first level course on computer organization has been thoroughly revised and updated. *Computer Organization* is suitable for a one-semester course in engineering or computer science programs and has a good mix if hardware- and software-oriented topics.

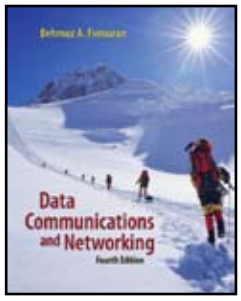
The goal of the book is to illustrate the principles of computer organization by using a number of extensive examples drawn from commercially available computers. The authors feel this approach motivates the students and is the most practical. The machines discussed in Hamacher et. al. are the Motorola 680X0 and 683XX families, Intel 80X86 and Pentium families, ARM family, Sun Microsystems Sparc family, and DEC(Compaq) Alpha family. The 68000, Pentium, and ARM are used as detailed examples early in the book.

CONTENTS
1 Basic Structure of Computers / 2 Machine Instructions and Programs / 3 ARM, Motorola, and Intel Instruction Sets / 4 Input/Output Organization / 5 The Memory System / 6 Arithmetic / 7 Basic Processing Unit / 8 Pipelining / 9 Embedded Systems / 10 Computer Peripherals / 11 Processor Families / 12 Large Computer Systems

SUPPLEMENT
Solutions Manual

COMPUTER NETWORKS

Data Communications and Networking, 4E



Behrouz A. Forouzan, *DeAnza College*

2007 / Hardcover / ISBN 0-07-325032-5

Browse http://www.mhhe.com/forouzan

As one of the fastest growing technologies in our culture today, data communications and networking presents a unique challenge for instructors. As both the number and types of students are increasing, it is essential to have a textbook that provides coverage of the latest advances, while presenting the material in a way that is accessible to students with little or no background in the field. Using a bottom-up approach, Data Communications and Networking presents this highly technical subject matter without relying on complex formulas by using a strong pedagogical approach supported by more than 700 figures.

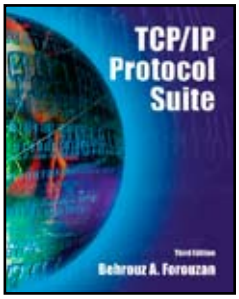
Now in its Fourth Edition, this textbook brings the beginning student right the forefront of the latest advances in the field, while presenting the fundamentals in a clear, straightforward manner. Students will find better coverage, improved figures and better explanations on cutting-edge material. The "bottom-up" approach allows instructos to cover the material in one course, rather than having separate courses on data communications and networking.

NEW TO THIS EDITION
- Visual approach is supported with hundreds of figures and animations on the text website
- Strong in-text pedagogy is designed for the beginning student and includes numerous figures, highlighted points, examples and real life applications, key terms, chapter summaries, practice sets and an extensive glossary and list of acronyms.
- Text uses a bottom-up approach where students learn about data communications before learning about networking. This approach allows instructors to cover the material in one course, rather than having separate courses on data communications and networking.
- An Online Learning Center is available to provide extra material to both students and instructors. Some features of the on-line learning center include: PowerPoint Slides, Solutions, and Animated Figures from the text and solutions of odd-numbered problems for students. (even-numbered solutions for instructor are password protected)

FEATURES
- Text lets students learn about data communications before learning about networking.
- More than 700 figures provide complete, visual presentation of the material. Figures replace the need for students to rely on complex formulas.
- An Online Learning Center is available to provide extra material to both students and instructors. Some features of the on-line learning center include: PowerPoint Slides, Solutions, and Animated Figures.
- The practice set includes and extensive number of review questions, multiple choice questions, and extended exercises.
- Strong in-text pedagogy is designed for the beginning student and includes numerous figures, highlighted points, examples and real-life applications, key terms, chapter summaries, practice sets and an extensive glossary and list of acronyms.
- Using a bottom-up approach, students learn about data communications (lower layers) before learning about networking (upper layers). This approach allows instructors cover the material in one course, rather than having separate courses on data communications and networking.
- Summaries at the end of each chapter emphasize the key points.
- Many examples have been developed in each chapter to demonstrate the concepts.

CONTENTS
Part 1 Overview of Data Communications and Networking / 1 Introduction / 2 Network Models / **Part 2 Physical Layer** / 3 Signals / 4 Digital Transmission / 5 Analog Transmission / 6 Multiplexing / 7 Transmission Media / 8 Circuit Switching and Telephone Network / 9 High-Speed Digital Access: DSL, Cable Modems, and SONET / **Part 3 Data Link Layer** / 10 Error Detection and Correction / 11 Data Link Control and Protocols / 12 Point-to-Point Access: PPP / 13 Multiple Access / 14 Local Area Networks: Ethernet / 15 Wireless LANs / 16 Connecting LANs, Backbone Networks, and Virtual LANs / 17 Cellular Telephone and Satellite Networks / 18 Virtual Circuit Switching: Frame Relay and ATM / **Part 4 Network Layer** / 19 Host-to-Host Delivery: Internetworking, Addressing, and Routing / 20 Network Layer Protocols: ARP, IPv4, ICMP, IPv6, and ICMPv6 / 21 Unicast and Multicast Routing: Routing Protocols / **Part 5 Transport Layer** / 22 Process-to-Process Delivery: UDP and TCP / 23 Congestion Control and Quality of Service / **Part 6 Application Layer** / 24 Client-Server Model: Socket Interface / 25 Domain Name System (DNS) / 26 Electronic Mail (SMTP) and File Transfer (FTP) / 27 HTTP and WWW / 28 Multimedia / **Part 7 Security** / 29 Cryptography / 30 Message Security, User Authentication, and Key Management / 31 Security Protocols in the Internet / Appendices / A ASCII Code / B Numbering Systems and Transformation / C The OSI Model / D 8B/6T Code / E Checksum Calculation / F Structure of a Router / G ATM LANs / H Client-Server Programs / I RFCs / J UDP and TCP Ports / Appendix K Contact Addresses

TCP/IP Protocol Suite, 3E



Behrouz A. Forouzan, *DeAnza College*

2006 / Hardcover / 896 pgs / ISBN 0-07-296772-2

This website contains: four-color PowerPoint slides and solutions-odds for students and a complete password protected set for instructors. (Browse http://www.mhhe.com/forouzan)

Networking technologies have become an integral part of everyday life, which has led to a dramatic increase in the number of professions where it is important to understand network technologies.

TCP/IP Protocol Suite teaches students and professionals, with no prior knowledge of TCP/IP, everything they need to know about the subject. This comprehensive book uses hundreds of figures to make technical concepts easy to grasp, as well as many examples, which help tie the material to the real-world.

The second edition of TCP/IP Protocol Suite has been fully updated to include all of the recent technology changes in the field. Many new chapters have been added such as one on Mobile IP, Multimedia and Internet, Network Security, and IP over ATM. Additionally, out-of-date material has been overhauled to reflect recent changes in technology.

NEW TO THIS EDITION
- Security coverage was been augmented and revised to reflect the latest issues in security.
- New chapter on SCTP, which covers Internet Telephony, an technology that is changing the world.

- More hands-on and real-life examples, using utilities such as *ping, grep, netstat* were added to appropriate chapters.
- Research activities have been added to the end of each chapter to provide challenging problems for students.
- Website found at www.mhhe.com/forouzan contains PowerPoints, solutions, student quizzing and more.
- The third edition includes enhanced coverage of classless addressing (Chapter 4, 5, 6).
- TCP/IP Protocol Suite teaches students and professionals, with no prior knowledge of TCP/IP, everything they need to know about the subject

FEATURES

- Hundreds of excellent figures, enhanced with a second color, present technical concepts in a visual and intuitive manner.
- Extensive Practice Sets in each chapter include exercises and reasearch activities, giving students and professors ample opportunity to check understanding of concepts.
- Summary sections at the end of chapters list major concepts learned in the chapter.

CONTENTS

1 Introduction / 2 The OSI Model and the TCP/IP Protocol Suite / 3 Underlying Technologies / 4 IP Addresses: Classful Addressing / 5 IP Addresses: Classless Addressing / 6 Delivery, Forwarding, and Routing of IP Packets / 7 ARP and RARP / 8 Internet Protocol (IP) / 9 Internet Control Message Protocol (ICMP) / 10 Internet Group Management Protocol (IGMP) / 11 User Datagram Protocol (UDP) / 12 Transmission Control Protocol (TCP) / 13 Stream Control Transmission Protocol (SCTP) / 14 Unicast Routing Protocols (RIP, OSPF, and BGP) / 15 Multicasting and Multicast Routing Protocols / 16 Host Configuration: BOOTP and DHCP / 17 Domain Name System (DNS) / 18 Remote Login: TELNET / 19 File Transfer: FTP and TFTP / 20 Electronic Mail: SMTP, POP, and IMAP / 21 Network Management: SNMP / 22 World Wide Web: HTTP / 23 IP over ATM / 24 Mobile IP / 25 Multimedia / 26 Private Networks, Virtual Private Networks, and Network Address Translation / 27 Next Generation: IPv6 and ICMPv6 / 28 Network Security / Appendices / A ASCII Code / B Numbering Systems / C Checksum / D Error Detection / E Project 802 / F Contact Addresses / G RFCs / H UDP and TCP Ports

Data Communications and Networking, 3E

Behrouz A. Forouzan, DeAnza College

2004 / Hardcover with access card / ISBN 0-07-292354-7

This website contains PowerPoints, Solutions, Animations and Quizzing. (Browse http://www.mhhe.com/forouzan)

Data Communications and Networking, 3/e provides a comprehensive and current introduction to networking technologies. The book is accessible to students from all backgrounds and uses hundreds of figures to visually represent concepts.

The new edition has been completely updated to reflect the constantly changing world of network technologies. Enhanced coverage of bluetooth, wireless, satellites, as well as four new chapters on security have been added.

The third edition has transitioned from using the 7-layer OSI model to the 5-layer Internet Model. More time is spent on TCP/IP in the new organization.

Forouzan's book continues to be supported by an Online Learning Center (OLC) that contains many extra resources for students and instructors. Some of the features include PowerPoints, solutions, self-quizzing, and Flash animations that illustrate concepts.

NEW TO THIS EDITION

- The organization in the third edition has been changed from the 7 layer OSI model to the 5-layer Internet Model. More attention is also given to TCP/IP in this edition.
- Optional sections containing select algorithms have been added, giving instructors a choice on how much math they would like to cover.
- TCP/IP coverage has been expanded for the third edition.
- Coverage of network security issues, an increasingly important area, has been expanded and updated for the third edition. The book now includes four current chapters on security.
- Material has been completely updated to reflect the most recent networking technologies such as bluetooth, wireless, new satellite information, and updated security material.
- A testbank is available on CD for instructors in both ExamView and Diploma format, making it easy to create exams and quizzes.

FEATURES

- The book teaches data communications and networking to students without requiring heavy technical background while still providing challenges to more experienced students.
- More than 700 figures provide complete, visual presentation of the material.
- Many examples have been developed in each chapter to demonstrate the concepts.
- An Online Learning Center is available to provide extra material to both students and instructors. Some features of the on-line learning center include: PowerPoint Slides, Solutions, and Animated Figures.
- Summaries at the end of each chapter emphasize the key points.
- The practice set includes an extensive number of review questions, multiple choice questions, and extended exercises.

CONTENTS

Part 1 Overview of Data Communications and Networking / 1 Introduction / 2 Network Models / **Part 2 Physical Layer** / 3 Signals / 4 Digital Transmission / 5 Analog Transmission / 6 Multiplexing / 7 Transmission Media / 8 Circuit Switching and Telephone Network / 9 High-Speed Digital Access: DSL, Cable Modems, and SONET / **Part 3 Data Link Layer** / 10 Error Detection and Correction / 11 Data Link Control and Protocols / 12 Point-to-Point Access: PPP / 13 Multiple Access / 14 Local Area Networks: Ethernet / 15 Wireless LANs / 16 Connecting LANs, Backbone Networks, and Virtual LANs / 17 Cellular Telephone and Satellite Networks / 18 Virtual Circuit Switching: Frame Relay and ATM / **Part 4 Network Layer** / 19 Host-to-Host Delivery: Internetworking, Addressing, and Routing / 20 Network Layer Protocols: ARP, IPv4, ICMP, IPv6, and ICMPv6 / 21 Unicast and Multicast Routing: Routing Protocols / **Part 5 Transport Layer** / 22 Process-to-Process Delivery: UDP and TCP / 23 Congestion Control and Quality of Service / **Part 6 Application Layer** / 24 Client-Server Model: Socket Interface / 25 Domain Name System (DNS) / 26 Electronic Mail (SMTP) and File Transfer (FTP) / 27 HTTP and WWW / 28 Multimedia / **Part 7 Security** / 29 Cryptography / 30 Message Security, User Authentication, and Key Management / 31 Security Protocols in the Internet / **Appendices** / **A** ASCII Code / **B** Numbering Systems and Transformation / **C** The OSI Model / **D** 8B/6T Code / **E** Checksum Calculation / **F** Structure of a Router / **G** ATM LANs / **H** Client-Server Programs / **I** RFCs / **J** UDP and TCP Ports / **K** Contact Addresses

SUPPLEMENTS

Instructor's Resource CD w/ Diploma Testbank
ExamView Testbank

Communication Networks: 2E

Alberto Leon-Garcia, University of Toronto
Indra Widjaja

2004 / Hardcover / 928 pgs / ISBN 0-07-246352-X

This website will contain: Solutions Manual for selected problems, Power Point Slides, figures & lecture notes. (Browse http://www.mhhe.com/leongarcia2)

This book is designed for introductory one-semester or one-year courses in communications networks in upper-level undergraduate programs. The second half of the book can be used in more advanced courses. As pre-requisites the book assumes a general knowledge of computer systems and programming, and elementary calculus. The second edition expands on the success of the first edition by updating on technological changes in networks and responding to comprehensive market feedback.

NEW TO THIS EDITION

- The introduction in Chapter 1 has been simplified by reducing the number of concepts introduced in the discussion of network evolution.
- The introduction of the notion of layering has been improved by elaborating on the interaction between the application layer and transport layer protocols and by simplifying the discussion of the OSI reference model.
- The material in the text has been rearranged so that optional sections can be skipped without a disruption in the topic flow. The sections that contain optional material are still indicated by a diamond in the heading. The optional sections that contain detailed mathematics are now indicated by a sidebar.
- The discussion of PCM speech coding has been moved from Chapter 12 to Chapter 3.
- Chapter 4 provides more detail on SONET and optical transport networks. Satellite cellular networks has been dropped.
- Chapter 5 now consists of two parts to separate the initial focus of the first part, peer-to-peer protocols, from the focus of the second part, data link layer protocols. There is now a new separate section on framing techniques.
- Chapter 6 has also been divided into a section on medium access control in general (Part 1), and the application of medium access controls in LANs (Part 2). We have attempted to concentrate the detailed mathematical discussion of medium access control to the last section in the chapter.
- In Chapter 7 we have streamlined the discussion of packet networks, and we have clearly separated the more advanced discussion of traffic management mechanisms.
- The main change in Chapter 8 is the extensive use of packet capture examples to illustrate the operation of TCP/IP protocols.

- The chapter on advanced network architectures has been revised extensively. The discussion of ATM over IP has been replaced by a discussion of the overlay and peer models to network interconnection. The chapter now contains discussion on virtual networks, and GMPLS. The material on RTP and SIP has been moved from Chapter 12 to this chapter.
- Chapter 11 has been updated with brief discussions of the Advanced Encryption Standard and of 802.11 security.
- Numerous figures. Network diagrams, time diagrams, performance graphs, state transition diagrams are essential to effectively convey concepts in networking.
- Numerous Examples. The discussion of fundamental concepts is accompanied with examples illustrating the use of the concept in practice. Numerical examples are included in the text wherever possible.
- Text Boxes. Commentaries in text boxes are used to discuss network trends and interesting developments, to speculate about future developments, and to motivate new topics.
- Problems. The authors firmly believe that learning must involve problem solving. Each chapter includes problems with a range of difficulties from simple application of concepts to exploring, developing or elaborating various concepts and issues. Quantitative problems range from simple calculations to brief case studies exploring various aspects of certain algorithms, techniques or networks. Simple programming exercises involving sockets and TCP/IP utilities are included where appropriate.
- An Instructor's Solutions Manual is available from the McGraw-Hill web site.
- Chapter Introductions. Each chapter includes an introduction previewing the material covered in the chapter and in the context of the "big picture."
- Chapter Summaries and Checklist of Important Terms. Each chapter includes a summary that reiterates the most important concepts. A checklist of important terms will aid the student in reviewing the material.
- References. Each chapter includes a list of references. Given the introductory nature of the text, references concentrate on pointing to more advanced materials. Reference to appropriate Internet Engineering Taskforce (IETF) RFCs and research papers is made where appropriate, especially with more recent topics.
- A web site. The following Web site contains links to the online version of the solutions manual, the Powerpoint slides, author information, and other related information: www.mhhe.com/leon-garcia.
- The figures in the book are based on a set of MS PowerPoint course presentations that depend heavily on visual representation of concepts. A set of these presentation charts, some of which use animation, have been prepared and are available to instructors.

FEATURES

- The Big Picture is presented first in chapter one and two with a discussion of network-based applications and services such as the WWW, email, and home video entertainment. The essential functions in the operation of a network are discussed, and examples are given hat motivate the notion of layering, and the OSI Reference model.
- Network performance is introduced as an integral part of network design and operation. Quantitative examples are used to show the tradeoffs involved in various situations.
- The Berkeley API sockets are introduced in an optional section in Chapter 2 and socket programming exercises are included. Telnet-based exercises to demonstrate the operation of various TCP/IP protocols are also included.
- Many figures, network graphs, time diagrams, performance curves, etc. are found throughout the text. These diagrams are essential to effectively convey concepts in networking. A set of PowerPoint presentations, upon which the book's figures are based, is available to adopters of the text via the web site for the book.

CONTENTS

1 Communication Networks and Services / 2 Layered Architectures / 3 Digital Transmission Fundamentals / 4 Circuit-Switching Networks / 5 Peer-to-Peer Protocols and Data Link Layer / 6 Medium Access Control Protocols and Local Area Networks / 7 Packet-Switching Networks / 8 TCP/IP / 9 ATM Networks / 10 Advanced Network Architectures / 11 Security Protocols / 12 Multimedia Information and Networking / Appendices / A Delay and Loss Performance / B Network Management

Local Area Networks with CD-ROM, 2E

Gerd Keiser, PhotonicsComm Solutions, Inc.

2002 / Hardcover with CD-ROM / ISBN 0-07-251912-6

www.mhhe.com/engcs/electrical/keiser2

The second edition of Keiser's *Local Area Networks* has been updated extensively with the latest LANs technology. The book has been written with the purpose of providing the basic material for an introductory senior or first-year graduate course in the analysis and modeling of local area networks. The book will also serve as a working reference for practicing engineers dealing with local area network design and applications. The book is organized to give a clear and logical sequence of key LAN topics.

CONTENTS

1 Overview of LANs / 2 Network Architectures and Protocols / 3 Data Communication Concepts / 4 LAN Access Techniques / 5 Ethernet / 6 Token-Passing LANs / 7 ATM LANs / 8 Wireless LANs / 9 Fibre Channel and SANs / 10 Internetworking / 11 Network Management / 12 Network Security

COMPUTER ENGINEERING: ADVANCED

Synthesis and Optimization of Digital Circuits

Giovanni De Micheli, Stanford University

1994 / Hardcover / 576 pgs / ISBN 0-07-016333-2

This new graduate textbook in computer engineering offers a modern, up-to-date look at computer aided design of VLSI circuits at the functional and logic level by addressing an interesting topic in CAD for digital circuits: design synthesis of detailed specifications from abstract models. Topics covered include hardware modeling, compilation techniques for hardware models, high-level synthesis, logic synthesis, and library mapping algorithms. Course titles include Digital CAD, Advanced Logic Design or Complements of VLSI Design.

CONTENTS

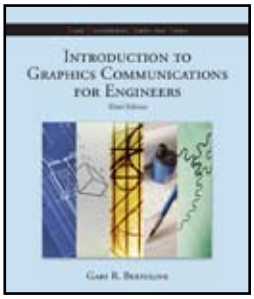
1 Introduction / 2 Background / 3 Hardware Modeling / 4 Architectural Synthesis / 5 Scheduling Algorithms / 6 Resource Sharing and Binding / 7 Two-Level Combinational Logic Optimization / 8 Multiple-Level Combinational Logic Optimization / 9 Sequential Logic Optimization / 10 Cell-library Binding / 11 State-of-the-art and Future Trends

SUPPLEMENT

Solutions Manual

ENGINEERING GRAPHICS AND DRAWING

Introduction to Graphics Communications for Engineers (B.E.S.T. Series), 3E



Gary Robert Bertoline, Purdue University–West Lafayette

2006 / Softcover / 256 pgs / ISBN 0-07-304836-4

Browse http://www.mhhe.com/bertoline

Introduction to Graphics Communications for Engineers, Third Edition, introduces engineering students to the standard practices used by engineers to communicate graphically. The primary goal of this text is to assist engineering students in learning the techniques and standards of communicating graphically so that design ideas can be clearly communicated and produced. The text concentrates on the concepts and skills needed to sketch and create 2-D and 3-D CAD models.

FEATURES

- Pedagogically sound, this book provides a list of objectives at the beginning of each chapter, step-by-step instructions on how to draw, and a wide assortment of problems that can be assigned to reinforce topics covered.
- Sketching worksheets are integrated into the end of each chapter. These worksheets are excellent for sketching assignments, used to augment CAD work.

CONTENTS

1 Introduction to Graphics Communications / 2 Sketching and Text / 3 Section and Auxiliary Views / 4 Dimensioning and Tolerancing Practices / 5 Reading and Constructing Working Drawings / 6 Design and 3-D Modeling

Introduction to Solid Modeling Using Solidworks, 3E

New Edition

William E. Howard, East Carolina University
Joseph Musto, Milwaukee School Engineering

2008 / Softcover / 352 pgs / ISBN 0-07-337532-2

Browse http://www.mhhe.com/howard

The text presents solid modeling not just as a communication tool, but as an integral part of the design process. To this end the book explores *design intent*, the use of solid models in *engineering analysis*, and introduces techniques from manufacturing such as mold design and sheet metal patterning.

Howard and Musto provide a student-friendly presentation filled with easy-to-use tutorials. Their approach is also designed to help students understand how engineering is used in the real world. For instance, modeling exercises are largely centered on examples drawn from industrial applications. As well, "Future Study" boxes introduce students to different topics they will study in their engineering programs.

NEW TO THIS EDITION

- The text has been updated to reflect the new features of SolidWorks.
- Newly updated and enhanced "Future Study" boxes are used to direct students to the topical areas they will be exploring in typical engineering programs, and how those topics relate to the examples and exercises found in the text.
- Explores the idea of "design intent" through boxed sidebars updated for the new edition, as well as the challenges involved in embedding design constraints within a solid model.
- A four-color Guide to SolidWorks Tutorials has been added to the inside front cover for easy reference.
- Chapter Objectives have been expanded and enhanced to better introduce chapter concepts.
- A new interior design renders the text more user-friendly and visually appealing.

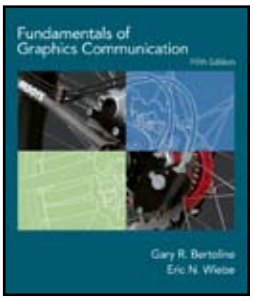
FEATURES

- Gives students an introduction to techniques from manufacturing; mold design, sheet metal patterning, and stereolithography representations will be introduced.
- Solid Modeling is treated not just as a communication tool, but as an integrated part of the design process.
- Exposes students to the use of solid models in *engineering analysis*; the ability of solid modeling software to perform vector operations, kinematic analysis, animation, interference detection, and mass property computation will be explored.
- Modeling exercises are largely centered on examples drawn from industrial applications; most exercises and problems feature mechanical and structural components (flanges, fasteners, I-beams, springs, etc.), rather than the "widgets" found in many introductory engineering graphics texts.
- Additional resources are available on the website. Including on the website are tutorials for two popular SolidWorks Add-Ins, COSMOSMotion and PhotoWorks, and the book figures in PowerPoint format. Instructors can also access model files for all tutorials and problems.

CONTENTS

PART ONE Learning SolidWorks / 1 Basic Part Modeling Techniques / 2 Engineering Drawings / 3 Additional Part Modeling Techniques / 4 Use of Parametric Modeling Techniques / 5 Advanced Concepts in Part Modeling / 6 Building Assembly Models from Part Models / 7 Advanced Assembly Operations / 8 Creating Assembly Drawings / PART TWO Applications of SolidWorks / 9 Using SolidWorks for the Generation of 2-D Layouts / 10 Application of SolidWorks to Vector Mechanics / 11 Using SolidWorks in the Design and Analysis of Mechanisms / 12 The Use of SolidWorks as a Tool for Manufacturing: Mold Design and Sheet Metal Parts / 13 The Use of SolidWorks to Accelerate the Product Development Cycle

Fundamentals of Graphics Communication, 5E



Gary Robert Bertoline, Purdue University–West Lafayette
Eric N. Wiebe, North Carolina State University–Raleigh

2007 / Softcover / 832 pgs / ISBN 0-07-322078-7

Browse http://www.mhhe.com/bertoline

A thoroughly contemporary approach to teaching essential technical graphics skills has made Bertoline and Wiebe's *Fundamentals of Graphics Communication* the leading textbook in introductory engineering graphics programs. The fifth edition continues to integrate design concepts and the use of CAD into its outstanding coverage of the basic visualization and sketching techniques that enable students to create and communicate graphic ideas effectively.

As in past editions, the authors have included many examples of how graphics communication pertains to "real-world" engineering design, including current industry practices and breakthroughs; as one example, the Motorola RAZR cellular phone is used as a case study to synthesize the design concepts in the text. A dynamic Online Learning Center provides additional resources such as an image bank, animations, quizzes, and links to current industry and career sites.

NEW TO THIS EDITION

- "Dream High Tech Jobs" boxes introduce students to interesting careers and people in the fields of graphics, CAD, and design.
- "Design in Industry" boxes are updated and more closely tied to each chapter, improving Bertoline's unique integration of design content.
- Practice Exercises, Practice Problems, Questions for Review, and End-of-Chapter Problems have been updated and expanded to reflect the latest advances in the field.
- The Online Learning Center is enhanced with new exercises, projects, and links to web resources.
- More than 30 tear-out drawing worksheets are printed on uncoated paper for easy sketching.

FEATURES

- Unique Visualization Chapter assists the student in understanding the concepts and importance of visualization and offers techniques for reading and visualizing engineering drawings.
- Unique 3-D modeling chapter is devoted exclusively to the theory and practice of 3-D modeling.
- Photographs and computer screen shots in 4-color clearly illustrate the use of modern CAD tools in the real-world.
- Step-by-step illustrated drawing technique examples clearly demonstrate how to create graphics and solve problems.
- Over 370 problems, cross-checked for accuracy, are included. Most end-of-chapter problems are parts or assemblies of modern devices and products.

- An online learning center (OLC) provides students with free access to interactive exercises, animations, self-grading quizzes, chapter summaries, case studies, a team 3-D project, and more. Instructors have secure access to the Solutions Manual, Instructor's Manual, presentation materials including an image bank, and additional exercises.
- CAD books are available in packages for those who wish to cover specific programs such as AutoCAD and Pro/E. Visit www.mhhe.com/ for information about CAD titles to be used with *Fundamentals of Graphics Communication*.

CONTENTS
1 Introduction to Graphics Communication / 2 Sketching and Text / 3 Engineering Geometry / 4 3-D Solid Modeling / 5 Multiviews and Visualization / 6 Auxiliary Views / 7 Pictorial Projections / 8 Section Views / 9 Dimensioning and Tolerancing Practices / 10 Working Drawings and Assemblies / 11 The Engineering Design Process / 12 Geometric Dimensioning and Tolerancing (GDT)

Technical Graphics Communication, 3E

Gary Robert Bertoline, Purdue University–West Lafayette
Eric N. Wiebe, North Carolina State University–Raleigh

2003 / Hardcover / 1312 pgs / ISBN 0-07-365598-8

Browse http://www.mhhe.com/bertoline

In its third edition, *Technical Graphics Communication*, has become a standard in the field of engineering and technical graphics. This text presents both traditional and modern approaches to technical graphics, providing engineering and technology students with a strong foundation in standard drafting practices and techniques. A strong emphasis on design and industry is found throughout, reinforcing the real and practical ways that technical graphics skills are used in real companies.

NEW TO THIS EDITION

- Design in Industry Boxes are presented in every chapter to illustrate how graphics and design are being used in industry today.
- Design Concepts are integrated throughout the text by use of icons. Basic design concepts are introduced in chapter 2. A new chapter on design concepts with over 100 open-ended design problems has been added (chapter 20).
- The robust On-Line Learning Center for the text includes: Learning Objectives, Chapter Outlines, Multiple Choice Quiz, Questions for Review, True or False Questions, Key Terms, Flashcards, Graphics in Motion, Animations, Related Readings, Image Library , AutoCAD exercises, and AutoCAD starter files.

FEATURES

- CAD references key the theory and traditional drawing material to its CAD-specific companion material in Leach's AutoCAD workbooks.
- Full-color illustrations, many from industry, and real-world photos show students the power of the graphics medium in all engineering disciplines.
- With our increased coverage of traditional topics, Bertoline covers both the traditional and modern topics appropriate for engineering and drafting students.
- Step-by-step technique boxes walk students through proper drawing methods.
- Integrated design communication problems can be assigned at the start of the course and carried through until the end with specific exercises keyed to most chapters.

CONTENTS
I Visual Science For Technical Graphics / 1 Introduction to Graphics Communications / 2 The Engineering Design Process / 3 Technical Drawing Tools / 4 Sketching and Text / 5 Design Visualization/ **II Fundamentals of Technical Graphics** / 6 Engineering Geometry and Construction / 7 Three-Dimensional Modeling / 8 Multiview Drawings / 9 Axonometric and Oblique Drawings / 10 Perspective Drawings / 11 Auxiliary Views/ **III Descriptive Geometry** / 12 Fundamentals of Descriptive Geometry / 13 Intersections and Developments/ **IV Standard Technical Graphics Practices** / 14 Section Views / 15 Dimensioning and Tolerancing Practices / 16 Geometric Dimensioning and Tolerancing Basics / 17 Fastening Devices and Methods / 18 Integrated Production, Automation and Manufacturing Processes, and the Role of Technical Graphics / 19 Working Drawings/ **V Technical Graphics in Industry** / 20 Design in Industry / 21 Technical Data Presentation / 22 Mechanisms: Gears, Cams, Bearings, and Linkages / 23 Electronic Drawings / 24 Piping Drawings / 25 Welding Drawings

SUPPLEMENT
AutoCAD Student Version 2006

The Complete Technical Illustrator

Jon Duff, Arizona StateUniversity
Greg Maxson, University of Illinois–Champaign

2004 / Hardcover / 672 pgs / ISBN 0-07-292229-X

highered.mcgraw-hill.com/sites/0072529962

The Complete Technical Illustrator offers comprehensive access to information on every aspect of technical illustration using the most popular software packages. It is appropriate for students of engineering and computer graphics as well as professional technical illustrators. The authors present strategies and procedures for applying knowledge about geometry, assemblies, materials, and processes to communicate technical information. The result is that, in a single volume, the reader has an authoritative guide to the study, learning, and practice of presenting technical information in a visual form.

A CD-ROM accompanies the text and provides users with: a productivity tool called "AxonHelper," designed by Jon Duff to simplify many of the calculations necessary to make accurate Axonometric constructions; examples of the most popular illustration tools; a web browser-driven technical illustration course; examples of textures and materials from Greg Maxson's studio; and a gallery of professional illustrations.

FEATURES

- Reader will learn how to represent any geometry.
- Reader will learn how to present any view: orthographic, axonometric, or perspective.
- Reader will learn how to use any technical illustration tool.
- Reader will be able to render illustrations using any technique.
- Reader will be able to use any reproduction method.
- The book is based on the most popular raster, vector, CAD and modeling programs available: Adobe Photoshop and Illustrator, AutoCAD and 3D Studio Max.
- Chapters feature case studies and numerous hints and tips.

CONTENTS
I Digital Reproduction of Technical Illustration / 1 Overview of Computer Graphics and Technical Illustration / 2 Technical Illustration Reproduction and Workflow / **II Technical Illustration Layout and Construction** / 3 Orthogonal Layout / 4 Axonometric Views / 5 Axonometric Circles / 6 Axonometric Scale Construction / 7 Axonometric Projection / 8 Axonometric Shearing / 9 Perspective Techniques / **III Technical Illustration Rendering** / 10 Line Rendering / 11 Photo Tracing / 12 Emphasis with Color / 13 Color Rendering / 14 Postscript Materials / 15 Text and Technical Illustrations / **IV Modeling, Animation, and Technical Illustration** / 16 Turning Engineering Drawings into 3D Illustrations / 17 Using CADD Data in Illustrations / 18 Modeling for Illustration / 19 Raster Materials / 20 Animation and Technical Illustration / Appendixes / Glossary / Index

Graphics Interactive CD-ROM

Dennis Lieu, University of California–Berkeley

1997 / ISBN 0-256-26348-5

Finally, a visualization tool for your engineering graphics students! Through the use of full-color graphics and animations, this interactive CD-ROM allows students to visualize three-dimensional objects, their views, and how to draw them. It covers all of the traditional engineering graphics topics, from sketching to descriptive geometry, but presents them in a way that students will find motivating and easier to comprehend. This CD is a stand-alone product, but we offer it at a significant discount if it is packaged with any McGraw-Hill graphics text such as Bertoline's *Technical Graphics Communicaton*.

CONTENTS
1 Introduction / 2 Sketching / 3 Engineering Drawings / 4 Orthogonal Projections / 5 Pictorials / 6 Sections / 7 Dimensioning / 8 Tolerancing / 9 Descriptive Geometry

Engineering Drawing and Graphic Technology, 14E

Thomas French, Deceased
Charles Vierck
Robert Foster, Pennsylvania State University

1993 / Hardcover / ISBN 0-07-022347-5

The text is designed for students and teachers in high schools, community colleges, technical institutes, and first-year university level. The text is intended to provide a wide range of topics in the fundamentals of graphics. Full attention is given to modern treatment, up-to-date standards, and ease of organization. The material is organized so as to include more emphasis on newer aspects of the field, such as computer aided drafting (CAD) and a smoother integration of metric units.

CONTENTS

1 Introduction / 2 Graphic Instruments and Their Use / 3 Constructional Geometry / 4 Basics of Lettering / 5 Orthographic Drawing and Sketching / 6 Sectional Views and Conventions / 7 Pictorial Drawing and Sketching / 8 Dimensioning and Tolerancing / 9 Lines and Planes in Space / 10 Surface Intersections / 11 Developed Views / 12 Introduction to Design / 13 Applications of Computer Aided Drafting / 14 Production Drawings / 15 Presenting Data: Charts and Graphs / 16 Assembly Elements: Threaded Fasteners, Keys, Springs / 17 Gears and Cams / 8 Welding and Riveting / 19 Electric and Electronic Drafting / 20 Piping / 21 Structural Drawing / 22 Maps and Topography

SUPPLEMENTS

Workbook 1 Solutions Manual
Workbook 3 Solutions Manual
Workbook 3

Engineering Drawing and Design, 7E

Cecil H. Jensen
Jay D. Helsel
Dennis Short

New Edition

2008 / Hardcover / 1120 pgs / ISBN 0-07-352151-5

Engineering Drawing and Design prepares students for drafting careers in a modern, technology-intensive industry. Technical drafting, like all technical areas, is constantly changing; the computer has revolutionized the way in which drawings and parts are made. This text covers the most current technical information available, including graphic communication, CAD, functional drafting, material positioning, numerical control, electronic drafting, and metrication, in a manner useful to both the instructor and student. The authors synthesize, simplify, and convert complex drafting standards and procedures into understandable instructional units.

NEW TO THIS EDITION

- Drafters will be pleased to see that this book covers ASME drawing standards and ISO guidelines and shows how to interpret and apply them.

FEATURES

- Four-color design highlights the text's special features and enhances instructional value of material.
- The authors bring together and explain the manufacturing materials that are available for engineering design. They describe the manufacturing process that influences the shape, appearance, and design of the product.
- The numerous assignments help the reader gain practice. These assignments can be completed with the help of a variety of Appendix tables reflecting real-world applications.
- The test's unit approach makes it possible for instructors to put together a customized program of instruction that suits the needs of their students and local industry.
- Text emphasizes all types of fasteners, both permanent and removable, that are currently available.

PRELIMINARY CONTENTS

Part I: Basic Drawing and Design / 1 Engineering Graphics as a Language / 2 Computer-Aid Drawing (CAD) / 3 Drawing Media, Filing, Storage, and Reproduction / 4 Basic Drafting Skills / 5 Applied Geometry / 6 Theory of Shape Description / 7 Auxiliary Views and Revolutions / 8 Basic Dimensioning / 9 Sections / Part II: Fasteners, Materials, and Forming Processes / 10 Threaded Fasteners / 11 Miscellaneous Types of Fasteners / 12 Manufacturing Materials / 13 Forming Processes / Part III: Working Drawings and Design / 14 Detail and Assembly Drawings / 15 Pictorial Drawings / 16 Geometric Dimensioning and Tolerancing / 17 Drawings for Numerical Control / 18 Welding Drawings / 19 Design Concepts / Part IV: Power Transmissions / 20 Belts, Chains, and Gears / 21 Coupling, Bearings, and Seals / 22 Cams, Linkages, and Actuators / Part V: Special Fields of Drafting / 23 Developments and Intersections / 24 Pipe Drawings / 25 Structural Drafting / 26 Jigs and Fixtures / 27 Electrical and Electronics Drawings / Computer-Aided Drawing / Review and Assignments / Glossary / Appendix-Standard Parts and Technical Data / Index

GRAPHICS-SOFTWARE MANUALS: AUTOCAD

AutoCAD 2008 Instructor, 4E

James A. Leach, University of Louisville-Louisville

New Edition

2008 / Softcover / 1472 pgs / ISBN 0-07-352265-1

AutoCAD 2008 Instructor covers all features and capabilities of AutoCAD. The text is command-oriented so chapters are centered around groups of related commands, making the text very effective as a reference. The chapters are structured in a practical pedagogical sequence beginning with instruction in general procedures for using the computer interface, setting up and creating drawings, and then progressing to advanced features such as dimensioning, special drawing applications and AutoCAD features, three-dimensional modeling and rendering, and software customization.

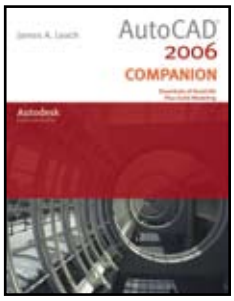
FEATURES

- Complete Coverage. The full range of AutoCAD commands, concepts, and features is explained. The author's simple writing style enables students to grasp concepts easily. Fundamental concepts are discussed first, then more advanced and specialized features.
- Outstanding Visuals and Page Layout. Over 1900 figures are to support the concepts, commands, and procedures. The finely tuned page layout makes the text easy to read and aids comprehension.
- Easy Update from AutoCAD 2005 and 2006. All new features and commands are easily identified by a unique bar in the margin.
- Special "Tips." The "TIP" indicator identifies important professional tips otherwise discovered only after much experience.
- Instructive Command Tables. Command tables throughout the text indicate how each command can be invoked, including icon buttons, command aliases, shortcut menus, shortcut keys, and more.
- Multi-Chapter "Reuse" Exercises. Exercises used in multiple chapters are denoted with a "REUSE" (diskette) icon. Using exercises through multiple chapters maximizes the student's efforts, creates connections between concepts, and supports the pedagogical progression throughout the text.
- Valuable Reference Guide. Numerous "tabbed" pages indicate important reference material, such as a table of AutoCAD commands, a table of system variables, a table for setting limits, a complete index of commands, options, and concepts, and many other tables and lists.
- Supplemental Material at www.mhhe.com/leach. Dedicated website provides three additional chapters (Customize User Interface, CAD Management, and Express Tools), 1100 test/review questions, 400 additional drawing exercises for architectural, mechanical, and civil/electrical engineering applications, instructor's solutions manual, and additional information.

CONTENTS

1 Getting Started / 2 Working with Files / 3 Draw Command Concepts / 4 Selection Sets / 5 Helpful Commands / 6 Basic Drawing Setup / 7 Object Snap and Object Snap Tracking / 8 Draw Commands I / 9 Modify Commands I / 10 Viewing Commands / 11 Layers and Object Properties / 12 Advanced Drawing Setup / 13 Layouts and Viewports / 14 Printing and Plotting / 15 Draw Commands II / 16 Modify Commands II / 17 Inquiry Commands / 18 Creating and Editing Text / 19 Internet Tools / 20 Advanced Selection Sets / 21 Blocks, DesignCenter, and Tool Palettes / 22 Block Attributes / 23 Grip Editing / 24 Multiview Drawing / 25 Pictorial Drawings / 26 Section Views / 27 Auxiliary Views / 28 Dimensioning / 29 Dimension Styles and Dimension Variables / 30 Xreferences / 31 Object Linking and Embedding (OLE) / 32 Raster Images And Vector Files / 33 Advanced Layouts and Plotting / 34 3D Modeling Basics / 35 3D Display and Viewing / 36 User Coordinate Systems / 37 Wireframe Modeling / 38 Solid Modeling Construction / 39 Advanced Solids Features / 40 Surface Modeling / 41 Rendering / 42 Creating 2D Drawings From 3D Models / 43 Miscellaneous Commands and Features / 44 Basic Customization / 45 Menu Customization [Web-only chapter] / 46 CAD Management [Web-only chapter] / 47 Express Tools and Batch Plotting [Web-only chapter] / Appendices / A System Variables / B Command Alias List Sorted by Command / C Command Alias List Sorted by Alias / D Buttons and Special Keys / E Command Table / Index

AutoCAD 2006 Companion



James A. Leach, University of Louisville-Louisville

2007 / Softcover / 768 pgs / ISBN 0-07-340247-8

The website dedicated to AutoCAD 2006 Companion includes quizzes, instructor solutions, information on other McGraw-Hill CAD and graphics books, and much more. (Browse http://www.mhhe.com/leach)

AutoCAD 2006 Companion is designed to teach AutoCAD 2006 in a one-semester course through its coverage of solid modeling and 2-D design and drafting essentials. *AutoCAD 2006 Companion* can be used on its own or as a companion to other graphics books, such as *Fundamentals of Graphics Communication* or *Technical Graphics Communication* by Bertoline and Wiebe. Its engineering, architecture, design, construction, and manufacturing examples makes this textbook suitable for a wide range of students.

Developed from teaching techniques used in an authorized AutoCAD Training Center and through instruction at engineering colleges, *AutoCAD 2006 Companion* is command-oriented with chapters centered on groups of related commands. This feature makes the text very effective as a reference tool. The chapters are structured in a practical and pedagogical sequence beginning with instruction in general procedures for using the user interface, setting up and creating drawings, and progressing to advanced features such as dimensioning, special drawing applications and AutoCAD features, and solid modeling construction and editing.

FEATURES

- The text is comprised of 30 chapters, 1200 figures, and 700 pages.
- All new AutoCAD 2005 and 2006 features and commands are easily identified by unique "2005" and "2006" vertical bars in the margin.
- Exercises used in multiple chapters are denoted with a "REUSE" (diskette) icon. Using exercises through multiple chapters maximizes student's efforts, creates connections between concepts, and supports the pedagogical progression throughout the text.
- The website features an instructor's solutions manual, true/false, multiple choice, and essay practice quizzes for students, as well as important terms, commands, and options (with page references) for each chapter, and an image library.

FEATURES

- Over 1500 illustrations are used to support the concepts, commands, and procedures in the text. The finely tuned page layout makes the text easy to read and aids comprehension.
- The "TIP" indicator identifies important professional tips otherwise discovered only after much experience.
- Numerous "tabbed" pages indicate important reference material, such as the Command Table Index, Shortcut Keys, Dimension Variables, Tables of Limits Settings, Template Drawings, and more.
- Command Tables throughout the text indicate how each command can be invoked, complete with icon buttons, command aliases, shortcut menus, and shortcut keys.

CONTENTS

1 Getting Started / 2 Working with Files / 3 Draw Command Concepts / 4 Selection Sets / 5 Helpful Commands / 6 Basic Drawing Setup / 7 Object Snap and Object Snap Tracking / 8 Draw Commands I / 9 Modify Commands I / 10 Viewing Commands / 11 Layers and Object Properties / 12 Advanced Drawing Setup / 13 Layouts and Viewports / 14 Printing and Plotting / 15 Draw Commands II / 16 Modify Commands II / 17 Inquiry Commands / 18 Text / 19 Grip Editing / 20 Blocks, DesignCenter, and Tool Palettes / 21 Multiview Drawing / 22 Pictorial Drawings / 23 Section Views / 24 Auxiliary Views / 25 Dimensioning / 26 Dimension Styles and Dimension Variables / 27 3D Basics, Display, and Viewing / 28 User Coordinate Systems / 29 Solid Modeling Construction / 30 Advanced Solids Features / Appendices / A AutoCAD Command Alias List Sorted by Command / B Buttons and Special Keys

SUPPLEMENTS

Special packages available, visit www.mhhe.com for more information

The AutoCAD 2006 Companion website features an Instructor's Solutions Manual, true/false, multiple choice, and essay practice quizzes for students, as well as important terms, commands, and options (with page references) for each chapter and an image library.

GRAPHICS-CAD SOFTWARE MANUALS: AUTODESK INVENTOR

Autodesk Inventor

James M. Leake, University of Illinois–Champaign-Urbana

2004 / Softcover / 350 pgs / ISBN 0-07-292237-0

www.mhhe.com/leake

Computer-Aided-Design has advanced rapidly. Originally developed to perform 2D manual drafting task, CAD software has developed into 3D surface and solid modeling. Autodesk Inventor is a prime example of this next generation CAD software

Autodesk Inventor is a tutorial based textbook intended to provide beginners with the most important aspects of Autodesk Inventor. Each chapter will contain an introduction as it relates to parametric modeling, tutorial and additional problems.

FEATURES

- Hands-on approach to learning Autodesk Inventor by providing tutorials within each chapter and on the CD packaged with the text.
- A consistent pedagogical framework provided in each chapter that helps students learn the key features of Inventor.
- A robust website that includes quizzes, downloadable lecture notes and video tutorials.

CONTENTS

1 Getting Started / 2 Sketching and the Base Feature / 3 Feature Creation / 4 Part Editing / 5 Advanced Part Modeling / 6 Part Documentation / 7 Assembly Modeling / 8 Presentation Files / Tutorials 1-20

SUPPLEMENT

CD-ROM tutorials

GRAPHICS-CAD SOFTWARE MANUALS: MECHANICAL DESKTOP

Mechanical Desktop Instructor

Sham Tickoo, Purdue University–Calumet-Management

2002 / Softcover / 512 pgs / ISBN 0-07-283179-0

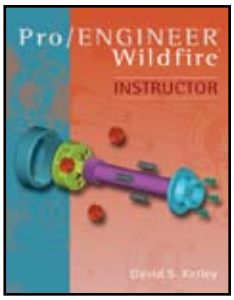
Mechanical Desktop Instructor is a tutorial-based book designed for users who are familiar with AutoCAD and want to learn 3-D design. Each chapter covers commands and step-by-step tutorials, based on realistic mechanical engineering projects.

CONTENTS

1 Creating, Profiling, Constraining, and Dimensioning the Basic Sketch / 2 Modifying, Extruding, and Revolving the Sketches / 3 Sketch Planes, Work Features, and Other Extrusion and Revolution Options / 4 Advanced Dimensioning Techniques, Design Variables, and Visibility Options / 5 Placed Features I / 6 Placed Features II, Bend Features and Rib Features / 7 Editing, Suppressing, and Reordering the Features / 8 2D Path, 3D Path, Sweep, and Loft / 9 Creating New Parts, Activating the Part, and Mirroring and Combining the Parts / 10 Assembly Modeling I / 11 Assembly Modeling II / 12 Creating and Modifying the Drawing Views / 13 Dimensioning the Drawing Views / 14 Surface Modeling / 15 Miscellaneous Commands / 16 Projects / Appendixes / A Toolbars / B System Variables / C Commands

GRAPHICS-CAD SOFTWARE MANUALS: PROENGINEER

Pro Engineer-Wildfire Instructor, 4E



New Edition

David S. Kelley, Central Michigan University

2008 / Softcover / 768 pgs / ISBN 0-07-352266-X

Browse http://www.mhhe.com/kelley

The text details the new features of Pro/ENGINEER Wildfire 3.0 including the addition of the chamfar tool, axial pattern option, and a Drawing View dialog box for the creation of views. The text is designed to serve as a tutorial, reference, and lecture guide, and is appropriate as a course text or self-paced independent study guide. Chapters start by covering selected topics in moderate detail, followed by one or more tutorials covering the chapter's objectives and topics. At the end of each chapter, practice problems are used to reinforce concepts covered in the chapter and previously in the book. An accompanying website features solutions for instructors as well as ancillary materials for reading and download.

NEW TO THIS EDITION

- The text details the new features of Pro/ENGINEER Wildfire 3.0 including the addition of the chamfar tool, axial pattern option, and a Drawing View dialog box for the creation of views..

FEATURES

- Each chapter begins with a reference portion designed to provide a step-by-step guide for performing specific Pro/ENGINEER modeling tasks outside of a tutorial environment.

Numbered tutorials follow the reference sections to help users navigate this procedure-intensive computer-aided design application.

- Modeling Point Boxes are shaded boxes used throughout the text to highlight specific modeling strategies.
- The book's modular organization allows flexibility in course structure.
- Object files (part, assembly, drawing) are available for download from the book's website. Instructors will also have access to solutions to end-of-chapter problems and additional problems.

CONTENTS

1 Introduction to Parametric Design / 2 Pro/ENGINEER's User Interface / 3 Contraint-Based Sketching / 4 Extruding, Modifying, and Redefining Features / 5 Feature Construction Tools / 6 Revolved Features / 7 Feature Manipulation Tools / 8 Creating a Pro/ENGINEER Drawing / 9 Sections and Advanced Drawing Views / 10 Swept and Blended Features / 11 Advanced Modeling Techniques / 12 Assembly Modeling / 13 Surface Modeling / Appendices / A Supplemental Files / B Configuration File Options

Pro/Engineer 2001 Assistant

David S. Kelley, Purdue University–West Lafayette

2002 / Softcover / 256 pgs / ISBN 0-07-249939-7

www.mhhe.com/kelley/

Pro/Engineer 2001 Assistant provides the reader with the same kind of useful information for mastering Pro/Engineer as its counterpart, Kelley's Pro/E Instructor, does. However, the 2001 Assistant provides the option of a more streamlined delivery. With its compact form, it is excellent for use with any graphics course where Pro/Engineer is not covered extensively in the classroom but is expected to be used during the course. It is also well suited for use in upper division courses.

CONTENTS

1 Pro/Engineer's User Interface / 2 Extruding, Modifying, and Redefining Features / 3 Feature Construction Tools / 4 Revolved Features / 5 Feature Manipulation Tools / 6 Creating a Pro/Engineer Drawing / 7 Sections and Advanced Drawing Views

STATICS

Statics and Mechanics of Materials

New!

Ferdinand Beer, (deceased)
E. Russell Johnston, Jr.
John T. DeWolf
both of University of Connecticut

2008 / Hardcover / 736 pgs / ISBN 0-07-332808-1

For the past fifty years Beer and Johnston have been the uncontested leaders in the teaching of undergraduate engineering mechanics. Over the years their textbooks have introduced significant theoretical and pedagogical innovations in statics, dynamics, and mechanics of materials education. At the same time, their careful presentation of content, unmatched levels of accuracy, and attention to detail have made their texts the standard for excellence.

The new first edition *Statics and Mechanics of Mateirals* has thorough coverage together with a significant addition of new problems, including biomechanics problems, and the most extensive media resources available.

FEATURES INCLUDE

- 30% new problems from the current Beer text has been carried over to this version of Beer.
- ARIS McGraw-Hill's Homework Management system will prevent homework problems from circulating! You will have the ability to create unlimited number of problems!
- McGraw-Hill's web-based Hands-on Mechanics teaching demonstration library provides instructors with instructions for building hands-on physical models
- A careful, step-by-step presentation is followed in each lesson of each chapter and every chapter is organized as follows: an opening photograph to help students visualize key concepts is followed by a chapter introduction with a chapter outline previewing what will be covered in each lesson.
- A signature Beer and Johnston text feature, Sample Problems allow students to see important key problem types with their solution laid out on a single page, and organized to provide a model for student problem solving.

Mechanics for Engineers, Statics, 5E

New Edition

Ferdinand P. Beer, (deceased)
E. Russell Johnston, Jr., University of Connecticut

2008 / Hardcover / 480 pgs / ISBN 0-07-246478-X

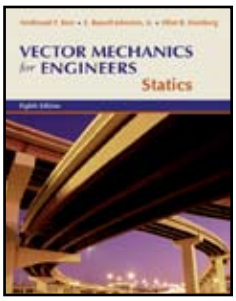
The first book published in the Beer and Johnston Series, *Mechanics for Engineers: Statics* is a scalar-based introductory statics text, ideally suited for engineering technology programs, providing first-rate treatment of rigid bodies without vector mechanics. This new edition provides an extensive selection of new problems and end-of-chapter summaries. The text brings the careful presentation of content, unmatched levels of accuracy, and attention to detail that have made Beer and Johnston texts the standard for excellence in engineering mechanics education.

FEATURES

- Features precision, accuracy, and math level appropriate for Engineering Technology courses.
- A Mathematics Review section helps students understand the basics of the scalar math used in statics & dynamics.
- Sample Problems are included to help students work through the solution of typical engineering problems and prepare for the assigned chapter homework problems.

CONTENTS

Vector Mechanics for Engineers: Statics, 8E



Ferdinand P. Beer (deceased)
E. Russell Johnston, Jr., University of Connecticut
Elliot R. Eisenberg, Pennsylvania State University
William E. Clausen, Ohio State University
David Mazurek, U S Coast Guard Academy
Phillip J. Cornwell, Rose-Hulman Institute of Technology

2007 / Hardcover / 648 pgs / ISBN 0-07-321219-9

Browse http://www.mhhe.com/beerjohnston to view an extensive set of web-based resources.

For the past fifty years Beer and Johnston have been the uncontested leaders in the teaching of undergraduate engineering mechanics. Over the years their textbooks have introduced significant theoretical and pedagogical innovations in statics, dynamics, and mechanics of materials education. At the same time, their careful presentation of content, unmatched levels of accuracy, and attention to detail have made their texts the standard for excellence.

The Eighth Edition of *Vector Mechanics for Engineers: Statics and Dynamics* marks the fiftieth anniversary of the Beer/Johnston series. Continuing in the spirit of its successful previous editions, the Eighth Edition provides conceptually accurate and thorough coverage together with a significant addition of new problems, including biomechanics problems, and the most extensive media resources available.

NEW TO THIS EDITION

- The 8th editions offer 48% new and revised homework problem set, with biomechanics-focused problems added appropriately throughout the texts.
- The photo program continues to be expanded in each edition, with new chapter opener and in chapter photos added to each chapter.
- A C.O.S.M.O.S. Solutions Manual, provided to instructors on DVD, allows for assignment generation, tracking, and distribution. Instructors also have the ability to edit homework problems.
- A robust ARIS website provides both student and instructor resources including algorithmic problems, S.M.A.R.T. tutorials, lecture powerpoints, and images from the text, along with the benefit of a course management system.
- McGraw-Hill's web-based Hands-on Mechanics teaching demonstration library provides instructors with instructions for building hands-on physical models used to demonstrate important Statics and Dynamics concepts in class.
- yourotherteacher.com—provides access to hours of online tutorials for statics and dynamics.

FEATURES

- A careful, step-by-step presentation is followed in each lesson of each chapter; every chapter is organized as follows: an opening photograph to help students visualize key concepts is followed by a chapter introduction with a chapter outline previewing what will be covered in each lesson. After each lesson there are 1-4 Sample Problems (set up to serve as a model for student solutions) followed by a Solving Problems On Your Own section giving solution guidelines before the lesson's problems set. At the end of each chapter students find a Review and Summary section with notes for review and examples and cross references to key sections. Finally, a Review Problem section ties together several concepts from that chapter and a Computer Problems section also has many problems relevant to the design process, encouraging open-ended solutions.
- A signature Beer and Johnston text feature, Sample Problems allow students to see important key problem types with their solution laid out on a single page, and organized to provide a model for student problem solving. Sample Problems serve the dual purpose of amplifying the text and demonstrating the type of neat and orderly work that students should cultivate in their own solutions.
- Liberal use of free-body diagrams (graphical representation of objects where arrows indicate forces acting on object) in Statics and effective-forces diagrams in Dynamics. By placing the emphasis on "free-body-diagram equations" rather than on the standard algebraic equations of motion, a more intuitive and more complete understanding of fundamental principles is achieved.
- Review and Summary sections at the end of each chapter provide students with a valuable study tool. Reviewers found these chapter reviews to be one of the strongest features of the text and the best available in the market.

- Computer Problems, relevant to the design process, are offered at the end of each chapter. While the problems will be generic, they will be designed to be easily solved using popular computational programs such as MATLAB®, Mathcad, Maple, etc. The computer problems focus on symbolic manipulation and plotting, as opposed to the more programming-based computer problems in the current editions. Computer problems help students gain a better understanding of basic principles because most require integration of several concepts, much like one does in design. They also allow for open-ended parametric studies.
- A Fundamentals of Engineering Examination Appendix helps prepare students for the FE/EIT exam.
- Effective use of 4-color helps students distinguish between different vectors: red=accelerations and forces (applied and effective) green=velocities, blue=displacements.
- Instructors enjoy a clearer presentation and organization of problem solutions with a typeset print solutions manual in a clear 1-2 solution per page format. In addition, Instructors are provided with assignment grids, designed so that instructors can assign different homework problems each semester for up to six semesters.

CONTENTS

1 Introduction / 2 Statics of Particles / 3 Rigid Bodies: Equivalent Systems of Forces / 4 Equilibrium of Rigid Bodies / 5 Distributed Forces: Centroids and Centers of Gravity / 6 Analysis of Structures / 7 Forces in Beams and Cables / 8 Friction / 9 Distributed Forces: Moments of Inertia / 10 Method of Virtual Work / Fundamentals of Engineering Examination / Index / Answers to Problems

SUPPLEMENTS

Instructor's Solutions Manual (Four volumes

ARIS (Assessment, Review, and Instruction System): A complete, online tutorial, electronic homework, and course management system to accompany Beer; featuring algorithmic homework and teaching tools.
Hands-on Mechanics: An online library of three-dimensional teaching demonstrations for Statics and Dynamics.

COSMOS: A complete electronic solutions manual for the text on DVD allows instructors to edit homework problems, as well as generate and track assignments.

SMART Tutorial

DYNAMICS

Mechanics for Engineers, Dynamics, 5E

New Edition

Ferdinand P. Beer, (deceased)
E. Russell Johnston, Jr., University of Connecticut

2008 / Hardcover / 928 pgs / ISBN 0-07-246477-1

The first book published in the Beer and Johnston Series, *Mechanics for Engineers: Dynamics* is a scalar-based introductory dynamics text, ideally suited for engineering technology programs, providing first-rate treatment of rigid bodies without vector mechanics. This new edition provides an extensive selection of new problems and end-of-chapter summaries. The text brings the careful presentation of content, unmatched levels of accuracy, and attention to detail that have made Beer and Johnston texts the standard for excellence in engineering mechanics education.

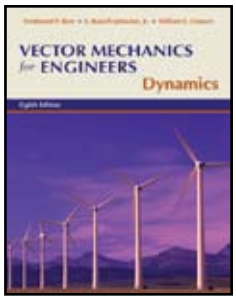
FEATURES

- Sample Problems are included to help students work through the solution of typical engineering problems and prepare for the assigned chapter homework problems.
- A Mathematics Review section helps students understand the basics of the scalar math used in statics & dynamics.
- Features precision, accuracy, and math level appropriate for Engineering Technology courses.

CONTENTS

11 Kinematics of Particles / 12 Kinetics of Particles: Newton's Second Law / 13 Kinetics of Particles: Work and Energy / 14 Kinetics of Particles: Impulse and Momentum / 15 Kinematics of Rigid Bodies / 16 Kinetics of Rigid Bodies: Forces and Accelerations / 17 Kinetics of Rigid Bodies: Work and Energy / 18 Kinetics of Rigid Bodies: Impulse and Momentum / 19 Mechanical Vibrations / Appendix / Moments of Inertia in Masses / Index / Answers to Problems

Vector Mechanics for Engineers: Dynamics, 8E



Ferdinand P. Beer (deceased)
E. Russell Johnston, Jr., University of Connecticut
Elliot R. Eisenberg, Pennsylvania State University
William E. Clausen, Ohio State University
David Mazurek, U S Coast Guard Academy
Phillip J. Cornwell, Rose-Hulman Institute of Technology

2007 / Hardcover / 768 pgs / ISBN 0-07-321220-2

Browse http://www.mhhe.com/beerjohnston to view an extensive set of web-based resources.

For the past fifty years Beer and Johnston have been the uncontested leaders in the teaching of undergraduate engineering mechanics. Over the years their textbooks have introduced significant theoretical and pedagogical innovations in statics, dynamics, and mechanics of materials education. At the same time, their careful presentation of content, unmatched levels of accuracy, and attention to detail have made their texts the standard for excellence.

The new Eighth Edition of *Vector Mechanics for Engineers: Statics and Dynamics* marks the fiftieth anniversary of the Beer/Johnston series. Continuing in the spirit of its successful previous editions, the Eighth Edition provides conceptually accurate and thorough coverage together with a significant addition of new problems, including biomechanics problems, and the most extensive media resources available.

NEW TO THIS EDITION

- The 8th editions offer 48% new and revised homework problem set, with biomechanics-focused problems added appropriately throughout the texts.
- The photo program continues to be expanded in each edition, with new chapter opener and in chapter photos added to each chapter.
- A C.O.S.M.O.S. Solutions Manual, provided to instructors on DVD, allows for assignment generation, tracking, and distribution. Instructors also have the ability to edit homework problems.
- A robust ARIS website provides both student and instructor resources including algorithmic problems, S.M.A.R.T. tutorials, lecture powerpoints, and images from the text, along with the benefit of a course management system.
- McGraw-Hill's web-based Hands-on Mechanics teaching demonstration library provides instructors with instructions for building hands-on physical models used to demonstrate important Statics and Dynamics concepts in class.
- yourotherteacher.com—provides access to hours of online tutorials for statics and dynamics.

FEATURES

- A careful, step-by-step presentation is followed in each lesson of each chapter; every chapter is organized as follows: an opening photograph to help students visualize key concepts is followed by a chapter introduction with a chapter outline previewing what will be covered in each lesson. After each lesson there are 1-4 Sample Problems (set up to serve as a model for student solutions) followed by a Solving Problems On Your Own section giving solution guidelines before the lesson's problems set. At the end of each chapter students find a Review and Summary section with notes for review and examples and cross references to key sections. Finally, a Review Problem section ties together several concepts from that chapter and a Computer Problems section also has many problems relevant to the design process, encouraging open-ended solutions.
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11 Kinematics of Particles / 12 Kinetics of Particles: Newton's Second Law / 13 Kinetics of Particles: Energy and Momentum Methods / 14 Systems of Particles / 15 Kinematics of Rigid Bodies / 16 Plane Motion of Rigid Bodies: Forces and Accelerations / 17 Plane Motion of Rigid Bodies: Energy and Momentum Methods / 18 Kinetics of Rigid Bodies in Three Dimensions / 19 Mechanical Vibrations / Appendices / A Some Useful Definitions and Properties of Vector Algebra / B Moments of Inertia of Masses / C Fundamentals of Engineering Examination

SUPPLEMENTS

Instructor's Solutions Manual (Four volumes

ARIS (Assessment, Review, and Instruction System): A complete, online tutorial, electronic homework, and course management system to accompany Beer; featuring algorithmic homework and teaching tools.

Hands-on Mechanics: An online library of three-dimensional teaching demonstrations for Statics and Dynamics.

COSMOS: A complete electronic solutions manual for the text on DVD allows instructors to edit homework problems, as well as generate and track assignments.

SMART Tutorial

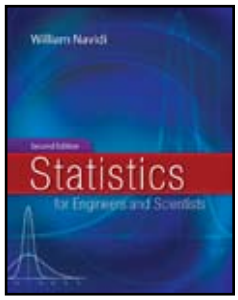
ENGINEERING MATH/STATISTICS

Statistics for Engineers and Scientists, 2E

William C. Navidi, Colorado School of Mines

2008 / Hardcover / 675 pgs / ISBN 0-07-330949-4

Browse http://www.mhhe.com/navidi2



New Edition

The second edition of this book is intended to extend the strengths of the first. Some of the changes include:

- More than 200 new exercises have been added.
- A new section on point estimation has been added to Chapter 4.
- The material on histograms in Chapter 1 has been completely revised.
- Chapter 2 now contains a discussion of Chebyshev's inequality.
- Chapter 4 now contains a discussion of the uniform distribution.
- The section on the normal distribution contains a discussion on linear functions of normal random variables.
- Chapter 7 contains additional material on the correlation coefficient.
- Chapter 10 contains a discussion of the relationship between control charts and hypothesis tests.
- The exposition has been improved in a number of places.

Also new for this edition is the ARIS online course management system. ARIS provides automatic grading of student assignments and keeps a record of students' grades. In addition, ARIS contains problems for student practice, along with Java applets that allow students to interactively explore ideas in the text. Customizable PowerPoint lecture notes for each chapter are available as well, along with suggested syllabi, and other features. More information can be found at aris.mhhe.com.

William Navidi is Professor of Mathematical and Computer Sciences at the Colorado School of Mines. He received the B.A. degree in mathematics from New College, the M.A. in mathematics from Michigan State University, and the Ph.D. in statistics from the University of California at Berkeley. Professor Navidi has authored more than 50 research papers both in statistical theory and in a wide variety of applications including computer networks, epidemiology, molecular biology, chemical engineering, and geophysics.

NEW TO THIS EDITION

- McGraw-Hill's ARIS online Homework Manager has been added to this edition and features algorithmic problems and gradebook capability. Instructors will have access to data sets, solutions, lecture powerpoints, and images from the text.
- Over 180 new homework problems have been added throughout.

FEATURES

- An engaging writing style explains difficult concepts clearly. While including the mathematics necessary for clear understanding, the text makes extensive use of examples to motivate fundamental concepts and to develop intuition.
- Contemporary, real world data sets are one of the defining features of this text. With a fresh approach to the subject, the author uses contemporary data sets to help motivate students and show direct connection to industry and research.
- In line with modern trends, the text contains exercises suitable for solving with computer software. These examples and exercises involve interpreting, as well as generating, computer output. The student edition of MINITAB, the widely used statistical software package, is available bundled with the text.
- A separate chapter provides **extensive coverage of propagation of error**, sometimes called "error analysis" or the "delta method." The coverage is more extensive than in most texts, with a flexible format allowing instructors to easily cover selected topics.
- The text presents an **extensive, self-contained introduction to simulation methods** at a level appropriate for introductory students, including the bootstrap and applications to estimating probabilities, estimating bias, computing confidence intervals, and testing hypotheses.
- The text provides **more extensive coverage of linear model diagnostic procedures** than is found in most competing texts including a lengthy section on checking model assumptions and transforming variables. The coverage emphasizes that linear models are appropriate only when the relationship between variables is linear. This point is all the more important since it is often overlooked in practice by engineers and scientists (not to mention statisticians).
- **Flexible presentation of probability** addresses the needs of different courses. Allowing for a mathematically rigorous approach, the major results are derived from axioms, with proofs given for most of them. Each result is illustrated with an example or two to promote intuitive understanding. Instructors who prefer a more informal approach may therefore focus on the examples rather than the proofs and skip the optional sections.

CONTENTS

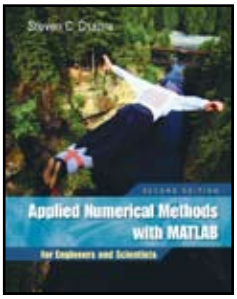
1 Sampling and Descriptive Statistics / 2 Probability / 3 Propagation of Error / 4 Commonly Used Distributions / 5 Confidence Intervals / 6 Hypothesis Testing / 7 Correlation and Simple Linear Regression / 8 Multiple Regression / 9 Factorial Experiments / 10 Statistical Quality Control / A Tables / B Partial Derivatives / C Suggestions for Further Reading / Answers to Selected Exercises / Index

Applied Numerical Methods with MATLAB® for Engineers and Scientists, 2E

Steven C. Chapra, Tufts University

2008 / Hardcover / 544 pgs / ISBN 0-07-313290-X

The web site features student and instructor resources such as an image bank, lecture slides, helpful web links, study objectives, and more! (Browse http://www.mhhe.com/chapra)



New Edition

Steven Chapra's new second edition, *Applied Numerical Methods with MATLAB® for Engineers and Scientists*, is written for engineers and scientists who want to learn numerical problem solving. This text focuses on problem-solving (applications) rather than theory, using MATLAB®, and is intended for Numerical Methods users; hence theory is included only to inform key concepts. The new second edition feature new material such as Numerical Differentiation and ODE's: Boundary-Value Problems.

NEW TO THIS EDITION

- Based on response from users and reviewers, 4 New Chapters have been added to the second edition to provide a more accessible presentation, while maintaining its student-friendly flavor.
  - ~Optimization
  - ~Numerical Differentiation
  - ~ODES: Boundary-Value Problems
  - ~Fast Fourier Transform. This appendix chapter is presented in an introductory fashion to illustrate the power of MATLAB® and to let students go away recognizing that although they have just scratched the surface, they might want to pursue the topic in greater depth in future courses.
- 50% new or revised chapter and homework problems

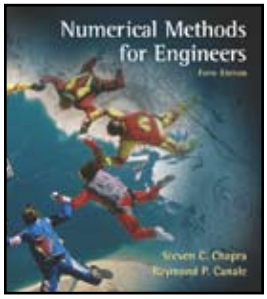
FEATURES

- Explanations are straight-forward and practically oriented. The math level is considered, just to be at the right level—not too easy or rigorous, just right.
- Extensive use of engineering examples, case studies, and applications are given throughout the text.
- Each chapter is well integrated with MATLAB® M-files. In addition, relevant MATLAB® functions are introduced in each chapter.
- MATLAB® is used as the primary computing environment. All algorithms are presented as m-files.
- A text Web site is available at http://www.mhhe.com/chapra

CONTENTS

Part One Modeling, Computers, and Error Analysis / 1 Mathematical Modeling Numerical Methods and Problem Solving / 2 MATLAB® Fundamentals / 3 Programming with MATLAB® / 4 Roundoff and Trunication Errors / Part Two Roots and Optimization / 5 Roots: Bracketing Methods / 6 Roots: Open Methods / 7 Optimization / Part Three Linear Systems / 8 Linear Algebraic Equations and Matrices / 9 Gauss Elimination / 10 LU Factorization / 11 Matrix Inverse and Condition / 12 Iterative Methods / Part Four Curve Fitting / 13 Linear Regression / 14 General Linear Least-Squares and Non-Linear Regression / 15 Polynomial Interpolation / 16 Splines and Piecewise Interpolation / Part Five Integration and Differentiation / 17 Numerical Integration Formulas / 18 Numerical Integration of Functions / 19 Numerical Differentiation / Part Six Ordinary Differential Equations / 20 Initial-Value Problems / 21 Adaptive Methods and Stiff Systems / 22 Boundary-Value Problems / Appendices / A: Eigenvalues Appendix / B: MATLAB® Built-in Functions / C: MATLAB® M-File Functions / Bibliography / Index

Numerical Methods for Engineers, 5E



Steven C. Chapra, Tufts University
Raymond Canale, Emeritus University of Michigan

2006 / Hardcover / 960 pgs / ISBN 0-07-310156-7

The text website features MATLAB® Appendix from Chapra's brief 2005 text; helpful web links; Study Objectives; COSMOS, PowerPoint images and lecture notes from the text; and a Solutions Manual. Browse http://www.mhhe.com/chapra

The fifth edition of *Numerical Methods for Engineers* continues its tradition of excellence. Instructors love this text because it is a comprehensive text that is easy to teach from. Students love it because it is written for them—with great pedagogy and clear explanations and examples throughout. The text features a broad array of applications, including all engineering disciplines.

The revision retains the successful pedagogy of the prior editions. Chapra and Canale's unique approach opens each part of the text with sections called Motivation, Mathematical Background, and Orientation, preparing the student for what is to come in a motivating and engaging manner. Each part closes with an Epilogue containing sections called Trade-Offs, Important Relationships and Formulas, and Advanced Methods and Additional References. Much more than a summary, the Epilogue deepens understanding of what has been learned and provides a peek into more advanced methods. Users will find use of software packages, specifically MATLAB® and Excel with VBA. This includes material on developing MATLAB® m-files and VBA macros.

The expanded breadth of engineering disciplines covered is especially evident in the problems, which now cover such areas as biotechnology and biomedical engineering.

NEW TO THIS EDITION

- Approximately 80% of the problems are new or revised for this edition.
- Users have access to an Online Learning Center which will house PowerPoint slides of all text figures, M-Files, general textbook information and more!
- Available to instructors only, the detailed solutions for all text problems will be delivered via CD-ROM, in our new, Complete Online Solutions Manual Organization System (COSMOS).

FEATURES

- Challenging problems drawn from all engineering disciplines are included in the text.
- Chapra is known for his clear explanations and elegantly rendered examples.
- The text includes a helpful appendix chapter, Getting Started with MATLAB®.

CONTENTS

Part 1 Modeling, Computers, and Error Analysis / 1 Mathematical Modeling and Engineering Problem Solving / 2 Programming and Software / 3 Approximations and Round-Off Errors / 4 Truncation Errors and the Taylor Series / **Part 2 Roots of Equations** / 5 Bracketing Methods / 6 Open Methods / 7 Roots of Polynomials / 8 Case Studies: Roots of Equations / **Part 3 Linear Algebraic Equations** / 9 Gauss Elimination / 10 LU Decomposition and Matrix Inversion / 11 Special Matrices and Gauss-Seidel / 12 Case Studies: Linear Algebraic Equations / **Part 4 Optimization** / 13 One-Dimensional Unconstrained Optimization / 14 Multidimensional Unconstrained Optimization / 15 Constrained Optimization / 16 Case Studies: Optimization / **Part 5 Curve Fitting** / 17 Least-Squares Regression / 18 Interpolation / 19 Fourier Approximation / 20 Case Studies: Curve Fitting/ **Part 6 Numerical Differentiation and Integration** / 21 Newton-Cotes Integration Formulas / 22 Integration of Equations / 23 Numerical Differentiation / 24 Case Studies: Numerical Integration and Differentiation / **Part 7 Ordinary Differential Equations** / 25 Runge-Kutta Methods / 26 Stiffness and Multistep Methods / 27 Boundary-Value and Eigenvalue Problems / 28 Case Studies: Ordinary Differential Equations / **Part 8 Partial Differential Equations** / 29 Finite Difference: Elliptic Equations / 30 Finite Difference: Parabolic Equations / 31 Finite-Element Method / 32 Case Studies: Partial Differential Equations / Appendices / A The Fourier Series / B Getting Started with MATLAB® / Bibliography / Index

SUPPLEMENT

COSMOS t/a Numerical Methods for Engineers

Engineering Formulas, 8E

New!

Kurt Gieck, Heilbronn A.N., Germany
Reiner Gieck

2006 / Hardcover / 580 pgs / ISBN 0-07-145774-7

McGraw-Hill Professional

This is a revision of the famed pocket guide giving engineers, scientists, technicians, and students thousands of essential technical and mathematical formulas and hundreds of diagrams to simplify and speed their calculations.

NEW TO THIS EDITION

- A one stop source of essential engineering and scientific formulas
- Blank pages provide space for notes
- Environment additions including, noise, water, soil pollution, waste recycling, and ozone tables
- Current symbols and standards revised and updated
- Electrical engineering additions including small electric motors
- HVAC applications added

CONTENTS

1 Units / 2 Areas / 3 Solid Bodies / 4 Arithmetic / 5 Functions of a Circle / 6 Analytical Geometry / 7 Statistics / 8 Differential Calculus / 9 Integral Calculus / 10 Differential Equations / 11 Statics / 12 Kinematics / 13 Dynamics / 14 Hydraulics / 15 Heat / 16 Strength / 17 Machine Parts / 18 Production Engineering / 19 Electrical Engineering / 20 Control Engineering / 21 Chemistry / 22 Radiation Physics / 23 Tables

Standard Handbook of Engineering Calculations, 4E

Tyler G. Hicks

2005 / Hardcover / 1200 pgs / ISBN 0-07-142793-7

McGraw-Hill Professional

NEW TO THIS EDITION

- Wind-energy system calculations
- Complying with new environmental requirements in engineering
- Structural engineering changes in buildings to fight terrorism
- Data on suitable computer programs for solving repetitive computational problems
- Data on Websites containing useful engineering information on standards, units of measurement, design methodology, dimensioning, vibrations, etc.
- New power plant cost saving calculations
- Finite element analysis methods of calculation
- Data on refrigerants required to replace Freon gases
- New design code calculations in civil engineering
- New pump material and calculation methods
- All ten major engineering fields included

CONTENTS

Contributors and Advisors / Preface / How to Use This Handbook/ Section 1. Civil Engineering *(Max Kurtz)* / Section 2. Architectural Engineering *(Max Kurtz)* / Section 3. Mechanical Engineering *(Joseph Leto, Gerald M. Eisenberg, Stephen M. Eber, Jerome F. Mueller, Tyler G. Hicks, Edgar J. Kates, B.G.A. Skrotzki, Raymond J. Roark, S.W. Spielvogel, Rufus Oldenburger, Lyman F. Scheel)* / Section 4. Electrical Engineering *(Andrew W. Edwards, Harold L. Rorden, Frederick W. Suhr)* / Section 5. Chemical and Process Plant Engineering *(Robert L. Davidson, John S. Rearick, Tyler G. Hicks)* / Section 6. Water and Waste-Water Engineering *(Edmund B. Besselievre, Tyler G. Hicks, Max Kurtz)* / Section 7. Environmental Engineering *(Tyler G. Hicks, Joseph Leto)*

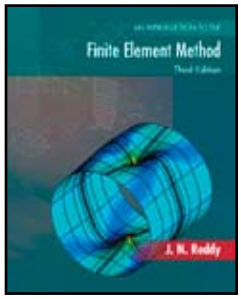
FINITE ELEMENT METHODS

An Introduction to the Finite Element Method, 3E

J. N. Reddy, Texas A & M University

2006 / Hardcover / 912 pgs / ISBN 0-07-246685-5

The Instructor and Student Resource Web site contains general textbook information, solutions to end-of-chapter problems, executables and supplementary chapters on the FEM1D and FEM2D computer programs. (Browse http://www.mhhe.com/reddy3e)



J.N. Reddy's, *An Introduction to the Finite Element Method, third edition* is an update of one of the most popular FEM textbooks available. The book retains its strong conceptual approach, clearly examining the mathematical underpinnings of FEM, and providing a general approach of engineering application areas.

Known for its detailed, carefully selected example problems and extensive selection of homework problems, the author has comprehensively covered a wide range of engineering areas making the book approriate for all engineering majors, and underscores the wide range of use FEM has in the professional world.

A supplementary text Web site located at http://www.mhhe.com/reddy3e contains password-protected solutions to end-of-chapter problems, general textbook information, supplementary chapters on the FEM1D and FEM2D computer programs, and more!

NEW TO THIS EDITION

- Approximately 30% of the problems have been revised or are new to this edition.
- The previous Chapter 3, Second-Order Boundary Value Problems, has been split into two chapters for the third edition. Chapter 3 is now Second-Order Differential Equations in One-Dimension: Finite Element Models, and Chapter 4 is now Second-Order Differential Equations in One-Dimension: Applications.

FEATURES

- Worked examples are said to be one of the best features of this text. The examples are detailed, carefully selected and a number of examples that show FEM applications are included in this text.
- Strong coverage of FEM's mathematical foundations.
- Comprehensive coverage of material from general field problems as well heat transfer, fluid mechanics, and solid and structural mechanics (bars, beams, frames, plane elasticity and plate bending).
- The text includes a variety of problems including some for hand calculation, some to be solved using the computer, and others of the class project variety, which can be done with commercial FEM packages if the professor so chooses. The problems are a major feature of this text.

CONTENTS

1 Introduction / 2 Mathematical Preliminaries, Integral Formulations, and Variational Methods / 3 Second-order Differential Equations in One Dimension: Finite Element Models / 4 Second-order Differential Equations in One Dimension: Applications / 5 Beams and Frames / 6 Eigenvalue and Time-Dependent Problems / 7 Computer Implementation / 8 Single-Variable Problems in Two Dimensions / 9 Interpolation Functions, Numerical Integration, and Modeling Considerations / 10 Flows of Viscous Incompressible Fluids / 11 Plane Elasticity / 12 Bending of Elastic Plates / 13 Computer Implementation of Two-Dimensional Problems / 14 Prelude to Advanced Topics

INTERMEDIATE/ADVANCED DYNAMICS

Analytical Dynamics

Haim Baruh, Rutgers University–New Brunswick

1999 / Hardcover / 744 pgs / ISBN 0-07-365977-0

Analytical Dynamics presents a fair and balanced description of dynamics problems and formulations. From the classical methods to the newer techniques used in today's complex and multibody environments, this text shows how those approaches complement each other. The text begins by introducing the reader to the basic concepts in mechanics. These concepts are introduced at the particle mechanics level. The text then extends these concepts to systems of particles, rigid bodies (plane motion and 3D), and lightly flexible bodies. The cornerstone variational principles of mechanics are developed and they are applied to particles, rigid bodies, and deformable bodies. Through this approach, students are exposed to a natural flow of the concepts used in dynamics.

CONTENTS

1 Introduction / 2 Basic Principles / 3 Relative Motion / 4 Dynamics of a System of Particles / 5 Analytical Mechanics: Basic Concepts / 6 Analytical Mechanics: Additional Concepts / 7 Rigid-Body Geometry / 8 Rigid Body Kinematics / 9 Rigid Body Dynamics: Basic Concepts / 10 Rigid Body Dynamics: Advanced Concepts / 11 Qualitative Analysis of Rigid Body Motion / 12 Dynamics of Lightly Flexible Bodies / Appendices / A History of Mechanics / B Concepts from the Calculus of Variations / C Common Mass Moments of Inertia

SUPPLEMENT

Instructor's Solutions Manual

STRESS ANALYSIS

Advanced Strength and Applied Stress Analysis, 2E

Richard Budynas, Rochester Institute of Technology

1999 / Hardcover / 960 pgs / ISBN 0-07-008985-X

This book provides a broad and comprehensive coverage of the theoretical, experimental, and numerical techniques employed in the field of stress analysis. Designed to provide a clear transition from the topics of elementary to advanced mechanics of materials. Its broad range of coverage allows instructors to easily select many different topics for use in one or more courses. The highly readable writing style and mathematical clarity of the first edition are continued in this edition. Major revisions in this edition include: an expanded coverage of three-dimensional stress/strain transformations; additional topics from the theory of elasticity; examples and problems which test the mastery of the

prerequisite elementary topics; clarified and additional topics from advanced mechanics of materials; new sections on fracture mechanics and structural stability; a completely rewritten chapter on the finite element method; a new chapter on finite element modeling techniques employed in practice when using commercial FEM software; and a significant increase in the number of end of chapter exercise problems some of which are oriented towards computer applications.

CONTENTS
1 Basic Concepts of Force, Stress, Strain, and Displacement / 2 Stress and Strain. Transformations, Equilibrium, and Compatibility / 3 Fundamental Formulations of Stress, Strain, and Deflection / 4 Concepts from the Theory of Elasticity / 5 Topics from Advanced Mechanics of Materials / 6 Energy Techniques in Stress Analysis / 7 Strength Theories and Design Methods / 8 Experimental Stress Analysis / 9 Introduction to the Finite Element Method / 10 Finite Element Modeling Techniques / Appendices / A Si and USCU Conversions / B Properties of Cross Sections / C Beams in Bending / D Singularity Functions / E Principal Second-Area Moments / F Stress Concentration Factors / G Strain Gage Rosette Equations / H Corrections for Transverse Sensitivity of Strain Gages / I Matrix Algebra and Cartesian Tensors

SUPPLEMENT
Instructor's Solutions Manual

Roark's Formulas for Stress and Strain, 7E

Warren C. Young, University of Wisconsin at Madison
Richard Budynas, Rochester Institute of Technology

2002 / Hardcover / 832 pgs / ISBN 0-07-072542-X

McGraw-Hill Professional

Now updated with 30% new material: the ultimate resource for designers, engineers, and analyst working with calculations of loads and stress. This landmark reference continues its tradition of presenting equations and diagrams of structural properties—all in an easy-to-use, thumb-through format. New to this edition: expanded coverage of joints, bearing and shear stress, experimental stress analysis, and stress concentrations, plus material behavior coverage and stress and strain measurement. Now includes expanded tables and cases; improved notations and figures in the tables; consistent table and equation numbering; verification of correction factors. Features a solutions-based approach to quick calculations in structural element design and analysis.

CONTENTS
Part 1: Introduction / 1 Introduction/ **Part 2: Facts; Principles; Methods** / 2 Stress and Strain: Important Relationships / 3 The Behavior of Bodies Under Stress / 4 Principles and Analytical Methods / 5 Numerical Methods / 6 Experimental Methods/ **Part 3: Formulas and Examples** / 7 Tension, Compression, Shear, and Combined Stress / 8 Beams; Flexure of Straight Bars / 9 Bending of Curved Beams / 10 Torsion / 11 Flat Plates / 12 Columns and Other Compression Members / 13 Shells of Revolution; Pressure Vessels; Pipes / 14 Bodies in Contact Undergoing Direct Bearing and Shear Stress / 15 Elastic Stability / 16 Dynamic and Temperature Stresses / 17 Stress Concentration Factors / Appendices / A: Properties of a Plane Area / B: Glossary: Definitions / C: Composite Materials / Name Index / Subject Index

B.E.S.T. SERIES FOR FRESHMAN/ GENERAL ENGINEERING

Engineering Fundamentals and Problem Solving, 5E

New Edition

Arvid R. Eide
Roland Jenison
Larry L. Northup
Steven Mickelson
all of Iowa State University

2008 / Hardcover / 576 pgs / ISBN 0-07-319158-2

Browse http://www.mhhe.com/best

The fifth edition of *Engineering Fundamentals & Problem Solving* is written to motivate engineering students during their first year. Students will develop the skills in solving open-ended problems, this text will provide students with experience in solving problems in SI and customary units while presenting solutions in a logical manner. Eide introduces students to subject areas that are common to engineering disciplines that require the application of fundamental engineering concepts.

For those instructors who desire a shorter text to complement other application specific texts, McGraw-Hill offers cutomization through our Primis-Build a Book, or the BEST version of this text. Please see Eide's Introduction to Engineering Design and Problem Solving, 2nd edition, from the BEST series. Getting familiar to what engineering is and what you need to be a successful engineer.

NEW TO THIS EDITION

- Shows engineering students what engineering is and what it's like to become an engineer. Deals with problems that students would be expecting to see within an engineering curriculmn.
- Updated to include coverage of bioengineering, nanotechnology, and engineering materials.
- Focus on assessment.
- Updated to include a discussion of workplace competencies, key actions, and self-assessment to help prepare students for the workplace and to help develop learning portfolios.

FEATURES

- Focus on open-ended problems.
- Focus on problem solving.

PRELIMINARY CONTENTS

1 The Engineering Profession / 2 Engineering Design—A Process / 3 Engineering Solutions / 4 Representation of Technical Information / 5 Engineering Estimations and Approximations / 6 Dimensions, Units, and Conversions / 7 Preparation for Computer Solutions / 8 Statistics / 9 Mechanics / 10 Material Balance / 11 Electrical Theory / 1 2 Energy / 13 Engineering Economics / Appendices / A Selected Topics from Algebra / B Trigonometry / C Graphics / D General / E Plane Surfaces

Pocket Book of Technical Writing for Engineers & Scientists, 3E

Leo Finkelstein, Wright State University-Dayton

2008 / Softcover / 400 pgs / ISBN 0-07-319159-0

Browse http://www.mhhe.com/best

New Edition

The focus of this text is to teach engineering students the skill of technical writing. The book is unique in that it gets to the point, uses practical outlines throughout, and shows students how to produce the most common technical documents step-by-step, in a manner that is fun and interesting to students. With ABET increasing the emphasis on technical writing, this affordable, straightforward, easy-to-understand text with flexible coverage, would be a perfect fit for your technical writing course. Each chapter has an end of chapter critique, which allows students to implement what they have learned in the chapter. This is new!

NEW TO THIS EDITION

- New chapter on Business Communications.
- Updated information in the Electronic Publishing chapter.
- Updated grammar chapter with new exercises; a new section on punctuation errors, including a useful table on punctuation.
- Exercises that encourage students to apply what they've learned in a chapter, along with the chapter's checklist, to critique an example document.
- Added discussion of equations and formulas, including examples, and added discussion of Gantt charts, including illustrations, in the Visuals chapter.
- Updated examples of technical documents, touching on a broad range of engineering disciples and interest.
- Updated Visuals chapter along with new exercises.

CONTENTS

1 Introduction / 2 Ethical Considerations / 3 Technical Definition / 4 Descriptions of a Mechanism / 5 Descriptions of a Process / 6 Proposals / 7 Progress Reports / 8 Feasibility and Recommendation Reports / 9 Laboratory and Project Reports / 10 Instructions and Manuals / 11 Research Reports / 12 Abstracts and Summaries / 13 Grammar, Style, and Punctuation / 14 Documentation / 15 Visuals / 16 Electronic Publishing / 17 Presentations and Briefings / 18 B usiness Communications / 19 Resumes, Cover Letters, and Interviews / 20 Team Writing / Index

Fortran 95/2003 for Scientists & Engineers, 3E

New Edition

Stephen J. Chapman, BAE SYSTEMS Australia

2008 / Softcover / 912 pgs / ISBN 0-07-319157-4

Browse http://www.mhhe.com/chapman3e

Chapman's *Fortran for Scientists and Engineers* is intended for both first year engineering students and practicing engineers. It simultaneously teaches the Fortran 95/2003 programming language, structured programming techniques, and good programming practice. Among its strengths are its concise, clear explanations of Fortran syntax and programming procedures, the inclusion of a wealth of examples and exercises to help students grasp difficult concepts, and its explanations about how to understand code written for older versions of Fortran. We are the most current Fortran book in the market.

NEW TO THIS EDITION

- Text has been revised to include the latest updates in response to the release of FORTRAN 2003.
- A new chapter, *Object-Oriented Programming in Fortran* has been added.

FEATURES

- Clear explanations of FORTRAN syntax and programming procedures
- Discusses changes that have been implemented since FORTRAN 77
- Top-Down design methodology and procedures
- Programming practice summaries and FORTRAN statement summaries at the end of each chapter.

CONTENTS

1 Introduction to Computers and the Fortran Language / 2 Basic Elements of Fortran / 3 Program Design and Branching Structures / 4 Loops and Character Manipulation / 5 Basic I/O Concepts / 6 Introduction to Arrays / 7 Introduction to Procedures / 8 Additional Features of Arrays / 9 Additional Features of Procedures / 10 More about Character Variables / 11 Additional Intrinsic Data Types / 12 Derived Data Types / 13 Advanced Features of Procedures and Modules / 14 Advanced I/O Concepts / 15 Pointers and Dynamic Data Structures / 16 Object-Oriented Programming in Fortran / 17 Redundant, Obsolescent, and Deleted Fortran Features / Appendices / A ASCII and EBCDIC Coding Systems / B Fortran 95/2003 Intrinsic Procedures / C Order of Statements in a Fortran 95/2003 Program / D Glossary / E Answers to Quizzes

TECHNOLOGY VENTURES: From Idea to Enterprise with Student DVD, 2E

New Edition

Richard C. Dorf, ***University of California-Davis***
Thomas H. Byers, ***Stanford University***

2008 / Hardcover with DVD / 704 pages / ISBN 0-07-329442-X

Technology Ventures is the first textbook to thoroughly examine a global phenomenon known as "technology entrepreneurship". Now in its second edition, this book integrates the most valuable entrepreneurship and technology management theories from some of the world's leading scholars and educators with current examples of new technologies and an extensive suite of media resources.

Dorf and Byers's comprehensive collection of action-oriented concepts and applications provides both students and professionals with the tools necessary for success in starting and growing a technology enterprise. *Technology Ventures* details the critical differences between scientific ideas and true business opportunities.

NEW TO THIS EDITION

- Concise case studies and boxed examples throughout the book have been updated and expanded to highlight the most current technologies and include international ventures.
- A new chapter focused on the business plan includes a business planning "roadmap" and is supplemented by numerous online resources.
- A new student DVD is packaged with the text and features video anecdotes from well-known technology entrepreneurs. "See DVD" icons are marked in the text to allow for easy referencing between print and virtual resources.
- An updated suite of web resources includes a book-specific website featuring additional videos, case studies, and sample syllabi as well as a password-protected instructor's site with lecture powerpoints and a solutions manual
- An updated design and art program give the text a more engaging look and feel.

FEATURES

- A running case study (on AGRAQUEST, a bio-technology firm) is blended into all chapters of the text.
- The book focuses specifically on technology-based ventures (both start-ups and initiatives within existing companies), and emphasizes the role of the team in the entrepreneurial process.

CONTENTS

MATHCAD: A Tool for Engineers and Scientists (B.E.S.T. Series), 2E

New Edition

Philip J. Pritchard, ***Manhattan College***

2008 / Softcover / 352 pgs / ISBN 0-07-319185-X

Browse http://www.mhhe.com/best

Mathcad: A Tool for Engineering Problem Solving explains how to use Mathcad 13 (Student and Standard), This book is current with the latest release of mathcad, with the focus on the fundamentals, is enriched with great motivating applications, solid homework problems, appealing to both engineers and scientists.

NEW TO THIS EDITION

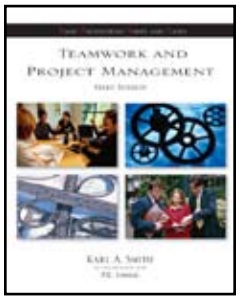
- Examples updated to Mathcad 13, which is the most current version.
- Examples and homework problems updated to account for a broader range of engineering disciplines, in addition to mechanical and electrical, to include: civil, chemical, and environmental engineering.
- Pedagogy updated to be more student-friendly, including new beginning sections at the start of each chapter that spell out specific features to be covered, new end-of-chapter summaries, and the addition of tables and boxes where appropriate that will reduce the amount of math theory in the text.
- Examples and applications related to the sciences.

FEATURES

- Features of Mathcad are immediately followed by engineering examples.

CONTENTS

Teamwork and Project Management, 3E



Karl A. Smith, ***University of Minnesota-Minneapolis***

in collaboration with
P.K. Imbrie, ***Purdue University-West Lafayette***

2007 / Softcover / 144 pgs / ISBN 0-07-310367-5

Teamwork, projects, collaborative problem solving, innovation, and creativity are central to success in engineering, especially in the increasingly global economy. The overall goal of *Teamwork and Project Management*, Third Edition is to prepare you for these aspects of professional practice in engineering. The approach involves engaging you in activity, reflection, and collaboration to build your knowledge and skills.

Specific goals for readers of *Teamwork and Project Management*, Third Edition include:

- To understand the professional skills aspects of engineering and their role in modern engineering practice.
- To understand the dynamics of team development and interpersonal problem solving.
- To identify strategies for accelerating the development of high-performance teamwork.
- To understand the critical dimensions of project scope, time, cost management, as well as the role of the customer or client.
- To understand and be able to apply the critical technical and professional competencies in project management.
- To explore a variety of best practices including anticipating, preventing, and overcoming barriers to project success.

NEW TO THIS EDITION

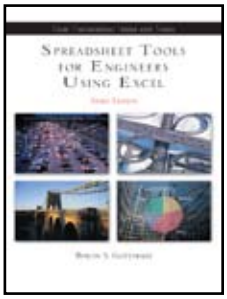
- New material on teamwork and project management in an international context.
- Increased emphasis on the role of teams in the areas of design, innovation, and creativity.
- Interactive features, including individual and team reflective exercises.
- Updates to reflect the changing landscape of engineering teamwork and project management: this includes an expansion of the topic of teamwork; added examples that are industry or engineering related; the inclusion of team functioning; the inclusion of materials from PMI's *Project Management Body of Knowledge* third edition; updates based on research presented in Tenopir and King's *Communication Patterns of Engineering* (2004); the addition of reflective essays on stories (narrative), commencement, and the role of the arts and humanities.

FEATURES

- This unique text describes the understanding of how to work in teams and explains why this is the most important and practical skill one can have in order to succeed in and beyond the classroom.
- Cases and vignettes from actual student group projects and problems provide a context for text material and provoke critical thinking.

CONTENTS
1 Teamwork and Project Management in Engineering / 2 Teamwork / **Emerging Ideas** / 3 Teamwork Skills and Problem Solving / 4 Project Management Principles and Practices / 5 The Project Manager's Role / 6 Project Scheduling / 7 Project Monitoring and Evaluation / 8 Project Management Documentation and Communications / 9 Project Management Software / **Personal Data Assistants** / 10 Where to Go from Here

Spreadsheet Tools for Engineers Using Excel, 3E



Byron S. Gottfried, University of Pittsburgh-Pittsburgh

2007 / Softcover / 512 pgs / ISBN 0-07-297184-3

www.mhhe.com/gottfried3e

This practical text has found a permanent spot in many introductory engineering courses by successfully combining an introduction to Excel fundamentals with a clear presentation on how Excel can be used to solve common engineering problems. The third edition provides beginning engineering students with a strong foundation in problem solving using Excel as the modern day equivalent of the sliderule.

As part of McGraw-Hill's BEST series for freshman engineering curricula, this text is particularly geared toward introductory students. The author provides plenty of background information on technical terms, and numerous examples illustrating both traditional and spreadsheet solutions for a variety of engineering problems. The first three chapters introduce the basics of problem solving and Excel fundamentals. Beyond that, the chapters are largely independent of one another. Topics covered include graphing data, converting units, analyzing data, interpolation and curve fitting, solving equations, evaluating integrals, writing macros, and comparing economic alternatives.

NEW TO THIS EDITION

- Many new passages have been rewritten throughout the text to enhance clarity.
- Each chapter has been rearranged so that the underlying basic ideas always precede the Excel implementation.
- Many new problems and examples have been added throughout the text.
- A separate chapter on macros has been added.
- A brief appendix summarizing Excel functions commonly used for engineering applications now appears.
- Text provides background information on technical terms, and numerous examples illustrating both traditional and spreadsheet solutions to a variety of engineering problems.
- Descriptive captions accompany all figures and tables.

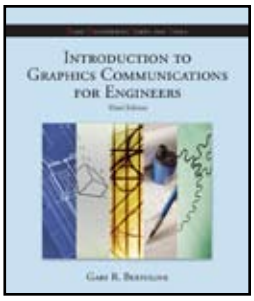
FEATURES

- Successfully combines an introduction to the fundamentals of Excel with a clear presentation of Engineering problem solving methodology that is compatible with all recent version of Excel.
- Contains a wealth of technical analysis geared toward introductory-level students and plenty of background information on what the technical terms mean or are based upon.

CONTENTS

Excel Fundamentals / Engineering Analysis and Spreadsheets / Creating an Excel Worksheet / Editing an Excel Worksheet / Graphing Data / Organizing Data / Transferring Data / **Engineering Applications** / Converting Units / Analyzing Data / Fitting Equations to Data (including linear interpolation) / Solving Single Equations / Solving Simultaneous Equations / Evaluating Integrals / Making Logical Decisions / Writing Macros / Comparing Economic Alternatives / Finding Optimum Solutions / Appendix: Excel Functions / Answers to Selected Problems / Index

Introduction to Graphics Communications for Engineers (B.E.S.T. Series), 3E



Gary Robert Bertoline, Purdue University–West Lafayette

2006 / Softcover / 256 pgs / ISBN 0-07-304836-4

Browse http://www.mhhe.com/bertoline

Introduction to Graphics Communications for Engineers, Third Edition, introduces engineering students to the standard practices used by engineers to communicate graphically. The primary goal of this text is to assist engineering students in learning the techniques and standards of communicating graphically so that design ideas can be clearly communicated and produced. The text concentrates on the concepts and skills needed to sketch and create 2-D and 3-D CAD models.

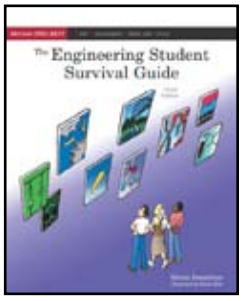
FEATURES

- Pedagogically sound, this book provides a list of objectives at the beginning of each chapter, step-by-step instructions on how to draw, and a wide assortment of problems that can be assigned to reinforce topics covered.
- Sketching worksheets are integrated into the end of each chapter. These worksheets are excellent for sketching assignments, used to augment CAD work.

CONTENTS

1 Introduction to Graphics Communications / 2 Sketching and Text / 3 Section and Auxiliary Views / 4 Dimensioning and Tolerancing Practices / 5 Reading and Constructing Working Drawings / 6 Design and 3-D Modeling

Engineering Student Survival Guide (B.E.S.T. Series), 3E



Krista Donaldson, Stanford University

2005 / Softcover / 205 pgs / ISBN 0-07-301925-9

Browse http://http://highered.mcgraw-hill.com/sites/0072868902/

The third edition of this wildly successful text provides information and strategies for engineering students to get the most out of their college education. From freshman orientation to senior year and beyond, this book covers topics pertinent and unique to all engineering students.

NEW TO THIS EDITION

- Original cartoons enhance the text's content and increase the student-friendly tone.
- Expanded information for minority students, particularly foreign students and students with disabilities.
- Considerations for students taking a web-based class.
- What to expect (and how to survive) a team project: forming, storming, "norming" and performing.
- Expanded material on writing for engineerings including online resources escpecially for techies.
- Updated and pertinent information on the FE exam, GRE, salaries, engineering statistics, and more.
- The website for the book, http://www.mhhe.com/engcs/general/donaldson includes updated versions of the design project database for instructors, and updated versions of the College Preparation section, website links and homework ideas for students.

FEATURES

- Discussion of emerging engineering fields and inclusion of group work in this edition keep the book on the cutting edge.
- Written in a humorous, student-friendly tone.
- Concrete, time-tested survival tips and strategies are provided for the engineering student.
- Boxed personal essays from many professionals are included for a real-world perspective.
- Comprehensive appendices provide contact information for engineering, special interest, and honor societies, as well as material for creating a resume.
- Customize this book through Primis Online! Browse www.primiscontentcenter.com.

CONTENTS
1 Let's Take a Shot at Defining Success / 2 Covering Your Bases / 3 The Undergrad Engineering Experience / 4 Choosing a Major and Selecting Classes / 5 In Class—More to Staying Awake than Taking Notes? / 6 Outside the Classroom—Workload and Studying / 7 Quizzes, Tests, and Exams / 8 A Crash Course in Engineering / 9 When the Going Gets Tough...Dealing with Ruts and Unmarked Pitfalls / 10 Balancing It All / 11 Beyond the Bachelor's Degree—Things to Think about Midway Through

Pocket Book of English Grammar for Engineers and Scientists

Leo Finkelstein, Wright State University-Dayton

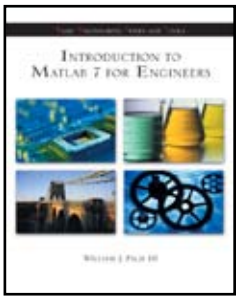
2006 / Softcover / 176 pgs / ISBN 0-07-352946-X

Pocket Book of English Grammar for Engineers and Scientists is geared specifically to the needs of engineering and science practitioners and students, although it is also appropriate for anyone doing technical or business writing. The book is unique among grammar manuals not only because of its straightforward, simplified organizational structure, but also because of its use of innovative tools and examples.

FEATURES
- Sensible Organization. An overall structure organized around the eight parts of speech—which is exactly how the English language is organized.
- Focus on Fundamentals. A comprehensive treatment of the most important fundamentals of English grammar in a condensed, usable form; it has the quick answers that time-challenged people need.
- Engineering and Science Related Examples. A rich collection of examples and illustrations that relate directly to engineering and science topics.
- Innovative Learning Tools. Clear models and explanations keyed to diagrams, tables, and flow charts, which provide a very effective, visual approach.
- Accessible Format. Extensive indexing and cross-referencing throughout the book to provide easy access to the information required.
- Standalone Glossary. A comprehensive glossary with its own dedicated examples and explanations apart from the rest of the book. The glossary is the perfect starting point for those who are seeking quick explanations for pressing grammar issues.
- For expanded coverage of technical writing, take a look at Leo Finkelstein, Jr.'s other book, Pocket Book of Technical Writing for Engineers and Scientists, 2e, ISBN 0-07-297683-7.

CONTENTS
1 Introduction / 1.1 Importance of grammar / 1.2 Parts of speech / 1.3 Grammar and English as a second language / 1.4 Sentence structure/ 2 Nouns / 2.1 Definition and functions / 2.2 Number / 2.3 Type / 2.4 Case / 2.5 Gender / 2.6 Offensive nouns / 2.7 Appositives / 2.8 Noun clauses/ 3 Pronouns / 3.1 Definition and functions / 3.2 Types of pronouns/ 4 Adjectives / 4.1 Definition and functions / 4.2 Classes of adjectives / 4.3 Articles and other determiners / 4.4 Adjectival clauses / 4.5 Levels of comparison for adjectives/ 5 Verbs / 5.1 Definition and function / 5.2 Tense / 5.3 Person and number / 5.4 Irregular verbs / 5.5 Form and voice / 5.6 Mood/ 6 Adverbs / 6.1 Adverbials / 6.2 Levels of comparison for adverbs / 6.3 Compound and absolute verbs / 6.4 Placement of adverbs / 6.5 Transitional phrases and adverbial conjuctions/ 7 Prepositions / 7.1 Uses of prepositional phrases / 7.2 Prepositions as a part of two-word verbs/ 8 Conjunctions / 8.1 Coordinating conjunctions / 8.2 Correlative conjunctions / 8.3 Subordinating conjunctions / 8.4 Adverbial conjunctions/ 9 Interjections / 10 Punctuation / 10.1 Apostrophe / 10.2 Brackets / 10.3 Colon / 10.4 Comma / 10.5 Dash / 10.6 Ellipsis / 10.7 Exclamation point / 10.8 Hyphen / 10.9 Parentheses / 10.10 Period / 10.11 Question mark / 10.12 Quotation marks / 10.13 Semicolon / 10.14 Slash/ 11 Final Thoughts / 12 Glossary

Introduction to MATLAB® 7 for Engineers, 2E



William J. Palm III

2005 / Softcover with coupon / 696 pgs / ISBN 0-07-292242-7

The web site contains power point slides, Appendix E: Some Project Suggestions, and complete solutions to all of the Test Your Understanding exercises and all the chapter problems. (Browse http://www.mhhe.com/palm)

This is a simple, concise book designed to be useful for beginners and to be kept as a reference. MATLAB® is presently a globally available standard computational tool for engineers and scientists. The terminology, syntax, and the use of the programming language are well defined and the organization of the material makes it easy to locate information and navigate through the textbook. The text covers all the major capabilities of MATLAB® that are useful for beginning students. An instructor's manual and other web resources are available.

NEW TO THIS EDITION
- Expanded coverage of programming now includes structured programming and logical variables.
- Function handles, anonymous functions, subfunctions, and nested functions are now treated.
- Coverage of Simulink® has been expanded to a separate chapter in light of its growing popularity.
- A new Appendix B contains an introduction to producing animation and sound with MATLAB®.

FEATURES
- The text is written for freshman engineering students and uses mathematics appropriate for this level.
- Numerous examples and homework problems drawn from all the fields of engineering.
- Students can use the text as a reference in later courses because it contains many tables that summarize the MATLAB® commands.

CONTENTS
1 An Overview of MATLAB® / 2 Numeric, Cell, and Structure Arrays / 3 Functions and Files / 4 Programming with MATLAB® / 5 Advanced Plotting and Model Building / 6 Linear Algebraic Equations / 7 Probability, Statistics, and Interpolation / 8 Numerical Calculus and Differential Equations / 9 Simulink / 10 Symbolic Processing with MATLAB® / Appendices / A Guide to Commands and Functions in this Text / B Animation and Sound in MATLAB® / C Formatted Output in MATLAB® / D References / E Some Project Suggestions (Online) / Answers to Selected Problems

Ethics in Engineering, 4E

Mike W. Martin, Chapman University–F E Warren AFB
Roland Schinzinger, University of California–Irvine

2005 / Softcover / 352 pgs / ISBN 0-07-283115-4

The BEST website includes links to other titles in the BEST series. (Browse http://www.mhhe.com/engcs/general/best)

Now in its fourth edition, Martin and Schinzinger's *Ethics in Engineering* provides an introduction to the key issues in engineering ethics, taking account of both specific organizational contexts and broader technological trends. Current and thorough, it promotes critical thinking and discussion about moral and ethical issues that engineers face. The up-to-date content provides real world examples and cases and, by offering a framework for understanding ethical dilemmas within engineering, prepares readers for issues they will confront in their careers.

NEW TO THIS EDITION
- Chapters 1-3, and 6-10 have either been extensively updated or are entirely new. Fuller discussion is provided on moral reasoning, codes of ethics, personal commitments in engineering, environmental ethics, honesty and research ethics, as well as the philosophy of technology.
- The book provides the important connections between the choices made by individuals and corporations with broader social concerns. This helps the reader get a better sense of the "big picture."
- Each chapter ends with a list of "Key Concepts" to help reinforce the preceding material. The appendix contains additional pedagogical resources, as well as sample codes of ethics, to give additional real-world perspective to the reader. In addition, ample Study Questions are provided at the end of each section.
- Updated case studies are provided throughout the book to further support the concepts presented.

FEATURES
- Most competing texts consist of readings only. This text contains more textbook material, making the text relevant to both students and professionals.

CONTENTS
1 Ethics and Professionalism / 2 Moral Reasoning and Codes of Ethics / 3 Moral Frameworks / 4 Engineering as Social Experimentation / 5 Commitment to Safety / 6 Workplace Responsibilities and Rights / 7 Honesty / 8 Environmental Ethics / 9 Global Issues / 10 Engineers and Technological Progress / Appendices / A General Resources on Engineering Ethics / B Codes of Ethics: NSPE, ABET, IEEE, AICHE, ASCE, ASME

I-DEAS Student Guide, 2E

SDRC

2004 / Softcover / 480 pgs / ISBN 0-07-252544-4

The *I-DEAS Student Guide Revised Edition*—created by Mark Lawry—provides the "big picture" of the powerful EDS software product I-DEAS, and shows its use as an integrated CAD/CAM environment for concurrent engineering. The book provides a quick technical introduction to I-DEAS, including the new I-DEAS version 10, and is ideal for users who want to learn other capabilities of the software. Numerous screen captures provide a visual parallel to the explanations given in the text.

The Student Guide covers basic commands and procedures, in a format that makes for convenient reference. The chapter-ending section includes a series of Tutorials that demonstrate basic concepts in a hands-on way. Workshop sections follow the Tutorials, and allow users to apply their knowledge in a design context.

The Appendix of the book includes an Icon Summary list, a section on Advanced Features and Interfaces, and a practical Troubleshooting Reference. The Index is set up to further increase the reference value of the Student Guide.

NEW TO THIS EDITION

- Up-to-date coverage of the professional versions 9 and 10 of I-DEAS.

FEATURES

- The Student Guide uses a tutorial approach to presenting I-DEAS.
- The Student Guide provides an easy, affordable reference of I-DEAS commands and procedures.
- The Student Guide will contain appendices that cover Advanced Features, Icon Summary, and Trouble-Shooting Reference.

CONTENTS

Foundations of Engineering, 2E

Mark T. Holtzapple, Texas A & M University–College Station
W. Dan Reece, Texas A & M University–College Station

2003 / Hardcover / 752 pgs / ISBN 0-07-248082-3

www.mhhe.com/holtzapple

This book gives freshman engineering students a solid foundation for all their future coursework. It provides an overview to the engineering profession, an introduction to the skills they will need to develop, as well as to fundamental engineering topics such as thermodynamics, rate processes, and Newton's laws. An important aspect of the book's approach is the method of Engineering Accounting, which casts the basic conservation laws (e.g., of energy or mass) as simple "accounting" procedures. This is a unifying concept that facilitates problem-solving across all engineering disciplines.

FEATURES

- A new chapter, Introduction to Electricity, has been added in response to reviewer requests for more electrical engineering coverage.
- A glossary at the end of every chapter has been added.
- References to Holtzapple's web-based Math Supplement (at www.mhhe.com/holtzapple) have been added to places in the text where students may need to review their high school math to understand a new concept.
- Teaches students how to develop important problem solving skills by describing both creative and systematic approaches to deciphering problems.
- Advanced topics are integrated throughout the book to stimulate and challenge freshman engineering students.
- Introduces engineering design using simple problems that can be solved with qualitative information. More advanced design problems are later included to demonstrate the practical application of engineering, science, and mathematics.

CONTENTS

Introduction to Engineering Design and Problem Solving, 2E

Arvid R. Eide, Iowa State University
Roland D. Jenison, Iowa State University
Lane H. Mashaw, Iowa State University
Larry L. Northup, Iowa State University

2002 / Softcover / 240 pgs / ISBN 0-07-240221-0

www.mhhe.com/engcs/general/best

The book is conveniently divided into two major sections. The first, an introduction to engineering, begins with a description and breakdown of the enginering profession. Material concerning most disciplines in engineering is included in this section. Engineering design is also introduced in this section, providing an opportunity to investigate the "essence of engineering" in a holistic manner. The second major section, processing engineering data, includes the essentials required in preparing for any engineering curriculum. It covers, for example, problem-solving procedures (including solving open-ended problems), engineering estimations, dimensions, and units (including both customary and SI units).

CONTENTS

Introduction to Engineering Ethics

Roland Schinzinger, University of California–Irvine
Mike Martin, Chapman University–F E Warren AFB

2000 / Softcover / 272 pgs / ISBN 0-07-233959-4

Introduction to Engineering Ethics provides the background for discussion of the basic issues in engineering ethics. Emphasis is given to the moral problems engineers face in the corporate setting. It places those issues within a philosophical framework, and it seems to exhibit both their social importance and their intellectual challenge. The primary goal is to stimulate critical and responsible reflection on moral issues surrounding engineering practice and to provide the conceptual tools necessary for pursuing those issues.

As per ABET guidelines, more and more introductory engineering courses cover engineering ethics as part of their instruction. Students preparing to function within the engineering profession need to be introduced to the basic issues in engineering ethics. This book places those issues within a wider philosophical framework than has been customary in the past and aims to stimulate critical and responsible reflection on the moral issues surrounding engineering practice and to provide the conceptual tools necessary for pursuing those issues.

CONTENTS

C Programming for Engineering and Computer Science (B.E.S.T. Series)

H.H. Andrew Tan, Morrison Knudsen Corporation
Tim B. D'Orazio, San Francisco State University

1999 / Softcover with disk / 600 pgs / ISBN 0-07-913678-8

Browse http://highered.mcgraw-hill.com/sites/0079136788

This book was developed to address the difficulty beginning students often find reading computer language texts. Tan and D'Orazio aim to make the process of learning a first language easier and fun, by involving readers in their text, holding their interest, and getting them to think about the meaning and uses of C code. The authors accomplish this goal by using a question and answer style, where the reader's thought processes are stimulated by the same questions about code that students themselves often ask. Tan and D'Orazio answer these questions clearly and directly, focusing the reader's attention on the important issues of C programming.

FEATURES

- Thorough coverage of C code guides students through a fluent understanding of the language.
- Three-dimensional graphics offer a clear presentation of program control.
- Detailed description of application examples help develop the thought process in program development.
- Introduction to C++ in chapter 9 prepares students for learning this important language in the future.
- Detailed tips about debugging and common errors are provided.
- Example programs contained on disk are packaged with the book.

CONTENTS

1 Computers and Computing Fundamentals / 2 Getting Started—Program Structure, Printing, and Comments / 3 The Basics of C—Variables, Arithmetic Operations, Math Functions, and Input/Output / 4 Beginning Decision Making and Looping / 5 Functions / 6 Numeric Arrays / 7 Strings and Pointers / 8 Data Structures and Large Program Design / 9 Introduction to C++

SUPPLEMENT

Instructor's Solutions Manual

A Beginner's Guide to Technical Communication (B.E.S.T. Series)

Anne Eisenberg, Polytechnic University

1998 / Hardcover / 112 pgs / ISBN 0-07-092045-1

Browse http://www.mhhe.com/engcs/general/best

A Beginner's Guide to Technical Communication is designed to help the student learn how to think through, organize, write, and revise assignments for his or her Freshmen Engineering class, or for any other course that requires scientific or technical reports. All of the examples are patterned on actual witting done in first-year engineering classes.

This book has three parts: chapters to read *before you write*; chapters to read *while you write*; and chapters to read *after you write*.

FEATURES

- Designed to help students learn how to think through, organize, write and revise scientific or technical reports.
- All examples are patterned on actual writing done in first year engineering classes.
- Available as a customized title on the McGraw-Hill Primis Database. Build the perfect book for your course via Primis.

CONTENTS

I Before You Write / 1 The Logical Structure of Technical Reports-Section by Section / 2 Coherence in Longer Reports/ **II While You Write** / 3 Strategies: Ways to use Teamwork, Laboratory Notebooks, and Report Format to Help With the Writing Process/ **III After You Write** / 4 Editing for Style and Usage / 5 Editing for Grammar and Punctuation

INTRODUCTION/PROBLEM SOLVING

Concepts in Engineering, 2E

New Edition

Mark T. Holtzapple
W. Dan Reece
both with Texas A & M University

2008 / Hardcover / 288 pgs / ISBN 0-07-319162-0

Browse http://www.mhhe.com/best

The second edition of Holtzapple and Reece's widely popular text, *Concepts in Engineering*, introduces fundamental engineering concepts to freshman engineering students. Its central focus is to positively motivate students for the rest of their engineering education, as well as their future engineering. Due to the book's concise, yet comprehensive coverage, it can be used in a wide variety of introductory courses. Text is for students who are not sure if they want to be engineers and the book almost acts as a "hook."

NEW TO THIS EDITION

- Addition of new chapter, Preparing to Be an Engineer.
- The text gives students a well-rounded approach to engineering in addition to meeting ABET requirements for engineering students.

FEATURES

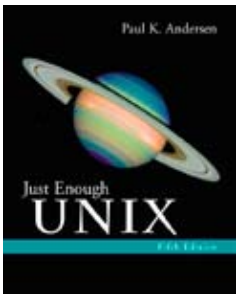
- Focuses on problem solving. A consistent method of problem solving is integrated into the book.
- Emphasizes design by including a design project.
- Excites students about engineering through providing interesting problems and focusing on the creative process of being an engineer.
- Focuses on the fundamentals and includes information that students are unlikely to find elsewhere. This text focuses on basic information—such as grammatical rules for the SI system and graphing rules—that starts engineering students off with just the right amount of "hard" content.

CONTENTS

1 Preparing to Be an Engineer / 2 The Engineer / 3 Engineering Ethics / 4 Problem Solving / 5 Introduction to Design / 6 Engineering Communications / 7 Numbers / 8 Tables and Graphs / 9 SI System of Units / 10 Unit Conversions / Appendices / Topic Index / Biographical Index

COMPUTING/PROGRAMMING

Just Enough UNIX, 5E



Paul K. Andersen, New Mexico State University-Las Cruces

2006 / Softcover / 608 pgs / ISBN 0-07-295297-0

Browse http://www.mhhe.com/andersen

Just Enough UNIX provides a quick and gentle introduction to the UNIX operating system. The fifth edition of this highly successful text reflects changes and updates to the UNIX curriculum that have taken place since the publication of the fourth edition. The book is written in a clear, straightforward style that avoids unnecessary jargon.

This short, yet comprehensive text covers the basics of UNIX. It can be used in both a freshman engineering course or to supplement other courses where the student needs to learn UNIX for the first time. The book is enhanced by strong pedagogical tools that will be very useful to those in the classroom, as well as those engaged in self-study.

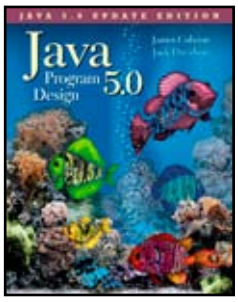
NEW TO THIS EDITION

- Key New Topics. The following topics are new in the fifth edition: computer and network security; Secure Shell (ssh) for remote computing; practical cryptography; scripting in awk; and scripting in Perl.
- New and revised chapters. There are several completely new chapters in the book—chapters 24 Computer Security, 25 Tutorial: Using SSH-1 26 Tutorial: Using SSH-2, 27 (Tutorial Encryption Using GPG, 32 (Scripting Languages), 33 Tutorial: Shell Scripting, 34 Tutorial: Scripting with awk, and 35 Tutorial: Scripting with Perl.
- Security. The fifth edition features expanded coverage of security issues, including the use of Secure Shell as a secure alternative to the traditional UNIX ?r-commands.?
- Organization. The book is divided into the following sections: Introduction to UNIX, UNIX File System, UNIX Shells, Text Editors, Networks, Computer Security, Startup Files, Scripting Languages, and Programming Languages. Each section opens with a descriptive concepts chapter followed by several tutorials that guide the new user step-by-step toward learning how UNIX works.
- Graphical Interfaces. The fifth edition maintains coverage of the CDE interface. The book continues the concept that the typical student is using the most current engineering workstation running the most current graphical user interface, including both one based on the X Window system and CDE.
- Text Editors. The reader will learn to create or modify UNIX files using text editors. The book covers the most popular UNIX editors, including vi, emacs, pico, and CDE Text Editor.
- Networking. The book has coverage of popular Internet and Web tools like ftp and CDE Mailer, including how to process E-mail.
- Pedagogy. The book offers a number of helpful pedagogical features: descriptive chapters, tutorials, marginal notes, sidebars, command summaries and exercises.
- Website. The expanded book website includes answers to exercises for instructors only, as well as PowerPoint slides and data files.

CONTENTS

Part I: Introduction to UNIX / 1 Introduction to UNIX / 2 Your UNIX Account / 3 Getting Started / 4 Tutorial: Getting Started (X/Motif) / 5 Tutorial: Getting Started (CDE) / **Part II: UNIX File System** / 6 The UNIX File System / 7 Tutorial: Working with Files / 8 Tutorial: Working with Directories / 9 Tutorial: Using File Manager / **Part III: UNIX Shells** / 10 UNIX Shells / 11 Tutorial: Working with the Shell / 12 Tutorial: Using Additional Shell Features / **Part IV: Text Editors** / 13 Text Editors / 14 Tutorial: Editing with vi / 15 Tutorial: Editing with emacs / 16 Tutorial: Editing with pico / 17 Tutorial: Editing with Text Editor / **Part V: Networking** / 18 Networking / 19 Tutorial: Using mail and mailx / 20 Tutorial: Processing Mail with pine / 21 Tutorial: Processing Mail with Mailer / 22 Tutorial: Logging in Remotely / 23 Tutorial: Transferring Files / **Part VI: Computer Security** / 24 Computer Security / 25 Tutorial: Remote Computing Using SSH-1 / 26 Tutorial: Remote Computing Using SSH-2 / 27 Tutorial: Encryption Using GPG / **Part VII: Startup Files** / 28 Startup Files / 29 Tutorial: Using sh & ksh Startup Files / 30 Tutorial: Using csh & tcsh Startup Files / 31 Tutorial: Using bash Startup Files / **Part VIII: Scripting Languages / 32 Scripting Languages** / 33 Tutorial: Shell Scripting / 34 Tutorial: Scripting with awk / 35 Tutorial: Scripting with Perl / **Part VIX: Programming Languages** / 36 Programming Languages / 37 Tutorial: Programming in C / 38 Tutorial: Programming in C++ / 39 Tutorial: Programming in Java / Appendices / A Taming Your Terminal / B The UNIX Manual / C Starting X and Motif / D Regular Expressions / E Formatted Output / F Using dbx / G Using make / H write and talk

Java 5.0 Program Design



James P. Cohoon
Jack W. Davidson
both with University of Virginia-Charlottesville

2006 / Softcover / 920 pgs / ISBN 0-07-325030-9

This site includes solutions, powerpoints, labs, source code, and more. (Browse http://www.mhhe.com/cohoon)

Java 5.0 Program Design is about the fundamentals of programming and software development using Java. It is targeted for a first programming course and has been designed to be appropriate for people from all disciplines. The authors assume no prior programming skills and use mathematics and science at a level appropriate to first-year college students. The breadth of coverage and the arrangement of the chapters provide flexibility for the instructor in what and when topics are introduced.

Key to *Java 5.0 Program Design* is an introduction to problem solving. The basics of problem-solving techniques are introduced in chapter one and then reinforced during the explanations of Java programming and design. In addition, software engineering design concepts are introduced via problem studies and software projects.

This updated version of *Java Program Design* takes advantage of the improvements to the language introduced with Java 5.0. The additions are especially important for beginning programmers because they help make program design and development a clearer and more straightforward process.

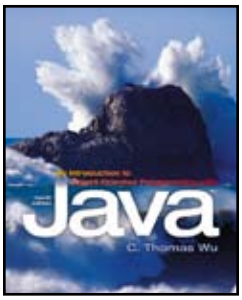
FEATURES

- Java is given broad coverage. The authors provide in-depth coverage of all materials that an introductory course would need, introduce much of the remaining material, and give pointers to the rest.
- Introduction to problem solving. The basics of problem-solving techniques are presented in chapter one, and each successive chapter contains a self-check section, an exercise section offering a variety of problems requiring a wide array of efforts, and one or more interesting case studies presented in a manner that makes it suitable as a class assignment.
- Classes are introduced early. Chapter one includes a gentle introduction to the object-oriented paradigm, and the next several chapters introduce standard Java classes and packages, and a limited number of objects. After this solid introduction, over 50 classes are demonstrated in the remaining chapters.
- Software-engineering design concepts are introduced via problem studies and software projects.
- Coverage of testing and debugging. Students learn various testing techniques (such as unit testing, integration testing, and code inspections), and sections on debugging teach students how to use the scientific method to find bugs.
- Programming and style tips are presented in boxes that clearly delineate this material from the main text. There are important tips on such things as avoiding common programming errors, writing readable code, performance, and software engineering.

CONTENTS

1 Background / 2 Java Basics / 3 Using Objects / 4 Being Classy / 5 Decisions / 6 Iteration / Graphics Interlude 1: GUI-Based Programming / 7 Programming with Methods and Classes / 8 Arrays and Collections / 9 Inheritance and Polymorphism / Graphics Interlude 2: GUI-Based Programming / 10 Exceptions / 11 Recursive Problem Solving / 12 Threads / 13 Testing and Debugging / Appendices / A Tables and Operators / B Number Representation / C Formatted I/O / D Applets / E Standard Java Packages

An Introduction to Object-Oriented Programming with Java, 4E



C. Thomas Wu (Otani), Naval Postgraduate School

2006 / Softcover / 976 pgs / ISBN 0-07-294652-0

Browse http://www.mhhe.com/wu

An Introduction to Object-Oriented Programming with Java provides an accessible and technically thorough introduction to the basics of programming using java. The fourth edition continues to take a truly object-oriented approach. Objects are used early so that students think in objects right from the beginning.

In the fourth edition, the coverage on defining classes has been made more accessible. The material has been broken down into smaller chunks and spread over two chapters, making it more student-friendly.

Also, new to this edition is the incorporation of Java 5.0 features, including use of the Scanner Class and the Formatter Class.

The hallmark feature of the book, Sample Development Programs, are continued in this edition. These provide students with an opportunity to incrementally, step by step, walk through program design, learning the fundamentals of software engineering.

Object diagrams, using a subset of UML, also continue to be an important element of Wu's approach. The consistent, visual approach assists students in understanding concepts.

NEW TO THIS EDITION

- New Java 5.0 features are incorporated into the text including two new classes, the Scanner Class for input and the Formatter class.
- The fourth edition contains many new examples geared toward being student-motivating and accessible.

- A Testbank is available to instructors, with questions that can be assigned as exam questions or homework.

FEATURES

- Objects are emphasized from the start, training students to think about programming in an object-oriented way.
- The fundamentals of incremental program design are emphasized by taking students through large Sample Development Programs that reinforce software engineering principles.
- Wu presents concepts visually. His diagrams representing objects and classes make these concepts easier for students to understand.
- An Online Learning Center (OLC) containing solutions for instructors, PowerPoint Slides, Labs, Source Code, an Example Bank, Compiler HowTos and more is available with this book at www.mhhe.com/wu.
- Small complete programs are used the book throughout to provide students with small and digestible examples, making material easier to comprehend.

CONTENTS

0 Introduction to Computers and Programming Languages / 1 Introduction to Object-Oriented Programming and Software Development / 2 Getting Started with Java / 3 Numerical Data / 4 Defining Your Own Classes—Part 1 / 5 Selection Statements / 6 Repetition Statements / 7 Defining Your Own Classes—Part 2 / 8 Exceptions and Assertions / 9 Characters and Strings / 10 Arrays / 11 Sorting and Searching / 12 File Input and Output / 13 Inheritance and Polymorphism / 14 GUI and Event-Driven Programming / 15 Recursive Algorithms

Object-Oriented Technology from Diagram to Code with Visual Paradigm for UML

Curtis HK Tsang

2005 / Softcover / 456 pgs / ISBN 0-07-321450-7

This book is written for students and developers who wish to master the essential skills and techniques in applying the UML for software development. The reader will learn object-oriented analysis, design and implementation using appropriate UML models, process, techniques and tool. Accompanying the book is the Community Edition of Visual Paradigm for UML (VP-UML), an award-winning CASE tool, which allows the reader to put the theories learned into practice immediately.

The authors follow a framework for modeling and analysis called the View Alignment Techniques (VAT) that helps software developers create development methods. The Activity Analysis Approach, which is particularly suited for the development of interaction-intensive systems, is described. These concepts have been well proven, as they were followed closely in the development of the VP-UML CASE tool.

Three chapters in this book describe structural, use case and dynamic modeling and analysis techniques, together with practical tricks and tips that have been gained by the authors from many years of experience. Each of these three chapters includes a mini-case study which illustrates the unique "from diagram to code" concept in software development. In the final chapter, a major case study is included to help the reader reinforce the theories learned in previous chapters using VP-UML.

The key areas in object-oriented technology covered in the book include: Requirements modeling using use cases.

- Domain analysis for object identification
- Dynamic analysis and design
- Implementation
- Method creation and the framework of View Alignment Techniques
- A case study

FEATURES

- This text covers theoretical and practical aspects of object-oriented technology using an award-winning CASE tool.
- The coverage of the entire development life cycle System Analysis and Design to Implementation is particularly comprehensive. The use of an easy-to-use CASE tool (Visual Paradigm for UML) conveniently and effectively demonstrates these concepts.
- This text proposes a novel technique for modeling and analysis, called the Activity Analysis Approach, which helps developers to build robust software efficiently. This technique has been applied to develop the Visual Paradigm CASE tool.
- Together with tricks and tips that have been gained by the authors from field experiences, the key chapters in the book provide practical modeling and analysis techniques.
- The book comes with the free Community Edition of the Visual Paradigm for UML, and award winning CASE tool.

CONTENTS

1 Introduction / 2 Structural Modeling and Analysis/ 3 Use Case Modeling and Analysis/ 4 Dynamic Modeling and Analysis/ 5 Implementing UML Specification/ 6 View Alignment Techniques and Method Customization/ 7 A Case Study: Applying the Activity Analysis Approach/ Appendices / A Getting Started with VP-UML/ B Basic UML Concepts/ C Implementation of the Lift Control system in Chapter 5

Object-Oriented Software Engineering, 2E

Timothy Lethbridge
Robert Laganiere

2004 / Softcover / 528 pgs / ISBN 0-07-322034-5

The authors' focus in this book is to deliver software engineering knowledge and skills that readers can put into immediate practical use. The book provides the essential topic coverage required by students of software engineering, from the nuts and bolts of objects to software architecture, from writing code to testing, from software development processes to project management. Working through nine contemporary themes in Software Engineering, students are given an awareness of key issues from understanding the customer and user, evaluating alternative requirements and design, to developing quantitative and logical thinking and effective communication. The book is designed to be used primarily in second-year software engineering courses, but is also widely use in its first edition as an introductory software engineering text at all levels. It will also be valuable to programming practitioners who want to develop a better understanding of modern software engineering.

NEW TO THIS EDITION

- New sections on model-driven development and architectures and middleware
- Integrates discussion of agile approaches, and techniques made popular by those approaches including refactoring and test-driven development.
- Wide variety of examples and exercises throughout
- Features nine contemporary themes in software engineering, such as understanding the user, iterative and agile modeling, and risk management.

CONTENTS

Contents / Foreword / Preface / Acknowledgements / 1 Software and software engineering / 2 Review of object orientation / 3 Basing software development on reusable technology / 4 Developing Requirements / 5 Modeling with classes / 6 Using design patterns / 7 Focusing on users and their tasks / 8 Modeling interactions and behaviors / 9 Architecting and designing software / 10 Testing and inspecting to ensure high quality / 11 Managing the software process / 12 Review / Appendices / A Summary of the ULM notation used in this book / B Summary of the documentation types recommended in this book / C System descriptions / Glossary / Index

Programming in C++: Lessons and Applications

Tim B. D'Orazio, San Francisco State University

2004 / Softcover / 976 pgs / ISBN 0-07-242412-5

This site contains solutions, PowerPoint slides, links, and more. (Browse http://mhhe.com/dorazio)

D'Orazio's *Programming in C++: Lessons and Applications* provides an accessible introduction to programming in C++. It teaches the C++ language and object-oriented design to students with no previous programming experience. The focus is on developing programs for solving a variety of problems. Each chapter of the book is divided into two parts—Lessons and Applications. The Lessons teach C++ language elements and simple programming techniques, and the Applications teach program design. A step-by-step methodology for program development is presented early in the text and reinforced throughout with the help of the application examples and over thirty case studies.

FEATURES

- More than 30 case studies. These application examples illustrate how to solve problems from many fields of practice.

- Multi-level approach to get students involved in reading and understanding source code. Each lesson uses a number of techniques (code annotations, questions, topic lists, and exercises) to get students engaged in the code.
- Early introduction to debugging. At the end of Chapter 2, students are presented with a methodology for finding bugs and developing their first programs.
- Detailed description of tracing and debugging loops. A method for developing and checking the reliability of both simple and complex loops is included in several chapters.
- Numerous figures. Figures are generously used to illustrate many of the difficult C++ concepts.
- Step-by-step methodology for program development. Each of the application examples illustrates a structured approach to developing programs.
- Simple, straightforward introduction to the C++ standard template library. The purpose of this coverage is to give students the ability to use the standard template library as soon as possible. The terminology is not intimidating so students can quickly use the basic parts of the library.
- Numerical method examples. The application examples include illustrations of some fundamental numerical methods and how to code them.
- Modification exercises. These exercises are good for courses with a two- or three-hour lab. Students can prepare for the lab by reading a particular Application Example. If they have done this, many of these exercises can be done in a two- or three-hour timeframe.
- Introduction to UML. Students are presented with a description of the basics of the UML and are shown how to convert some UML diagrams into C++ code.

CONTENTS

1 Computers and Computing Fundamentals / 2 Getting Started—Program Structure, Screen Output, and Comments / 3 Variables and Arithmetic Operations / 4 Basic Input/Output / 5 Decision Making / 6 Iteration / 7 Functions / 8 Introduction to Classes and Objects / 9 One-Dimensional Numeric Arrays / 10 Multidimensional Numeric Arrays / 11 Pointer Variables / 12 Character Arrays / 13 The C++ String Class / 14 More About Classes, Objects, and Object-Oriented Design / 15 Inheritance and Polymorphism / 16 Data Structures and Recursion / 17 Templates and the C++ Standard Template Library / 18 Miscellaneous Topics

Introduction to Computing Systems: From Bits & Gates to C & Beyond, 2E

Yale N. Patt, University of Texas at Austin
Sanjay J. Patel, University of Illinois-Champaign

2004 / Hardcover / 656 pgs / ISBN 0-07-246750-9

An expanded website for the text, www.mhhe.com/patt2, includes for instructors: the complete Solutions Manual, Source Code of the examples, JPEGs of all of the figures, and Test Questions for Efficient Grading. For instructors and students, the site has: the LC-3 Simulator (Windows and UNIX versions), lab manuals for both versions of the LC-3, PowerPoint presentations created by instructors using the book in their course, selected solutions (Appendix F), Appendices A, D & E (for easy reference) and a Message Board. (Browse http://www.mhhe.com/patt2)

Introduction to Computing Systems: From Bits & Gates to C & Beyond, now in its second edition, is designed to give students a better understanding of computing early in their college careers in order to give them a stronger foundation for later courses. The book is in two parts: (a) the underlying structure of a computer, and (b) programming in a high level language and programming methodology.

To understand the computer, the authors introduce the LC-3 and provide the LC-3 Simulator to give students hands-on access for testing what they learn. To develop their understanding of programming and programming methodology, they use the C programming language. The book takes a "motivated" bottom-up approach, where the students first get exposed to the big picture and then start at the bottom and build their knowledge bottom-up. Within each smaller unit, the same motivated bottom-up approach is followed. Every step of the way, students learn new things, building on what they already know. The authors feel that this approach encourages deeper understanding and downplays the need for memorizing. Students develop a greater breadth of understanding, since they see how the various parts of the computer fit together.

NEW TO THIS EDITION

- **Chapter 1**: Discussions have been added on the nature and importance of abstraction and the interplay of hardware and software.
- **Chapter 3**: A new section has been added on finite state control and its implementation as a sequential switching circuit to underline the importance of this topic.
- **Chapter 4**: This chapter now contains a section giving a preview of the underlying microarchitecture of the LC-3, which is spelled out in detail in the extensively revised Appendix C.
- **Chapter 5**: This chapter has been completely overhauled to accommodate two major improvements. First, the LC-2 has been replaced by the LC-3. Three more years of experience teaching this course has convinced the authors that the ISA studied in this book could be improved in several ways. The LC-3 is the result. Second, the explanations of each of the topics have been expanded to include more figures and more extensive explanations.
- **Chapters 8 & 10**: These chapters now include major new sections on interrupt-driven I/O.
- **Chapters 11-14**: These chapters are now more focused on the essential aspects of the language useful to a beginning programmer with more examples. [Specialized features like the C switch construct are now at the ends of chapters or in Appendix D.] There is a heavier emphasis on ?how to program? via problem solving examples that demonstrate how newly introduced C constructs can be used in C programming.
- **Recursion**: The chapter on recursion (now Chapter 17) has been moved after the chapter on pointers and arrays in order to allow the students to gain more experience with basic programming concepts before making the leap to programming recursive functions.

FEATURES

- **Bottom-Up Organization**: For Patt and Patel, the bottom level abstraction is the switch level representation of a MOS transistor. From there, they quickly move to logic gates, latches, logic structures (MUX, decoder, full adder, and gated latches) finally culminating in an implementation of memory. Then the book moves on to finite state control, its implementation as a sequential circuit, the von Neumann model of execution, a simple computer (the LC-3), machine language programming and assembly language programming of the LC-3, the high level language C, recursion, and finally elementary data structures.
- **Debugging**: Because students are taught debugging techniques from the first program they write and are required to use the LC-3 Simulator's debugging tools from the start, they are better able to master the art of programming and can complete their programming assignments with a lot less help from the TA. (See expanded coverage in Chapter 15.)
- **The LC-3 Simulator**: Central to the student's learning is hands-on access to the LC-3 Simulator, which has been created specifically to aid the student's mastery of the concepts. Students can download the LC-3 simulator from the book website at no cost.
- **Programming Methodology**: Students are provided with numerous meaningful, simple examples on how to take a problem and transform it into a computer program via systematic decomposition. Students are exposed to the fundamental similarities in programming, whether it be in the LC-3 or in C, which provides the student with the useful ability to quickly understand other programming languages.
- **Website**: An expanded website for the text, www.mhhe.com/patt2, includes for instructors: the complete Solutions Manual, Source Code of the examples, JPEGs of all of the figures, and Test Questions for Efficient Grading. For instructors and students, the site has: the LC-3 Simulator (Windows and UNIX versions), lab manuals for both versions of the LC-3, PowerPoint presentations created by instructors using the book in their course, selected solutions (Appendix F), Appendices A, D & E (for easy reference) and a Message Board.

CONTENTS

1 Welcome Aboard / 2 Bits, Data Types, and Operations / 3 Digital Logic Structures / 4 The Von Neumann Model / 5 The LC-3 / 6 Programming / 7 Assembly Language / 8 I/O / 9 TRAP Routines and Subroutines / 10 And, Finally...The Stack / 11 Introduction to Programming in C / 12 Variables and Operators / 13 Control Structures / 14 Functions / 15 Testing and Debugging / 16 Pointers and Arrays / 17 Recursion / 18 I/O in C / 19 Data Structures / Appendices / A The LC-3 ISA / B From LC-3 to x86 / C The Microarchitecture of the LC-3 / D The C Programming Language / E Useful Tables / F Selected Solutions (available at website)

SUPPLEMENT

Reference Guide

Applied C: An Introduction and More

Alice Fischer, University of New Haven
David Eggert, University of New Haven
Stephen M. Ross, University of New Haven

2001 / Softcover / 1136 pgs / ISBN 0-07-021748-3

www.mhhe.com/fischer/

Applied C: An Introduction and More provides an introduction to C programming from a "hands on" perspective. With this book both Computer Science and Engineering students learn the C language and how to program through the reading and writing of basic programs early in the book. After introducing students to the basics, the authors use a spiral approach to build on concepts incrementally so that by the end students are able to write longer programs that require multiple functions. The teaching of these programming concepts is accompanied by a focus on sound program design that emphasizes the need for complete and accurate program specification as well as careful testing from the beginning.

Both Engineering and Computer Science students will find this book appealing due to the diverse blend of applications. In addition to many motivating applications throughout the text, topics are introduced with excellent background and motivation followed by accessible explanations illustrated liberally with diagrams, graphs, and short programs.

The text is comprehensive and contains enough material for one semester or two quarters of instruction. Topics in the first half are important for all engineering students to master. The third quarter of the text covers basic data structures and algorithms that are of general interest. The last quarter of the book is of greater interest to computer science students and includes several important topics that are rarely covered by textbooks or presented in a manner that is accessible to students.

CONTENTS
I Introduction / 1 Computers and Systems / 2 Programs and Programming / 3 Fundamental Concepts / **II Computation** / 4 Objects, Types, and Expressions / 5 Using Functions and Libraries / 6 More Repetition and Decisions / **III Basic Data Types** / 7 Using Numeric Types / 8 The Trouble with Numbers / 9 Program Design / 10 An Introduction to Arrays / 11 Character Data and Enumerations / 12 An Introduction to Pointers / **IV Structured Data Types** / 13 Strings / 14 Structured Types / 15 Streams and Files / 16 Simple Array Algorithms / 17 Two Dimensional Arrays / 18 Calculating with Bits / **V Advanced Techniques** / 19 Dynamic Arrays / 20 Working With Pointers / 21 Recursion / 22 Making Programs General / 23 Modular Organization / **VI Appendixes** / A The ASCII Code / B The Precedence of Operators in C / C Keywords / D Advanced Aspects of C Operators / E Number Representation and Conversion / F The Tools Library / G The Standard C Libraries / H Interactive Input Validation / Glossary / Answers to Self-Test Exercises / Index

C++ Program Design, 3E

James P. Cohoon, University of Virginia–Charlottesville
Jack W. Davidson, University of Virginia–Charlottesville

2002 / Softcover / 976 pgs / ISBN 0-07-256040-1

www.mhhe.com/cohoon

This best selling text covers the fundamentals of programming and software development using C++. C++ Program Design has been developed for a CS1 course and benefits from the author's 10 + years classroom experience.

C++ Program Design adopts an objects early approach to teaching C++ and integrates the use of a graphical API, called EzWindows. Robust web site support is offered for instructors and students.

CONTENTS
1 Computing & The Object-Oriented Design Methodology / 2 C++: The Fundamentals / 3 Modifying Objects / 4 Control Constructs / 5 Function Basics / 6 Program Defined Function / 7 The Class Construct and Object-Oriented Design / 8 Implementing Abstract Data Types / 9 Lists / 10 The EzWindows API: A Detailed Examination / 11 Pointers and Dynamic Memory / 12 Inheritance / 13 Templates and Polymorphism / 14 Testing and Debugging / 15 Software Project—Bug Hunt! / Appendices / A Tables / B Standard Libraries / C Standard Classes / D Advanced Topics / E EzWindows API Reference Manual / F Projects and Makefiles

SUPPLEMENTS
E-Text
CD-ROM

ADA as a Second Language, 2E

Norman Cohen, T.J. Watson Research Center

1996 / Softcover / 1133 pgs / ISBN 0-07-011607-5

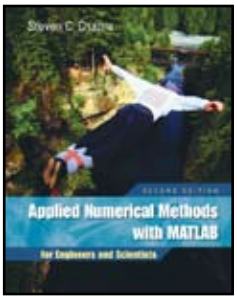
Known as the authority on ADA 83, this text reflects the latest version of the language, ADA 95. Designed for a junior/senior programming course, this text serves as both a tutorial introduction and a complete reference to the ADA language. It offers specific, practical advice on how and why to use each language feature, stressing good programming style supported by hundreds of complete examples.

CONTENTS
1 An Introduction to ADA / 2 Elementary ADA Programming / 3 Type Declarations / 4 Subtypes Versus Distinct Types / 5 String Manipulation / 6 Expressions / 7 Subprograms / 8 Access Types / 9 Types with Discriminants / 10 Packages / 11 Private and Limited Types / 12 Classwide Programming / 13 Separate Compilation / 14 Exceptions / 15 Genetic Units / 16 Predefined Input and Output / 17 Introduction to Tasks / 18 Controlling Task Interaction / 19 Low-Level and Multilingual Programming / 20 Distributed Programs / Appendixes

SUPPLEMENT
Instructor's Manual

NUMERICAL METHODS

Applied Numerical Methods with MATLAB® for Engineers and Scientists, 2E



New Edition

Steven C. Chapra, Tufts University

2008 / Hardcover / 544 pgs / ISBN 0-07-313290-X

The web site features student and instructor resources such as an image bank, lecture slides, helpful web links, study objectives, and more! (Browse http://www.mhhe.com/chapra)

Steven Chapra's new second edition, *Applied Numerical Methods with MATLAB® for Engineers and Scientists*, is written for engineers and scientists who want to learn numerical problem solving. This text focuses on problem-solving (applications) rather than theory, using MATLAB®, and is intended for Numerical Methods users; hence theory is included only to inform key concepts. The new second edition feature new material such as Numerical Differentiation and ODE's: Boundary-Value Problems.

NEW TO THIS EDITION

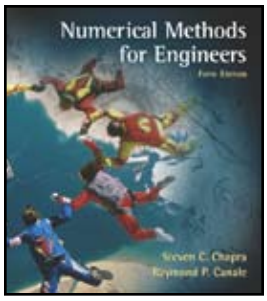
- Based on response from users and reviewers, 4 New Chapters have been added to the second edition to provide a more accessible presentation, while maintaining its student-friendly flavor.
  - ~Optimization
  - ~Numerical Differentiation
  - ~ODES: Boundary-Value Problems
  - ~Fast Fourier Transform. This appendix chapter is presented in an introductory fashion to illustrate the power of MATLAB® and to let students go away recognizing that although they have just scratched the surface, they might want to pursue the topic in greater depth in future courses.
- 50% new or revised chapter and homework problems

FEATURES

- Explanations are straight-forward and practically oriented. The math level is considered, just to be at the right level—not too easy or rigorous, just right.
- Extensive use of engineering examples, case studies, and applications are given throughout the text.
- Each chapter is well integrated with MATLAB® M-files. In addition, relevant MATLAB® functions are introduced in each chapter.
- MATLAB® is used as the primary computing environment. All algorithms are presented as m-files.
- A text Web site is available at http://www.mhhe.com/chapra

CONTENTS
Part One Modeling, Computers, and Error Analysis / 1 Mathematical Modeling Numerical Methods and Problem Solving / 2 MATLAB® Fundamentals / 3 Programming with MATLAB® / 4 Roundoff and Trunication Errors / Part Two Roots and Optimization / 5 Roots: Bracketing Methods / 6 Roots: Open Methods / 7 Optimization / Part Three Linear Systems / 8 Linear Algebraic Equations and Matrices / 9 Gauss Elimination / 10 LU Factorization / 11 Matrix Inverse and Condition / 12 Iterative Methods / Part Four Curve Fitting / 13 Linear Regression / 14 General Linear Least-Squares and Non-Linear Regression / 15 Polynomial Interpolation / 16 Splines and Piecewise Interpolation / Part Five Integration and Differentiation / 17 Numerical Integration Formulas / 18 Numerical Integration of Functions / 19 Numerical Differentiation / Part Six Ordinary Differential Equations / 20 Initial-Value Problems / 21 Adaptive Methods and Stiff Systems / 22 Boundary-Value Problems / Appendices / A: Eigenvalues Appendix / B: MATLAB® Built-in Functions / C: MATLAB® M-File Functions / Bibliography / Index

Numerical Methods for Engineers, 5E



Steven C. Chapra, Tufts University
Raymond Canale, Emeritus, University of Michigan

2006 / Hardcover / 960 pgs / ISBN 0-07-310156-7

Browse http://www.mhhe.com/chapra

The fifth edition of *Numerical Methods for Engineers* continues its tradition of excellence. Instructors love this text because it is a comprehensive text that is easy to teach from. Students love it because it is written for them—with great pedagogy and clear explanations and examples throughout. The text features a broad array of applications, including all engineering disciplines.

The revision retains the successful pedagogy of the prior editions. Chapra and Canale's unique approach opens each part of the text with sections called Motivation, Mathematical Background, and Orientation, preparing the student for what is to come in a motivating and engaging manner. Each part closes with an Epilogue containing sections called Trade-Offs, Important Relationships and Formulas, and Advanced Methods and Additional References. Much more than a summary, the Epilogue deepens understanding of what has been learned and provides a peek into more advanced methods. Users will find use of software packages, specifically MATLAB® and Excel with VBA. This includes material on developing MATLAB® m-files and VBA macros.

Approximately 80% of the problems are new or revised for this edition. The expanded breadth of engineering disciplines covered is especially evident in the problems, which now cover such areas as biotechnology and biomedical engineering.

NEW TO THIS EDITION

- Users have access to an Online Learning Center which will house PPT slides of all text figures, M-Files, general textbook information and more!
- Available to instructors only, the detailed solutions for all text problems will be delivered via CD-ROM, in our new, Complete Online Solutions Manual Organization System (COSMOS).

FEATURES

- Challenging problems drawn from all engineering disciplines are included in the text.
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- The text includes a helpful appendix chapter, Getting Started with MATLAB®.

CONTENTS
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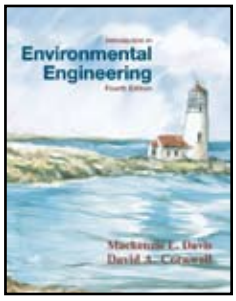
ENVIRONMENTAL ENGINEERING

Introduction to Environmental Engineering, 4E



Mackenzie L. Davis, Michigan State University-East Lansing
David A. Cornwell, Environmental Engineering & Technology

2008 / Hardcover / 928 pgs / 0-07-242411-7

Browse http://www.mhhe.com/davis

New Edition

Introduction to Environmental Engineering, 4/e contains the essential science and engineering principles needed for introductory courses and used as the basis for more advanced courses in environmental engineering. Davis and Cornwell apply the concepts of sustainability and materials and energy balance as a means of understanding and solving environmental engineering issues. With 650 end-of-chapter problems, as well as provocative discussion questions, and a helpful list of review items found at the end of each chapter, the text is both a comprehensible and comprehensive tool for any environmental engineering course.

NEW TO THIS EDITION

- The new edition features the most up-to-date environmental regulations, standards, and laws, and an updated art and photo program throughout.
- A new chapter on Materials and Energy Balances (2) has been added to emphasize this important topic.
- Over 200 new homework problems have been added to the new edition, including over 60 problems on web based research and spreadsheet applications with MathCAD or MATLAB.
- discussions have been updated to include issues such as membrane technology for water treatment, endocrine disrupters as a pollution source, hydrogen fuel for automobiles, energy conservation as a pollution control alternative, and use of computer models for traffic noise prediction.

FEATURES

- The text provides a comprehensive overview of environmental engineering including a discussion on the nature of the profession and environmental ethics, a discussion of waste minimization techniques for each subject area, the presentation of legislative history and detailed regulatory requirements, and coverage of noise and ionizing radiation.
- The end of chapter review items provide a built-in study guide for students and make it easy for instructors to assess what students should have learned from the chapter.
- Numerous example problems throughout the chapter and discussion questions at the end of the chapter reinforce concepts for students.
- Supplements include a Unit Conversion Booklet (available as an optional package with the text) and a website featuring the solutions manual, lecture powerpoints, and image files for instructors, as well as animations and web links for students.

CONTENTS
1 Introduction / 2 Materials and Energy Balances / 3 Hydrology / 4 Water Treatment / 5 Water Quality Management / 6 Wastewater Treatment / 7 Air Pollution / 8 Noise Pollution / 9 Solid Waste Management / 10 Hazardous Waste Management / 11 Ionizing Radiation / Appendices / A Properties of Air, Water, and Selected Chemicals / B Noise Computation Nomographs

SUPPLEMENTS
Unit Conversion Booklet/Intro to Environmental Engineering/0-07-327709-6

Principles of Environmental Engineering and Science

Mackenzie L. Davis, Michigan State University–East Lansing
Susan J. Masten, Michigan State University–East Lansing

2004 / Hardcover / ISBN 0-07-292186-2

Solutions Manual, Links to glossary and Environmental Learning Modules, Sample chapter, Overview, TOC, Author links/bio, Preface, Features, Supplement list, reviewer notes, PPT, Page out, Rep Locator, and Review/Feedback form. (Browse http://www.mhhe.com/davismasten)

Principles of Environmental Engineering and Science by Mackenzie Davis and Susan Masten is intended for a course in introductory environmental engineering for sophomore- or junior-level students. The emphasis of this new text is on engineering principles rather than on engineering design. The concept of mass balance is carried throughout the text as a tool for problem solving, and the text boasts extensive coverage of chemistry, biology, and hydrology than other books have. The chemistry review in Chapter 2 and coverage of ethics will aid students in better understanding the engineering topics presented in the book.

FEATURES

- The book teaches through an emphasis on concepts, definitions, descriptions, and abundant illustrations. Scientific principles are emphasized and design aspects are discussed in abbreviated form, freeing the student to focus on real environmental applications.
- Includes chapters on Ecosystems, Soil and Geological Resources, and Agricultural Impacts—topics that are of crucial importance to environmental engineering and related disciplines, but which are not covered in detail in other texts.
- Includes a chemistry review chapter, which has been highly praised by reviewers. Most say that their students need and would greatly benefit from the chapter.
- The concept of mass balance as a tool for problem-solving is a theme carried throughout the text. This theme motivates much of the text discussion and ties together a variety of subject areas including hydrology, soil, water quality, and waste audits.
- Exclusively uses SI units.

CONTENTS

1 Introduction / 2 Chemistry / 3 Materials and Energy Balances / 4 Ecosystems / 5 Risk Perception, Assessment, and Management / 6 Hydrology / 7 Geological and Soil Resources / 8 Water Quality Management / 9 Water Treatment / 10 Wastewater Treatment / 11 Air Pollution / 12 Solid Waste Management / 13 Hazardous Waste Management / 14 Agricultural Impacts/ 15 Noise Pollution / 16 Ionizing Radiation / Appendix A: Properties of Air, Water, and Selected Chemicals

Introduction to Engineering and the Environment

Edward S. Rubin, Carnegie Mellon University

2001 / Softcover / 720 pgs / ISBN 0-07-235467-4

www.mhhe.com/engcs/civil/rubin

This book covers a broad range of topics for an introductory course in Environmental Engineering, as well as courses related to engineering design, sustainable development, and environmental policy. Through applications in different engineering domains, students develop the fundamental skills and insights needed to recognize and address environmental problem solving opportunities.

CONTENTS

I Motivation and Framework / 1 Engineering and the Environment / 2 Overview of Environmental Issues / **II Technology Design for the Environment** / 3 Automobiles and the Environment / 4 Batteries and the Environment / 5 Electric Power Plants and the Environment / 6 Refrigeration and the Environment / 7 Environmental Life Cycle Assessments / **III Modeling Environmental Processes** / 8 Controlling Urban Smog / 9 PCBs in the Aquatic Environment / 10 Human Exposure to Toxic Metals / 11 CFCs and the Ozone Hole / 12 Global Warming and the Greenhouse Effect / **IV Topics in Environmental Policy Analysis** / 13 Economics and the Environment / 14 Risk Assessment and Decision Analysis / 15 Environmental Forecasting / Appendices

Environmental Impact Assessment, 2E

Larry Canter, University of Oklahoma–Norman

1996 / Hardcover / 480 pgs / ISBN 0-07-009767-4

The Canter text appeals mainly to Civil Engineering students taking course work in environmental assessment practice or impact assessment, usually taught at the junior/senior level as a popular elective. Some chemical and environmental engineers take the course as well. The author has specifically beefed up and improved the chapters on biological, cultural, and socioeconomic environmental factors. The book continues to emphasize both production and assessment aspects of environmental factors, i.e., air, water, and noise, together with some interesting case studies. The latest governmental methodologies and Environmental Impact Studies have been included in this timely revision.

CONTENTS

1 National Environmental Policy Act and Its Implementation / 2 Planning and Management of Impact Studies / 3 Simple Methods for Impact Identification Matrices, Networks and Checklists / 4 Description of Environmental Setting / 5 Environmental Indices and Indicators for Describing the Affected Environment / 6 Prediction and Assessment of Impacts on the Air Environment / 7 Prediction and Assessment of Impacts on the Surface Water Environment / 8 Prediction and Assessment of Impacts on the Soil and Ground Water Environment / 9 Prediction and Assessment of Impacts on the Noise Environment / 10 Prediction and Assessment of Impacts on the Biological Environment / 11 Habitat Methods for Biological Impact Prediction and Assessment / 12 Prediction and Assessment of Impacts on the Cultural (Historical/Archaeological) Environment / 13 Prediction and Assessment of Visual Impacts / 14 Prediction and Assessment of Impacts on the Socioeconomic Environment / 15 Decision Methods for Evaluation of Alternatives / 16 Public Participation in Environmental Decision Making / 17 Environmental Monitoring

Environmental Engineering

Howard S. Peavy, University of Idaho
Donald R. Rowe, Western Kentucky University
George Tchobanoglous, University of California–Davis

1985 / Hardcover / 640 pgs / ISBN 0-07-049134-8

CONTENTS

1 Introduction / 2 Water Quality; Definitions, Characteristics, and Perspectives / 3 Water Purification / 4 Engineered Systems for Wastewater Treatment and Disposal / 5 Environmental Engineering Hydraulics Design / 6 Air Quality Definitions, Characteristics, and Perspectives / 7 Engineered Systems for Air Pollution / 8 Solid Waste Definitions, Characteristics, and Perspectives / 9 Engineered Systems for Solid Waste Management / 10 Engineered Systems for Resource and Energy Recovery

SUPPLEMENT

Solutions Manual

ENGINEERING ECONOMICS

Engineering Economy, 6E

Leland T. Blank, *American University of Sharjah, UAE*
Anthony Tarquin , *University of Texas at El Paso*

2005 / Hardcover / ISBN 0-07-320534-6

The text website features a glossary, learning objectives, additional spreadsheet exercises, review and quizzing, PowerPoint slides, Solutions Manual, case studies, and an image library. Browse http://www.mhhe.com/blank6e

The #1 book in this market, *Engineering Economy*, 6th edition, provides undergraduate students and practicing professionals with a solid preparation in the financial understanding of engineering problems and projects, as well as the techniques needed for evaluating and making sound economic decisions. Information on cost estimation, depreciation, and taxes has been updated to conform to new tax laws and a majority of the end-of-chapter problems are revised or new to this edition.

Distinguishing pedagogical characteristics of this market-leading text include its easy-to-read writing style, chapter objectives, worked examples, integrated spreadsheets, case studies, Fundamentals of Engineering (FE) exam questions, and numerous end-of-chapter problems. Graphical cross-referencing is indicated so users are able to locate additional material on any one subject in the text. Quick-solve (Q-Solv) and Excel-solve (E-Solve) icons found in the text indicate the difficulty of a problem, example, or spreadsheet.

While the chapters are progressive, over three-quarters can stand alone, allowing instructors flexibility for meeting course needs.

NEW TO THIS EDITION

- Approximately 80% of the end-of-chapter problems are either new or revised for the 6th edition.
- Information on cost estimation, depreciation, and taxes has been updated for this edition.
- International considerations have been updated and expanded upon.
- The Online Learning Center (http://www.mhhe.com/blank6) includes resources for students and instructors. Resources will include: Glossary, Web links, FE Exam Problems and Quiz, Learning Objectives, Spreadsheet Exercises, Lecture Slides, Summaries, general textbook information, and more!
- COSMOS, an electronic solutions manual that can be customized to include your own course material.

FEATURES

- The text integrates spreadsheets in the book and on the Online Learning Center (Web site for the text).
- Case Studies and/or Extended Exercises can be found in every chapter of the text.
- Extensive use of pedagogy is used throughout the book, including, easy-to-read writing style, chapter objectives, worked examples, integrated spreadsheets, case studies, FE exam problems and quizzes, end-of-chapter problems, cross-referencing, and icons.

CONTENTS

SUPPLEMENTS

Schaum's Engineering Economics
COSMOS
Spreadsheet Tools for Engineering

TECHNOLOGY VENTURES: From Idea to Enterprise with Student DVD, 2E

New Edition

Richard C. Dorf, *University of California-Davis*
Thomas H. Byers, *Stanford University*

2008 / Hardcover with DVD / 704 pages /
ISBN 0-07-329442-X

Technology Ventures is the first textbook to thoroughly examine a global phenomenon known as "technology entrepreneurship". Now in its second edition, this book integrates the most valuable entrepreneurship and technology management theories from some of the world's leading scholars and educators with current examples of new technologies and an extensive suite of media resources.

Dorf and Byers's comprehensive collection of action-oriented concepts and applications provides both students and professionals with the tools necessary for success in starting and growing a technology enterprise. *Technology Ventures* details the critical differences between scientific ideas and true business opportunities.

NEW TO THIS EDITION

- Concise case studies and boxed examples throughout the book have been updated and expanded to highlight the most current technologies and include international ventures.
- A new chapter focused on the business plan includes a business planning "roadmap" and is supplemented by numerous online resources.
- A new student DVD is packaged with the text and features video anecdotes from well-known technology entrepreneurs. "See DVD" icons are marked in the text to allow for easy referencing between print and virtual resources.
- An updated suite of web resources includes a book-specific website featuring additional videos, case studies, and sample syllabi as well as a password-protected instructor's site with lecture powerpoints and a solutions manual
- An updated design and art program give the text a more engaging look and feel.

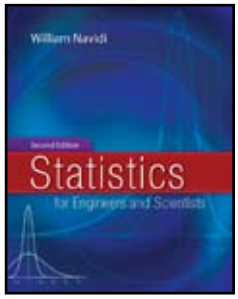
FEATURES

- A running case study (on AGRAQUEST, a bio-technology firm) is blended into all chapters of the text.
- The book focuses specifically on technology-based ventures (both start-ups and initiatives within existing companies), and emphasizes the role of the team in the entrepreneurial process.

CONTENTS

ENGINEERING MATH/STATISTICS & PROBABILITY AND STATISTICS

Statistics for Engineers and Scientists, 2E



New Edition

William C. Navidi, Colorado School of Mines

2008 / Hardcover / 675 pgs / ISBN 0-07-330949-4

Browse http://www.mhhe.com/navidi2

The second edition of this book is intended to extend the strengths of the first. Some of the changes include:

- More than 200 new exercises have been added.
- A new section on point estimation has been added to Chapter 4.
- The material on histograms in Chapter 1 has been completely revised.
- Chapter 2 now contains a discussion of Chebyshev's inequality.
- Chapter 4 now contains a discussion of the uniform distribution.
- The section on the normal distribution contains a discussion on linear functions of normal random variables.
- Chapter 7 contains additional material on the correlation coefficient.
- Chapter 10 contains a discussion of the relationship between control charts and hypothesis tests.
- The exposition has been improved in a number of places.

Also new for this edition is the ARIS online course management system. ARIS provides automatic grading of student assignments and keeps a record of students' grades. In addition, ARIS contains problems for student practice, along with Java applets that allow students to interactively explore ideas in the text. Customizable PowerPoint lecture notes for each chapter are available as well, along with suggested syllabi, and other features. More information can be found at aris.mhhe.com.

William Navidi is Professor of Mathematical and Computer Sciences at the Colorado School of Mines. He received the B.A. degree in mathematics from New College, the M.A. in mathematics from Michigan State University, and the Ph.D. in statistics from the University of California at Berkeley. Professor Navidi has authored more than 50 research papers both in statistical theory and in a wide variety of applications including computer networks, epidemiology, molecular biology, chemical engineering, and geophysics.

NEW TO THIS EDITION

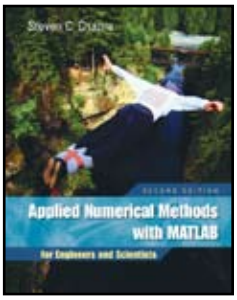
- McGraw-Hill's ARIS online Homework Manager has been added to this edition and features algorithmic problems and gradebook capability. Instructors will have access to data sets, solutions, lecture powerpoints, and images from the text.
- Over 180 new homework problems have been added throughout.

FEATURES

- An engaging writing style explains difficult concepts clearly. While including the mathematics necessary for clear understanding, the text makes extensive use of examples to motivate fundamental concepts and to develop intuition.
- Contemporary, real world data sets are one of the defining features of this text. With a fresh approach to the subject, the author uses contemporary data sets to help motivate students and show direct connection to industry and research.
- In line with modern trends, the text contains exercises suitable for solving with computer software. These examples and exercises involve interpreting, as well as generating, computer output. The student edition of MINITAB, the widely used statistical software package, is available bundled with the text.
- A separate chapter provides **extensive coverage of propagation of error**, sometimes called "error analysis" or the "delta method." The coverage is more extensive than in most texts, with a flexible format allowing instructors to easily cover selected topics.
- The text presents an **extensive, self-contained introduction to simulation methods** at a level appropriate for introductory students, including the bootstrap and applications to estimating probabilities, estimating bias, computing confidence intervals, and testing hypotheses.
- The text provides **more extensive coverage of linear model diagnostic procedures** than is found in most competing texts including a lengthy section on checking model assumptions and transforming variables. The coverage emphasizes that linear models are appropriate only when the relationship between variables is linear. This point is all the more important since it is often overlooked in practice by engineers and scientists (not to mention statisticians).
- **Flexible presentation of probability** addresses the needs of different courses. Allowing for a mathematically rigorous approach, the major results are derived from axioms, with proofs given for most of them. Each result is illustrated with an example or two to promote intuitive understanding. Instructors who prefer a more informal approach may therefore focus on the examples rather than the proofs and skip the optional sections.

CONTENTS

Applied Numerical Methods with MATLAB® for Engineers and Scientists, 2E



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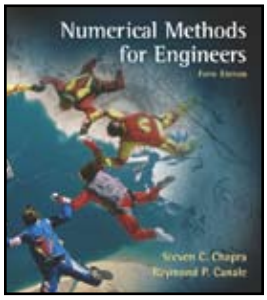

Steven C. Chapra, *Tufts University*
Raymond Canale, *Emeritus University of Michigan*

2006 / Hardcover / 960 pgs / ISBN 0-07-310156-7

The text website features MATLAB® Appendix from Chapra's brief 2005 text; helpful web links; Study Objectives; COSMOS, PowerPoint images and lecture notes from the text; and a Solutions Manual. Browse http://www.mhhe.com/chapra

The fifth edition of *Numerical Methods for Engineers* continues its tradition of excellence. Instructors love this text because it is a comprehensive text that is easy to teach from. Students love it because it is written for them—with great pedagogy and clear explanations and examples throughout. The text features a broad array of applications, including all engineering disciplines.

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- The text includes a helpful appendix chapter, Getting Started with MATLAB®.

CONTENTS

Part 1 Modeling, Computers, and Error Analysis / 1 Mathematical Modeling and Engineering Problem Solving / 2 Programming and Software / 3 Approximations and Round-Off Errors / 4 Truncation Errors and the Taylor Series / **Part 2 Roots of Equations** / 5 Bracketing Methods / 6 Open Methods / 7 Roots of Polynomials / 8 Case Studies: Roots of Equations / **Part 3 Linear Algebraic Equations** / 9 Gauss Elimination / 10 LU Decomposition and Matrix Inversion / 11 Special Matrices and Gauss-Seidel / 12 Case Studies: Linear Algebraic Equations / **Part 4 Optimization** / 13 One-Dimensional Unconstrained Optimization / 14 Multidimensional Unconstrained Optimization / 15 Constrained Optimization / 16 Case Studies: Optimization / **Part 5 Curve Fitting** / 17 Least-Squares Regression / 18 Interpolation / 19 Fourier Approximation / 20 Case Studies: Curve Fitting/ **Part 6 Numerical Differentiation and Integration** / 21 Newton-Cotes Integration Formulas / 22 Integration of Equations / 23 Numerical Differentiation / 24 Case Studies: Numerical Integration and Differentiation / **Part 7 Ordinary Differential Equations** / 25 Runge-Kutta Methods / 26 Stiffness and Multistep Methods / 27 Boundary-Value and Eigenvalue Problems / 28 Case Studies: Ordinary Differential Equations / **Part 8 Partial Differential Equations** / 29 Finite Difference: Elliptic Equations / 30 Finite Difference: Parabolic Equations / 31 Finite-Element Method / 32 Case Studies: Partial Differential Equations / Appendices / A The Fourier Series / B Getting Started with MATLAB® / Bibliography / Index

SUPPLEMENT

COSMOS t/a Numerical Methods for Engineers

Introduction to Probability and Statistics: Principles and Applications for Engineering and the Computing Sciences, 4E

J. Susan Milton, *Radford University*
Jesse C. Arnold, *Virginia Polytechnic Institute*

2003 / Hardcover / 832 pgs / ISBN 0-07-246836-X

The text offers a balanced presentation of applications and theory. The authors take care to develop the theoretical foundations for the statistical methods presented at a level that is accessible to students with only a calculus background. They explore the practical implications of the formal results to problem-solving so students gain an understanding of the logic behind the techniques as well as practice in using them. The examples, exercises, and applications were chosen specifically for students in engineering and computer science and include opportunities for real data analysis.

FEATURES

- References to statistical analysis packages have been added. This enables students to see how the techniques are applied by using these popular packages.
- Retained examples and exercises are chosen specifically for students in engineering and computer science. Students can work on problems within a context that is familiar and interesting to them.
- Studends gain understanding of the logic behind the techniques as well as practice using them due to the authors' approach. Because of this, students are better able to retain the information and are better prepared to apply the techniques in this and future courses.
- Data sets for examples and problems are provided in several electronic formats for use with the most popular statistical packages. Students do not have to waste valuable time entering data and data-entry errors are eliminated.
- Student Solutions Manual and an Instructor's Manual are available.

CONTENTS

1 Introduction to Probability and Counting / 2 Some Probability Laws / 3 Discrete Distributions / 4 Continuous Distributions / 5 Joint Distributions / 6 Descriptive Statistics / 7 Estimation / 8 Inferences on the Mean and Variance of a Distribution / 9 Inferences on Proportions / 10 Comparing Two Means and Two Variances / 11 Sample Linear Regression and Correlation / 12 Multiple Linear Regression Models / 13 Analysis of Variance / 14 Factorial Experiments / 15 Categorical Data / 16 Statistical Quality Control / Appendices / A Statistical Tables / B Answers to Selected Problems / C Selected Derivations

SUPPLEMENTS

Instructor's Manual
Student Solutions Manual
Data Disk

Engineering Formulas, 8E

New Edition

Kurt Gieck, *Heilbronn A.N., Germany*
Reiner Gieck

2006 / Hardcover / 580 pgs / ISBN 0-07-145774-7

McGraw-Hill Professional

This is a revision of the famed pocket guide giving engineers, scientists, technicians, and students thousands of essential technical and mathematical formulas and hundreds of diagrams to simplify and speed their calculations.

NEW TO THIS EDITION

- A one stop source of essential engineering and scientific formulas
- Blank pages provide space for notes
- Environment additions including, noise, water, soil pollution, waste recycling, and ozone tables
- Current symbols and standards revised and updated
- Electrical engineering additions including small electric motors
- HVAC applications added

CONTENTS

1 Units / 2 Areas / 3 Solid Bodies / 4 Arithmetic / 5 Functions of a Circle / 6 Analytical Geometry / 7 Statistics / 8 Differential Calculus / 9 Integral Calculus / 10 Differential Equations / 11 Statics / 12 Kinematics / 13 Dynamics / 14 Hydraulics / 15 Heat / 16 Strength / 17 Machine Parts / 18 Production Engineering / 19 Electrical Engineering / 20 Control Engineering / 21 Chemistry / 22 Radiation Physics / 23 Tables

Standard Handbook of Engineering Calculations, 4E

Tyler G. Hicks

2005 / Hardcover / 1200 pgs / ISBN 0-07-142793-7

McGraw-Hill Professional

NEW TO THIS EDITION

- Wind-energy system calculations
- Complying with new environmental requirements in engineering
- Structural engineering changes in buildings to fight terrorism
- Data on suitable computer programs for solving repetitive computational problems
- Data on Websites containing useful engineering information on standards, units of measurement, design methodology, dimensioning, vibrations, etc.
- New power plant cost saving calculations
- Finite element analysis methods of calculation
- Data on refrigerants required to replace Freon gases
- New design code calculations in civil engineering
- New pump material and calculation methods
- All ten major engineering fields included

CONTENTS

Contributors and Advisors / Preface / How to Use This Handbook/ Section 1. Civil Engineering *(Max Kurtz)* / Section 2. Architectural Engineering *(Max Kurtz)* / Section 3. Mechanical Engineering *(Joseph Leto, Gerald M. Eisenberg, Stephen M. Eber, Jerome F. Mueller, Tyler G. Hicks, Edgar J. Kates, B.G.A. Skrotzki, Raymond J. Roark, S.W. Spielvogel, Rufus Oldenburger, Lyman F. Scheel)* / Section 4. Electrical Engineering *(Andrew W. Edwards, Harold L. Rorden, Frederick W. Suhr)* / Section 5. Chemical and Process Plant Engineering *(Robert L. Davidson, John S. Rearick, Tyler G. Hicks)* / Section 6. Water and Waste-Water Engineering *(Edmund B. Besselievre, Tyler G. Hicks, Max Kurtz)* / Section 7. Environmental Engineering *(Tyler G. Hicks, Joseph Leto)*

16 Standards Follow-Up and Uses / 17 Wage Payment / 18 Training and Other Management Practices / Appendices / 1 Glossary / 2 Helpful Formulas / 3 Special Tables / 4 MIL-STD-1567A

Human Factors in Engineering and Design, 7E

Mark S. Sanders, California State University–Northridge
Ernest J. McCormick

1993 / Hardcover / 704 pgs / ISBN 0-07-054901-X

This is the seventh edition of a text that is quite popular and the respected leader in its field. Written for upper-level undergraduate and graduate students, as well as for practicing professionals, the book combines an emphasis on the empirical research basis of human factors with comprehensive coverage of basic concepts in the field of human factors and ergonomics. This edition of Human Factors in Engineering and Design has been thoroughly updated and contains a new chapter on motor skills. Several chapters have been extensively revised and renamed to reflect current emphases and research in the field.

CONTENTS

I Introduction / 1 Human Factors and Systems / 2 Human Factors Research Methodologies / **II Information Input** / 3 Information Input and Processing / 4 Text, Graphics, Symbols, and Codes / 5 Visual Displays of Dynamic Information / 6 Auditory, Tactual, and Olfactory Displays / 7 Speech Communications / **III Human Output and Control** / 8 Physical Work and Manual Materials Handling / 9 Motor Skills / 10 Human Control of Systems / 11 Controls and Data Entry Devices / 12 Hand Tools and Devices / **IV Workplace Design** / 13 Applied Anthropometry, Work Space Design, and Seating / 14 Arrangement of Components within a Physical Space / 15 Interpersonal Aspects of Work Place Design / **V Environmental Conditions** / 16 Illumination / 17 Climate / 18 Noise / 19 Motion / **VI Human Factors Applications** / 20 Human Error, Accidents, and Safety / 21 Human Factors and the Automobile / 22 Human Factors in Systems Design / Appendices / A List of Abbreviations / B Control Devices / C NIOSH Recommended Action Limit Formula for Lifting Tasks

ERGONOMICS, WORK MEASUREMENT, HUMAN FACTORS

Methods, Standards, and Work Design, 11E

Benjamin Niebel
Andris Freivalds, Pennsylvania State University–University Park

2003 / Hardcover / 768 pgs / ISBN 0-07-246824-6

www.mhhe.com/niebel-freivalds

Faced with increasing global competition, every industry, business, and service organization is restructuring itself to operate more effectively. Cost-effectiveness and product reliability without excess capacity are the keys to successful activity in business, industry, and government, and these keys are the end results of methods engineering.

The 11th edition of *Methods, Standards, and Work Design* provides a practical, up-to-date college textbook describing engineering methods to measure, analyze, and design manual work. The text emphasizes both the manual components and the cognitive aspects of work, recognizing the gradual decline of the manufacturing sector and the growth of the service sector. The importance of ergonomics and work design as part of methods engineering is emphasized not only to increase productivity, but also to improve worker health and safety, and thus, company bottom-line costs.

FEATURES

- Addition of Chapter 7—Design of Cognitive Work
- Chapters 11 (Standard Data) and 12 (Formula Construction) are now combined.
- Addition of a case study of work sampling in a service industry in Chapter 14
- A Website that will evolve with industry.
- Updated DesignTools software (v.3.0).

CONTENTS

1 Methods, Standards, and Work Design: Introduction / 2 Problem-Solving Tools / 3 Operation Analysis / 4 Manual Work Design / 5 Workplace, Equipment, and Tool Design / 6 Work Environment Design / 7 Design of Cognitive Work / 8 Proposed Method Implementation / 9 Time Study / 10 Performance Rating / 11 Allowances / 12 Standard Data and Formulas / 13 Predetermined Time Systems / 14 Work Sampling / 15 Indirect and Expense Labor Standards /

OPERATIONS RESEARCH

Introduction to Operations Research, 8E

Frederick S. Hillier, Stanford University
Gerald J. Lieberman (deceased)

2005 / Hardcover with access card / 1088 pgs / ISBN 0-07-301779-5

Browse http://www.mhhe.com/hillier

The 8th edition of *Introduction to Operations Research* remains the classic operations research text while incorporating a wealth of state-of-the-art, user-friendly software and more coverage of business applications than ever before. The hallmark features of this edition include clear and comprehensive coverage of fundamentals, an extensive set of interesting problems and cases, and state-of-the-practice operations research software used in conjunction with examples from the text. This edition will also feature the latest developments in OR, such as metaheuristics, simulation, and spreadsheet modeling.

NEW TO THIS EDITION

- New textbook material includes: a chapter on metaheuristics; and sections on constraint programming, multiechelon inventory models for supply chain management, spreadsheet modeling, and Crystal Ball simulation software.
- Expanded coverage of spreadsheets. The 8th edition now features a CD and web-only chapter on "The Art of Modeling with Spreadsheets" and textbook sections on "Formulating and Solving Linear Programming Models on a Spreadsheet," "Performing Sensitivity Analysis on a Spreadsheet," "Using Spreadsheets to Perform Sensitivity Analysis on Decision Trees," and "Performing Simulations on Spreadsheets."
- Each book comes with a CD-ROM containing the aforementioned software in addition to bonus chapters [including Crystal Ball, The Art of Modeling with Spreadsheets, among others], sections, over twenty additional cases, and more than 100 worked examples. Bonus chapters and cases can also be found on the book's Online Learning Center http://www.mhhe.com/hillier.

- A list of chapter-specific learning aids available on the CD-ROM is provided at the end of each chapter.
- This edition has been trimmed down to a more appropriate size for an introductory textbook by shifting little-used material to the CD-ROM.
- A new test bank featuring moderately challenging questions and complete solutions is being provided to instructors on the password-protected portion of the book's Online Learning Center.

FEATURES

- A wealth of software options, including: the student version of MPL Modeling System and its solver CPLEX, complete with tutorials and examples from the text; the student version of LINDO and LINGO, complete with relevant examples from the text; our excellent tutorial software; Queueing Simulator; the powerful Crystal Ball package (including its OptQuest and CB Predictor modules) for simulation and forecasting; a variety of Excel add-ins, spreadsheet formulations and solutions, and templates.
- The classic text in operations research for more than three decades.

CONTENTS

1 Introduction / 2 Overview of the Operations Research Modeling Approach / 3 Introduction to Linear Programming / 4 Solving Linear Programming Problems: The Simplex Method / 5 The Theory of the Simplex Method / 6 Duality Theory and Sensitivity Analysis / 7 Other Algorithms for Linear Programming / 8 The Transportation and Assignment Problems / 9 Network Optimization Models / 10 Dynamic Programming / 11 Integer Programming / 12 Nonlinear Programming / 13 Metaheuristics / 14 Game Theory / 15 Decision Analysis / 16 Markov Chains / 17 Queueing Theory / 18 Inventory Theory / 19 Markov Decision Processes / 20 Simulation / **Appendices** / **1** Documentation for the OR Courseware / **2** Convexity / **3** Classical Optimization Methods / **4** Matrices and Matrix Operations / **5** Table for a Normal Distribution

Supplements on the CD-ROM and the Online Learning Center

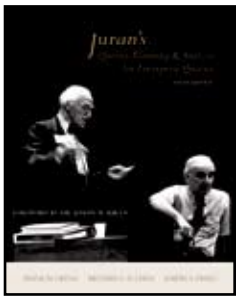
Additional Cases / Supplement to Appendix 3.1 More about LINGO / Supplement to Chapter 7 Linear Goal Programming and Its Solution Procedures / Supplement to Chapter 8 A Case Study with Many Transportation Problems / Supplement 1 to Chapter 18 Derivation of the Optimal Policy for the Stochastic Single-Period Model for Perishable Products / Supplement 2 to Chapter 18 Stochastic Periodic-Review Models / Supplement 1 to Chapter 20 Variance-Reducing Techniques / Supplement 2 to Chapter 20 Regenerative Method of Statistical Analysis / 21 The Art of Modeling with Spreadsheets / 22 Project Management with PERT/CPM / 23 Additional Special Types of Linear Programming Problems / 24 Probability Theory / 25 Reliability / 26 The Application of Queueing Theory / 27 Forecasting / 28 Examples of Performing Simulations on Spreadsheets with Crystal Ball / Appendix: 6 Simultaneous Linear Equations

SUPPLEMENT

Student CD-ROM

QUALITY CONTROL/RELIABILITY

Juran's Quality Planning and Analysis for Enterprise Quality, 5E



Frank M. Gryna (deceased)
Richard C.H. Chua, Juran Institute Inc.
Joseph A. DeFeo, Juran Institute, Inc.

2007 / Hardcover / 704 pgs / ISBN 0-07-296662-9

Browse http://www.mhhe.com/gryna

Through four editions, Juran's Quality Planning and Analysis has provided students and professionals with an authoritative treatment of the subject that goes beyond statistical techniques.

The fifth edition of this highly regarded classic book on managing for quality, Juran's Quality Planning and Analysis for Enterprise Quality, combines the pioneering concepts of Dr. Joseph M. Juran and the teachings of the late Dr. Frank M. Gryna with the insights and experience of today's leading trainers and practitioners at the Juran Institute: Dr. Richard Chua, Executive VP and Joseph A. DeFeo, President & Executive Coach.

The trademark Juran Institute approach has been retained, developing the viewpoint that the achievement of quality products and services requires the application of managerial, technological, statistical, and behavioral actions throughout all functions of an organization. With real-world problems provided in each chapter, students are faced with realities that confront managers, designers, engineers, marketers, operations personnel, users, and others involved in enterprise quality.

This text will challenge readers to make assumptions, estimate economics, reach data-driven conclusions, and adapt themselves to the imperfect world of the practitioner. Students and professionals will also find this book useful as they prepare for various certifications such as the Certified Quality Engineer, Reliability Engineer, Quality Manager, Six Sigma Green Belt and Black Belt.

NEW TO THIS EDITION

- A Road Map for Enterprise Quality to provide guidance to organizations on how to achieve and sustain breakthrough results.
- Modular organization of topics into four parts-Foundation, Managerial Concepts, Functional Applications, and Statistical Techniques-to enable instructors (and the reader) to customize topic coverage easily for different classes.
- New and expanded topics, including: Six Sigma Improvement, Design for Six Sigma, Lean, Value Stream Management, Mass Customization, Quality Function Deployment, and Strategic Deployment.
- Actual Six Sigma and Lean project examples and presentations.
- A fuller treatment of Hypothesis Testing, including a hypothesis testing roadmap, to guide students on the choice of statistical tests.
- Updated references and supplementary readings with descriptions of the citations, based on online searches of the latest literature-books, conferences, and journals.
- Use of MINITAB software to analyze data and solve problems. Worked examples using MINITAB are featured and data sets for exercises are provided on the website.
- New examples and exercises expanded to include: medical devices, service sector, pharmaceuticals, food, and software industries.
- Integration of ASQ style exam questions throughout chapters and updated in the Appendix.
- 25% new figures.

CONTENTS

Introduction: A Roadmap for Change / Part I: Foundation / 1 Basic Concepts / 2 Companywide Assessment of Quality / 3 Quality Improvement and Cost Reduction / 4 Operational Quality Planning and Sales Income / 5 Quality Control/ **Part II: Managerial Concepts** / 6 Process Management / 7 Organization for Quality / 8 Strategic Quality Management / 9 Developing a Quality Culture/ **Part III: Functional Applications** / 10 Understanding Customer Needs / 11 Designing for Quality / 12 Supply Chain Management / 13 Operations-Manufacturing Sector / 14 Operations-Service Sector / 15 Inspection, Test, and Measurement / 16 Quality Assurance Audits/ **Part IV: Statistical Techniques** / 17 Basic Concepts of Statistics and Probability / 18 Statistical Tools for Analyzing Data / 19 Statistical Tools for Designing for Quality / 20 Statistical Process Control / Appendices / I: Supplementary Problems Using Minitab / II: Study Guide Examples / III: Tables

SUPPLEMENT

Solutions Manual

Statistical Quality Control, 7E

Eugene Grant, Late of Stanford University
Richard Leavenworth, University of Florida–Gainesville

1996 / Hardcover / 764 pgs / ISBN 0-07-844354-7

This title is a substantial revision of one of the leading textbooks designed for the statistical quality control course taught in departments of industrial engineering, operations research and statistics. While maintaining its already successful writing style and pedagogy, this title has also incorporated key organizational changes in order to reflect recent trends in the field. The text features large quantity of examples and student problems and a strong introduction to the proper use and misuse of control charts. In this edition several chapters were streamlined, and consolidations and profitability were brought forward in the text. There is new material on experimental design, a reduced emphasis on acceptance sampling, and enhanced attention to the managerial and organizational aspects of quality control. Free SPC expert software is packaged with the text for use as a statistical and graphical tool. Text plus 3.5" diskette.

CONTENTS

1 Introduction and Overview / 2 Directions for Simple X and R Charts / 3 Why the Control Chart Works; Some Statistical Concepts / 4 Why the Control Chart Works; Some Examples / 5 Some Fundamentals of The Theory of Probability / 6 The Control Chart for Fraction Rejected / 7 The Control Chart for Nonconformities / 8 Rational

Subgrouping / 9 Statistical Analysis of Process Capability and for Process Improvement / 10 Some Special Process Control Procedures / 11 Some Fundamental Concepts in Scientific Sampling / 12 An AQL System for Lot-by-Lot Acceptance Sampling by Attributes / 13 Other Procedures for Acceptance Sampling by Attributes / 14 Systems for Acceptance Sampling from Continuous Production / 15 Systems for Acceptance Sampling by Variables / 16 Some Aspects of Life Testing and Reliability / 17 Some Economic Aspects of Quality Decisions / 18 Some Significant Events in the Development of Statistical Quality Control / 19 Models for Quality Management and Problem Solving / 20 Demonstrating the Operation of Systems of Chance Causes / Appendices

SUPPLEMENT
Solutions Manual

SIMULATION

Simulation Using Promodel w/CD-ROM, 2E

Charles R. Harrell, Brigham Young University-Provo
Biman K. Ghosh, California State Poly University-Pomona
Royce O. Bowden, Mississippi State University

2004 / Hardcover with CD-ROM / 640 pgs / ISBN 0-07-291980-9

Browse www.mhhe.com/harrell2e

The second edition of *Simulation Using ProModel* covers the art and science of simulation in general and the use of ProModel simulation software in particular. The lead author is the Chief Technology Advisor for ProModel Corporation. The text is appropriate for use in both a graduate or undergraduate course in simulation in a Business, Engineering or Computer Science program, and as a self-study guide to simulation for practitioners in business and industry.

The second edition of *Simulation Using Promodel* reflects the most recent version of the ProModel software available (version 6.0) and includes a new chapter and lab that provide deeper coverage of how random behavior is simulated and how output results are generated and evaluated. Additional examples, review questions, lab exercises and case study assignments have also been added to further enhance students' learning experience.

This text blends theory with practice presenting actual applications in business, services and manufacturing. General topics include simulation basics, planning, data collection and analysis, model building, model verification and validation, output analysis and experimental design. Additionally, this is the first simulation text that covers simulation optimization using modern techniques. For a practical emphasis, complete chapters are devoted to typical modeling issues encountered in manufacturing, material handling and service systems.

NEW TO THIS EDITION

- The second edition of *Simulation Using Promodel* reflects the most recent version of the Promodel software available, version 6.0, copyright 2003.
- The text includes a complete account of a real world simulation project.
- The second edition includes a new Study chapter on Discrete Event Simulation, two new Lab chapters, and two new Case Studies.

FEATURES

- The lead author is founder and Chief Technology Advisor for Promodel Corporation.
- The package includes a free CD-ROM with a fully functional student version of the Promodel software including a tutorial and lab models.
- Instructor Resources for this text can be accessed through the text's Web site at http://www.mcgraw-hill.engineeringcs.com.

CONTENTS

I Study Chapters / 1 Introduction to Simulation / 2 System Dynamics / 3 Simulation Basics / 4 Discrete-Event Simulation / 5 Getting Started / 6 Data Collection and Analysis / 7 Model Building / 8 Model Verification and Validation / 9 Simulation Output Analysis / 10 Comparing Systems / 11 Simulation Optimization / 12 Modeling Manufacturing Systems / 13 Modeling Material Handling Systems / 14 Modeling Service Systems / **II Labs /** 1 Introduction to ProModel 6.0 / 2 ProModel World View, Menu and Tutorial / 3 Running a ProModel Simulation / 4 Building Your First Model / 5 ProModel's Output Module / 6 Fitting Statistical Distribution to Input Data / 7 Basic Modeling Concepts / 8 Model Verification and Validation / 9 Simulation Output Analysis / 10 Comparing Alternative Systems / 11 Simulation Optimization with SimRunner / 12 Intermediate Modeling Concepts / 13 Material Handling Concepts / 14 Additional Modeling Concepts / **III Case Study Assignments /** Case 1 Toy Airplane Manufacturing / Case 2 Mi Cazuela—Mexican Restaurant / Case 3 Jai Hind Cycles Inc. Plans New Production Facility / Case 4 The FSB Coin System / Case 5 Automated Warehousing at Athletic Shoe Company / Case 6 Concentrate Line at Florida Citrus Company / Case 7 Balancing the Production Line at Southern California Door Company / Case 8 Material Handling at California Steel Industries, Inc. / Appendices / A Common Continuous and Discrete Distributions / B Critical Values for Students t Distribution / C F Distribution for a=0.05 / D Critical Values for Chi-Square Distribution

Simulation with Arena w/CD-ROM, 3E

W. David Kelton, University of Cincinnati–Cincinnati
Randall P. Sadowski, Systems Modeling Corporation, Rockwell Software
David T. Sturrock , Systems Modeling Corporation, Rockwell Software

2004 / Hardcover with CD-ROM / 672 pgs / ISBN 0-07-291981-7

Solutions to Exercises, PowerPoints Slides for each chapter, Order Information, New Features, Errata Page (Browse http://www.arenasimulation.com/programs/sim_w_arena_3.asp)

The first edition of this book was the first text to be written on the Arena software, which is a very popular simulation modeling software. What makes this text the authoritative source on Arena is that it was written by the creators of Arena themselves.

The new third edition follows in the tradition of the successful first and second editions in its tutorial style (via a sequence of carefully crafted examples) and an accessible writing style. The updates include thorough coverage of the new version of the Arena software (Arena 7.01), enhanced support for Excel and Access, and updated examples to reflect the new version of software.

The CD-ROM that accompanies the book contains the Academic version of the Arena software. The software features new capabilities such as model documentation, enhanced plots, file reading and writing, printing and animation symbols.

NEW TO THIS EDITION

- Accompanied by an updated version, 7.01, of the Arena simulation software. This version has enhanced capabilities such as model documentation, enhanced plots, file reading and writing, printing, and animation symbols.
- A new Chapter Six, Statistical Analysis of Terminating System Output, contains the statistical analysis content that was previously integrated into Chapter 5.
- Appendix B, IIE/RS Contest Problems, features two new modeling contest problems.
- Instructor Resources for this text can be accessed through http://www.arenasimulation.com/40academic/SWA3e.htm

CONTENTS

1 What is Simulation? / 2 Fundamental Simulation Concepts / 3 A Guided Tour Through Arena / 4 Modeling Basic Operations and Inputs / 5 Modeling Detailed Operations / 6 Statistical Analysis of Output from Terminating Simulations / 7 Intermediate Modeling and Steady-State Statistical Analysis / 8 Entity Transfer / 9 A Sampler of Further Modeling Issues and Techniques / 10 Arena Integration and Customization / 11 Continuous and Combined Discrete/Continuous Models / 12 Further Statistical Issues / 13 Conducting Simulation Studies / Appendices / A A Functional Specification for the Washington Post / B IIE/RS Contest Problems / C A Refresher on Probability and Statistics / D Arena's Probability Distributions / E Academic Software Installation Instructions

Simulation Modeling and Analysis, 3E

Averill Law, *Averill M. Law & Associates*
W. David Kelton, *University of Cincinnati–Cincinnati*

2000 / Hardcover / 800 pgs / ISBN 0-07-059292-6

This site contains: Solutions Manual, Slides, Errata, Page Out, Table of Contents, and Preface (Browse http://www.mhhe.com/lawkelton)

This senior/graduate-level text is the classic text in its field and established itself as the authoritative source on the theory & practice of simulation over 15 years ago. It is used in most of the better schools of engineering and in some business programs as well.

NEW TO THIS EDITION

- All of the software used in the book has been upgraded to FORTRAN and C.
- Additional material on object-oriented simulation techniques and on communication networks has been included.

FEATURES

- This book is based on the latest simulation techniques and models and is looked at as a source for understanding the latest technology.

CONTENTS

SUPPLEMENTS

Solutions Manual
Expert Fit Software CD-ROM

INTRODUCTION TO MATERIALS SCIENCE AND ENGINEERING

Foundations of Materials Science and Engineering w/Student CD-ROM, 4E

William F. Smith, University of Central Florida
Javad Hashemi , Texas Tech University

2006 / Hardcover / ISBN 0-07-310763-8

Browse http://www.mhhe.com/smithmaterials

Smith/Hashemi's *Foundations of Materials Science and Engineering*, 4/e provides a readable and understandable overview of engineering materials for undergraduate students. Chapters have been updated to reflect new topics such as nanotechnology and biotechnology, and materials types being used in industry. Through concise explanations, numerous worked-out examples, a wealth of illustrations & photos, and a brand new set of online resources, the new edition provides the most student-friendly introduction to the science & engineering of materials.

The extensive media package available with the text provides Virtual Labs, tutorials, and animations, among other resources, on the student CD-ROM along with numerous student and instructor resources on the Online Learning Center.

NEW TO THIS EDITION

- Numerous new sections on modern materials science topics have been added including coverage of nanotechnology, biomedical engineeering, and semiconductors.
- Updated and redesigned "Chapter Openers" give readers a sense of how engineers use each chapter's content in the real world.
- New Learning Objectives outline major concepts at the start of each chapter to help students focus on the most essential big-picture topics.
- Icons in the margins highlight media supplements throughout the text .
- Virtual labs, which provide interactive quizzes, animations, and video on essential material science processes, will be included on a free CD-ROM packaged with the book.
- New additions to the Online Learning Center include lecture powerpoints and sample syllabi for instructors, animations and tutorials to match the new book topics, a materials properties database, and useful weblinks.
- Our redesigned and updated C.O.S.M.O.S-driven solutions manual, provided on the instructor CD-ROM, allows instructors to create and keep track of customized homework assignments, tests and quizzes in a few simple steps.

FEATURES

- A concise, readable style is used throughout; readers are given understandable explanations without the excessive detail other textbooks routinely include.
- Over 1200 end-of-chapter problems and over 180 Materials Selection and Design problems.
- Materials Selection and Design Problems in each chapter relate concepts more clearly to engineering practice, and help satify ABET requirements for design content in all engineering courses.
- Online Learning Center features image files, bonus chapters on Materials for MEMS entry, case studies, tie-in to Blackboard and WebCT, glossary, learning objectives and chapter summaries, and FE Exam review questions.

CONTENTS

SUPPLEMENTS

COSMOS t/a Foundations of Materials Science and Engineering
Student Resources CD-ROM

MECHANICAL BEHAVIOR OF MATERIALS

Mechanical Metallurgy, 3E

George Dieter, University of Maryland–College Park

1986 / Hardcover / 800 pgs / ISBN 0-07-016893-8

CONTENTS

STRESS ANALYSIS

Advanced Strength and Applied Stress Analysis, 2E

Richard Budynas, Rochester Institute Technology

1999 / Hardcover / 960 pgs / ISBN 0-07-008985-X

This book provides a broad and comprehensive coverage of the theoretical, experimental, and numerical techniques employed in the field of stress analysis. Designed to provide a clear transition from the topics of elementary to advanced mechanics of materials. Its broad range of coverage allows instructors to easily select many different topics for use in one or more courses. The highly readable writing style and mathematical clarity of the first edition are continued in this edition. Major revisions in this edition include: an expanded coverage of three-dimensional stress/strain transformations; additional topics from the theory of elasticity; examples and problems which test the mastery of the prerequisite elementary topics; clarified and additional topics from advanced mechanics of materials; new sections on fracture mechanics and structural stability; a completely rewritten chapter on the finite element method; a new chapter on finite element modeling techniques employed in practice when using commercial FEM software; and a significant increase in the number of end of chapter exercise problems some of which are oriented towards computer applications.

CONTENTS

SUPPLEMENT

Instructor's Solutions Manual

Roark's Formulas for Stress and Strain, 7E

Warren C. Young, University of Wisconsin at Madison
Richard Budynas, Rochester Institute of Technology

2002 / Hardcover / 832 pgs / ISBN 0-07-072542-X

McGraw-Hill Professional

Now updated with 30% new material: the ultimate resource for designers, engineers, and analyst working with calculations of loads and stress. This landmark reference continues its tradition of presenting equations and diagrams of structural properties—all in an easy-to-use, thumb-through format. New to this edition: expanded coverage of joints, bearing and shear stress, experimental stress analysis, and stress concentrations, plus material behavior coverage and stress and strain measurement. Now includes expanded tables and cases; improved notations and figures in the tables; consistent table and equation numbering; verification of correction factors. Features a solutions-based approach to quick calculations in structural element design and analysis.

CONTENTS

GENERAL

Marks' Standard Handbook for Mechanical Engineers, 11E

New!

Eugene A. Avallone, The City College of the City University of New York
Theodore Baumeister, Columbia University
Ali Sadegh, City Univ. of New York, CCNY

2007 / Hardcover / 1800 pgs / ISBN 0-07-142867-4

McGraw-Hill Professional

Solve any mechanical engineering problem quickly and easily with the world's leading engineering handbook

Nearly 1800 pages of mechanical engineering facts, figures, standards, and practices, 2000 illustrations, and 900 tables clarifying important mathematical and engineering principle, and the collective wisdom of 160 experts help you answer any analytical, design, and application question you will ever have.

CONTENTS

Contributors / The Editors / Preface to the Eleventh Edition / Preface to the First Edition / Symbols and Abbreviations / 1 Mathematical Tables and Measuring Units / 2 Mathematics / 3 Mechanics of Solids and Fluids / 4 Heat / 5 Strength of Materials / 6 Materials of Engineering / 7 Fuels and Furnaces / 8 Machine Elements / 9 Power Generation / 10 Materials Handling / 11 Transportation / 12 Building Construction and Equipment / 13 Manufacturing Processes / 14 Fans, Pumps, and Compressors / 15 Electrical and Electronics Engineering / 16 Instruments and Controls / 17 Industrial Engineering / 18 The Regulatory Environment / 19 Refrigeration, Cryogenics, and Optics / 20 Emerging Technologies

STATICS

Statics and Mechanics of Materials

New!

Ferdinand Beer, (deceased)
E. Russell Johnston, Jr.
John T. DeWolf
both of University of Connecticut

2008 / Hardcover / 736 pgs / ISBN 0-07-332808-1

For the past fifty years Beer and Johnston have been the uncontested leaders in the teaching of undergraduate engineering mechanics. Over the years their textbooks have introduced significant theoretical and pedagogical innovations in statics, dynamics, and mechanics of materials education. At the same time, their careful presentation of content, unmatched levels of accuracy, and attention to detail have made their texts the standard for excellence.

The new first edition *Statics and Mechanics of Mateirals* has thorough coverage together with a significant addition of new problems, including biomechanics problems, and the most extensive media resources available.

FEATURES INCLUDE

- 30% new problems from the current Beer text has been carried over to this version of Beer.
- ARIS McGraw-Hill's Homework Management system will prevent homework problems from circulating! You will have the ability to create unlimited number of problems!
- McGraw-Hill's web-based Hands-on Mechanics teaching demonstration library provides instructors with instructions for building hands-on physical models
- A careful, step-by-step presentation is followed in each lesson of each chapter and every chapter is organized as follows: an opening photograph to help students visualize key concepts is followed by a chapter introduction with a chapter outline previewing what will be covered in each lesson.
- A signature Beer and Johnston text feature, Sample Problems allow students to see important key problem types with their solution laid out on a single page, and organized to provide a model for student problem solving.

Mechanics for Engineers, Statics, 5E

New Edition

Ferdinand P. Beer, (deceased)
E. Russell Johnston, Jr., University of Connecticut

2008 / Hardcover / 480 pgs / ISBN 0-07-246478-X

The first book published in the Beer and Johnston Series, *Mechanics for Engineers: Statics* is a scalar-based introductory statics text, ideally suited for engineering technology programs, providing first-rate treatment of rigid bodies without vector mechanics. This new edition provides an extensive selection of new problems and end-of-chapter summaries. The text brings the careful presentation of content, unmatched levels of accuracy, and attention to detail that have made Beer and Johnston texts the standard for excellence in engineering mechanics education.

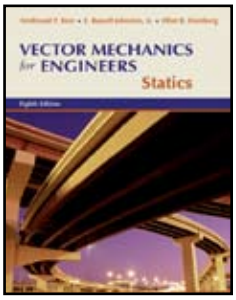
FEATURES

- Features precision, accuracy, and math level appropriate for Engineering Technology courses.
- A Mathematics Review section helps students understand the basics of the scalar math used in statics & dynamics.
- Sample Problems are included to help students work through the solution of typical engineering problems and prepare for the assigned chapter homework problems.

CONTENTS

1 Introduction / 2 Statics of Particles / 3 Statics of Rigid Bodies in Two Dimensions / 4 Statics of Rigid Bodies in Three Dimensions / 5 Distributed Forces: Centroids and Centers of Gravity / 6 Analysis of Structures / 7 Forces in Beams and Cables / 8 Friction / 9 Distributed Forces: Moments of Inertia / 10 Method of Virtual Work / Index / Answers to Even-Numbered Problems

Vector Mechanics for Engineers: Statics, 8E



Ferdinand P. Beer (deceased)
E. Russell Johnston, Jr., University of Connecticut
Elliot R. Eisenberg, Pennsylvania State University
William E. Clausen, Ohio State University
David Mazurek, U S Coast Guard Academy
Phillip J. Cornwell, Rose-Hulman Institute of Technology

2007 / Hardcover / 648 pgs / ISBN 0-07-321219-9

Browse http://www.mhhe.com/beerjohnston to view an extensive set of web-based resources.

For the past fifty years Beer and Johnston have been the uncontested leaders in the teaching of undergraduate engineering mechanics. Over the years their textbooks have introduced significant theoretical and pedagogical innovations in statics, dynamics, and mechanics of materials education. At the same time, their careful presentation of content, unmatched levels of accuracy, and attention to detail have made their texts the standard for excellence.

The new Eighth Edition of *Vector Mechanics for Engineers: Statics and Dynamics* marks the fiftieth anniversary of the Beer/Johnston series. Continuing in the spirit of its successful previous editions, the Eighth Edition provides conceptually accurate and thorough coverage together with a significant addition of new problems, including biomechanics problems, and the most extensive media resources available.

NEW TO THIS EDITION

- The 8th editions offer 48% new and revised homework problem set, with biomechanics-focused problems added appropriately throughout the texts.
- The photo program continues to be expanded in each edition, with new chapter opener and in chapter photos added to each chapter.
- A C.O.S.M.O.S. Solutions Manual, provided to instructors on DVD, allows for assignment generation, tracking, and distribution. Instructors also have the ability to edit homework problems.
- A robust ARIS website provides both student and instructor resources including algorithmic problems, S.M.A.R.T. tutorials, lecture powerpoints, and images from the text, along with the benefit of a course management system.

- McGraw-Hill's web-based Hands-on Mechanics teaching demonstration library provides instructors with instructions for building hands-on physical models used to demonstrate important Statics and Dynamics concepts in class.
- yourotherteacher.com—provides access to hours of online tutorials for statics and dynamics.

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- Liberal use of free-body diagrams (graphical representation of objects where arrows indicate forces acting on object) in Statics and effective-forces diagrams in Dynamics. By placing the emphasis on "free-body-diagram equations" rather than on the standard algebraic equations of motion, a more intuitive and more complete understanding of fundamental principles is achieved.
- Review and Summary sections at the end of each chapter provide students with a valuable study tool. Reviewers found these chapter reviews to be one of the strongest features of the text and the best available in the market.
- Computer Problems, relevant to the design process, are offered at the end of each chapter. While the problems will be generic, they will be designed to be easily solved using popular computational programs such as MATLAB®, Mathcad, Maple, etc. The computer problems focus on symbolic manipulation and plotting, as opposed to the more programming-based computer problems in the current editions. Computer problems help students gain a better understanding of basic principles because most require integration of several concepts, much like one does in design. They also allow for open-ended parametric studies.
- A Fundamentals of Engineering Examination Appendix helps prepare students for the FE/EIT exam.
- Effective use of 4-color helps students distinguish between different vectors: red=accelerations and forces (applied and effective) green=velocities, blue=displacements.
- Instructors enjoy a clearer presentation and organization of problem solutions with a typeset print solutions manual in a clear 1-2 solution per page format. In addition, Instructors are provided with assignment grids, designed so that instructors can assign different homework problems each semester for up to six semesters.

CONTENTS

1 Introduction / 2 Statics of Particles / 3 Rigid Bodies: Equivalent Systems of Forces / 4 Equilibrium of Rigid Bodies / 5 Distributed Forces: Centroids and Centers of Gravity / 6 Analysis of Structures / 7 Forces in Beams and Cables / 8 Friction / 9 Distributed Forces: Moments of Inertia / 10 Method of Virtual Work / Fundamentals of Engineering Examination / Index / Answers to Problems

SUPPLEMENTS

Instructor's Solutions Manual (Four volumes

ARIS (Assessment, Review, and Instruction System): A complete, online tutorial, electronic homework, and course management system to accompany Beer; featuring algorithmic homework and teaching tools.
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COSMOS: A complete electronic solutions manual for the text on DVD allows instructors to edit homework problems, as well as generate and track assignments.

SMART Tutorial

DYNAMICS

Mechanics for Engineers, Dynamics, 5E

New Edition

Ferdinand P. Beer, (deceased)
E. Russell Johnston, Jr., University of Connecticut

2008 / Hardcover / 928 pgs / ISBN 0-07-246477-1

The first book published in the Beer and Johnston Series, *Mechanics for Engineers: Dynamics* is a scalar-based introductory dynamics text, ideally suited for engineering technology programs, providing first-rate treatment of rigid bodies without vector mechanics. This new edition provides an extensive selection of new problems and end-of-chapter summaries. The text brings the careful presentation of content, unmatched levels of accuracy, and attention to detail that have made Beer and Johnston texts the standard for excellence in engineering mechanics education.

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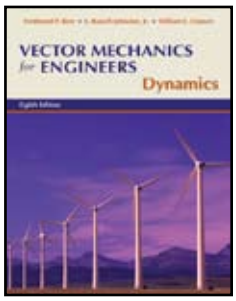
CONTENTS

11 Kinematics of Particles / 12 Kinetics of Particles: Newton's Second Law / 13 Kinetics of Particles: Work and Energy / 14 Kinetics of Particles: Impulse and Momentum / 15 Kinematics of Rigid Bodies / 16 Kinetics of Rigid Bodies: Forces and Accelerations / 17 Kinetics of Rigid Bodies: Work and Energy / 18 Kinetics of Rigid Bodies: Impulse and Momentum / 19 Mechanical Vibrations / Appendix / Moments of Inertia in Masses / Index / Answers to Problems

Vector Mechanics for Engineers: Dynamics, 8E



Ferdinand P. Beer (deceased)
E. Russell Johnston, Jr., University of Connecticut
Elliot R. Eisenberg, Pennsylvania State University
William E. Clausen, Ohio State University
David Mazurek, U S Coast Guard Academy
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2007 / Hardcover / 768 pgs / ISBN 0-07-321220-2

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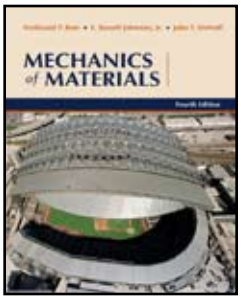
COSMOS: A complete electronic solutions manual for the text on DVD allows instructors to edit homework problems, as well as generate and track assignments.

SMART Tutorial

STRENGTH OF MATERIALS

Mechanics of Materials, 4E



Ferdinand P. Beer (deceased)
E. Russell Johnston, Jr., University of Connecticut
John T. DeWolf, University of Connecticut

2006 / Hardcover / 800 pgs / ISBN 0-07-310795-6

The Online Learning Center features the extensive Mechanics of Materials Tutorial, animations for each chapter, lecture powerpoints and more! (Browse http://www.mhhe.com/beermom4e)

For the past forty years Beer and Johnston have been the uncontested leaders in the teaching of undergraduate engineering mechanics. Their careful presentation of content, unmatched levels of accuracy, and attention to detail have made their texts the standard for excellence. The revision of their classic *Mechanics of Materials* features an updated art and photo program as well as numerous new and revised homework problems.

The text's superior Online Learning Center (www.mhhe.com/beermom4e) includes an extensive Self-paced, Mechanics, Algorithmic, Review and Tutorial (S.M.A.R.T.), created by George Staab and Brooks Breeden of The Ohio State University, that provides students with additional help on key concepts. The custom website also features animations for each chapter, lecture powerpoints, and other online resources for both instructors and students.

NEW TO THIS EDITION

- The text offers over 1600 homework problems, known for their accuracy and careful development, with 50% new or revised for the 4th edition.
- The text photo program has been expanded to include updated in-chapter photographs.
- All users have access to a Self-paced, Mechanics, Algorithmic, Review and Tutorial (S.M.A.R.T.), moved online for the 4th edition, featuring theoretical explanations coupled with examples and quizzes based directly on key concepts from the text.
- The Online Learning Center (www.mhhe.com/beermom4e) now offers even more student and instructor resources including animations for each chapter, lecture powerpoints, course organization tools, image files and helpful weblinks.

FEATURES

- The pedagogical changes that made the 3rd Edition so successful are retained in the 4th edition, including: a review of statics and the use of free-body diagrams, a section introducing a problem-solving methodology, and a Fundamentals of Engineering (FE/EIT) Exam appendix.

CONTENTS

1 Introduction—Concept of Stress / 2 Stress And Strain—Axial Loading / 3 Torsion / 4 Pure Bending / 5 Analysis and Design of Beams for Bending / 6 Shearing Stresses in Beams and Thin-Walled Members / 7 Transformation of Stress and Strain / 8 Principal Stresses Under Given Loading Conditions / 9 Deflection of Beams / 10 Columns / 11 Energy Methods

SUPPLEMENT

Instructor's Solutions Manual Vol. 2 t/a Mechanics of Materials

INTERMEDIATE/ADVANCED DYNAMICS

Analytical Dynamics

Haim Baruh, Rutgers University–New Brunswick

1999 / Hardcover / 744 pgs / ISBN 0-07-365977-0

Analytical Dynamics presents a fair and balanced description of dynamics problems and formulations. From the classical methods to the newer techniques used in today's complex and multibody environments, this text shows how those approaches complement each other. The text begins by introducing the reader to the basic concepts in mechanics. These concepts are introduced at the particle mechanics level. The text then extends these concepts to systems of particles, rigid bodies (plane motion and 3D), and lightly flexible bodies. The cornerstone variational principles of mechanics are developed and they are applied to particles, rigid bodies, and deformable bodies. Through this approach, students are exposed to a natural flow of the concepts used in dynamics.

CONTENTS

SUPPLEMENT

Instructor's Solutions Manual

MATERIALS SCIENCE

Foundations of Materials Science and Engineering w/Student CD-ROM, 4E

William F. Smith, University of Central Florida
Javad Hashemi, Texas Tech University

2006 / Hardcover / 1056 pgs / ISBN 0-07-310763-8

Browse http://www.mhhe.com/smithmaterials

Smith/Hashemi's *Foundations of Materials Science and Engineering, 4/e* provides a readable and understandable overview of engineering materials for undergraduate students. Chapters have been updated to reflect new topics such as nanotechnology and biotechnology, and materials types being used in industry. Through concise explanations, numerous worked-out examples, a wealth of illustrations & photos, and a brand new set of online resources, the new edition provides the most student-friendly introduction to the science & engineering of materials.

The extensive media package available with the text provides Virtual Labs, tutorials, and animations, among other resources, on the student CD-ROM along with numerous student and instructor resources on the Online Learning Center.

NEW TO THIS EDITION

- Numerous new sections on modern materials science topics have been added including coverage of nanotechnology, biomedical engineeering, and semiconductors.
- Updated and redesigned "Chapter Openers" give readers a sense of how engineers use each chapter's content in the real world.
- New Learning Objectives outline major concepts at the start of each chapter to help students focus on the most essential big-picture topics.
- Icons in the margins highlight media supplements throughout the text .
- Virtual labs, which provide interactive quizzes, animations, and video on essential material science processes, will be included on a free CD-ROM packaged with the book.
- New additions to the Online Learning Center include lecture powerpoints and sample syllabi for instructors, animations and tutorials to match the new book topics, a materials properties database, and useful weblinks.
- Our redesigned and updated C.O.S.M.O.S-driven solutions manual, provided on the instructor CD-ROM, allows instructors to create and keep track of customized homework assignments, tests and quizzes in a few simple steps.

FEATURES

- A concise, readable style is used throughout; readers are given understandable explanations without the excessive detail other textbooks routinely include.
- Over 1200 end-of-chapter problems and over 180 Materials Selection and Design problems.
- Materials Selection and Design Problems in each chapter relate concepts more clearly to engineering practice, and help satify ABET requirements for design content in all engineering courses.
- Online Learning Center features image files, bonus chapters on Materials for MEMS entry, case studies, tie-in to Blackboard and WebCT, glossary, learning objectives and chapter summaries, and FE Exam review questions.

CONTENTS

SUPPLEMENTS

COSMOS t/a Foundations of Materials Science and Engineering
Student Resources CD-ROM

Science and Design of Engineering Materials E-Text with Materials in Focus Hybrid CD-ROM, 2E

James P. Schaffer, Lafayette College
Ashok Saxena, Georgia Institute of Technology
Thomas H. Sanders, Jr., Georgia Institute of Technology
Stephen D. Antolovich, Washington State University–Pullman
Steven B. Warner, University of Massachusetts–Dartmouth

1999 / Hardcover / 848 pgs / ISBN 0-07-244809-1

www.mhhe.com/engcs/materials/schaffer

This is an introductory text for materials science and engineering. This book takes an integrated approach to materials, with an organization focusing on properties rather than classes of materials.

Schaffer's *Science and Design of Engineering Materials*, 2nd Edition will now be complemented by an e-Text. An e-Text is PDF. files of the main text on CD-ROM. The entire contents of the Materials in Focus CD-ROM, which has previously complemented the book are also on the e-Text. Because the text and the Materials in Focus CD-ROM are now together on one CD-ROM, students are able to move back and forth between the two seamlessly. Instructors will benefit from the e-Text because they will better be able to tie the text material to lectures and homework problems.

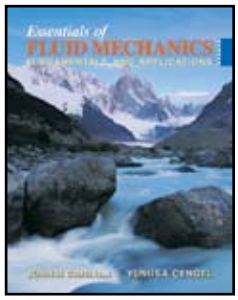
CONTENTS

SUPPLEMENTS

Instructor's Solutions Manual
Transparency Masters

FLUID MECHANICS (INTRODUCTION)

ESSENTIALS OF FLUID MECHANICS: Fundamentals and Applications w/ Student Resource DVD



John M. Cimbala, Pennsylvania State University-University Park
Yunus A. Cengel, University of Nevada-Reno

2008 / Hardcover / 608 pages / ISBN 0-07-330112-4

Browse http://www.mhhe.com/cimbala

New Edition

Essentials of Fluid Mechanics: Fundamentals and Applications is an abridged version of a more comprehensive text by the same authors, *Fluid Mechanics: Fundamentals and Applications* (McGraw-Hill 2006). The text covers the basic principles and equations of fluid mechanics in the context of numerous and diverse real-world engineering applications.

FEATURES

- An abridged version of the successful, *Fluid Mechanics: Fundamentals and Applications* by Yunus Cengel and John Cimbala (McGraw-Hill 2006), this text is suitable for a one-semester course in fluid mechanics.
- This text emphasizes the physical aspects of fluid mechanics in addition to mathematical representations and manipulations.
- Since fluid mechanics is a highly visual subject, the Cimbala text features 660 illustrations and photographs. Also included is an outstanding media program that includes narrated videos and animations.
- Topic Flexibility facilitates different approaches by covering the basics for all majors and then offers robust coverage to allow mechanical, civil, or aerospace engineering approaches.
- A Student Resources DVD is included with each text. The DVD includes the Limited Academic Verison of Engineering Equation Solver (EES) with scripted solutions to select text problems and narrated Fluid Mechanics visualization videos.
- An Online Learning Center is available for students and instructors at http://www.mhhe.com/cengel.
- This text features Hands-on Mechanics as an additional resource for instructors. Hands-on Mechanics is a website designed for instructors who are interested in incorporating 3-Dimensional, hands-on teaching aids into their lectures.

CONTENTS

Fundamentals of Thermal-Fluid Sciences, 3E

New Edition

Yunus A. Cengel, University of Nevada–Reno
Robert H. Turner, University of Nevada–Reno

2008 / Hardcover / 1152 pgs / ISBN 0-07-332748-4

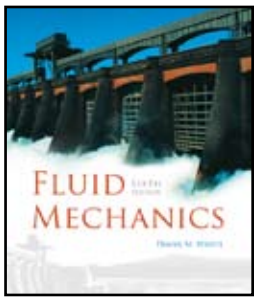
The best-selling *Fundamentals of Thermal-Fluid Sciences* is designed for the non-mechanical engineering student who needs exposure to key concepts in the thermal sciences in order to pass the Fundamentals of Engineering (FE) Exam. This lavishly illustrated text provides a highly intuitive and practical understanding of the material by emphasizing the physics and the underlying physical phenomena involved. Using a reader-friendly approach and a conversational writing style, the book is self-instructive and entertains while it teaches. It shows that highly technical matter can be communicated effectively using simple yet precise language. The text is made up of Thermodynamics, Heat Transfer and Fluids. The laws that govern these three subjects are all the same. Like all the other Cengel texts, it uses a similar pedagogical approach, by using familiar everyday examples.

FEATURES

- Exceptional homework problems—over 2,000 homework problems, including concept, review, design, computer essay, and lab-type problems, are grouped by topic for easy selection. Open-ended problem solving is encouraged and readers are given an early lead-in to design considerations. Numerous realistic economic and safety-related problems are presented to help promote cost, engineering practice, and safety awareness.
- EES (Engineering Equation Solver) CD-ROM packaged is free with text. EES is a powerful equation solver with built-in functions and property tables for thermodynamics and transport properties as well as automatic unit checking capability.
- An integrated and highly intuitive approach to the 1st Law of Thermodynamics unifies, in one chapter, coverage of the 1st Law as it relates to Closed Systems and Control Volumes.
- Numerous student-friendly examples relate thermal science concepts to students' everyday experiences (i.e., cooking, weight gain, cooling drinks).
- A structured approach to problem solving is used while maintaining an informal style, giving readers a strong grounding in the concepts of engineering thermal-fluid sciences.
- Current industrial practices are highlighted by offering two applications chapters to supplement the text. Chapters on the heating and cooling of buildings and the cooling of electronic equipment are available for free download on the book website.

CONTENTS

Fluid Mechanics, 6E



Frank M. White, University of Rhode Island-Kingston

2008 / Hardcover with CD-ROM / 896 pgs / ISBN 0-07-330920-6

Browse http://www.mhhe.com/white6e

New Edition

Whites Fluid Mechanics sixth edition will continue the text's tradition of excellent problems of different types, precision and accuracy, and good application of concepts to engineering. The new 6th edition will feature the best general problem-solving approach to date, presented at the start of the book and carefully integrated in all examples. Students can progress from general ones to those involving design, multiple steps and computer usage. Word problems are included to build readers' conceptual understanding of the subject, and FE Exam problems (in multiple-choice format) are included. EES (Engineering Equation Solver) software is included so that students can effectively use the computer to model, solve and modify typical fluid mechanics problems. A DVD containing EES is free with every book, and Appendix E describes its use and application to fluid mechanics. A limited version of EES, that does not expire, is included on the CD ROM; users of the book can also download and distribute the full Academic Version of EES, which is renewed annually with a new username and password. Also an annimation library will be included as will an unlimited amount of problems, due to ARIS.

NEW TO THIS EDITION

- The exciting new supplements package includes a rich array of resources for students and instructors. For students there is a new Student Resource DVD that contains visualizations, Fluent's animation libraries, EES software, and scripted EES problems. The book's ARIS site includes interactive FE Exam Quizzes and Algorithmic Problems for students, as well as images and solutions for instructors. This book will also feature Hands on Mechanics! A Student Study Guide will also be available. This makes us unique compared to the competition

- New examples have be added, and as in the 5th edition, these examples and the book's problems feature such modern engineering applications as biofluidics and nano-technology applications of fluids.
- Features best general problem-solving approach to date, presented at the start of the book and carefully integrated in all examples.
- The 6th edition continues White's tradition of offering easy-to-follow explanations that are more realistic than any other book in terms of how problems are actually solved.
- 30% of the problems are new or revised.

FEATURES

- Excellent progression from physical concepts to engineering applications.

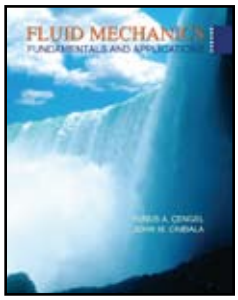
CONTENTS

1 Introduction / 2 Pressure Distribution / 3 Integral Relations for a Control Volume / 4 Differential Relations for Fluid Flow / 5 Dimensional Analysis and Similarity / 6 Viscous Flow in Ducts / 7 Flow Past Immersed Bodies / 8 Pontential Flow and Computational Fluid Dynamics / 9 Compressible Flow / 10 Open-Channel Flow / 11 Turbomachinery / Appendices / A Physical Properties of Fluids / B Compressible Flow Tables / C Conversion Factors / D Equations of Motion in Cylindrical Coordinates / Appendix E Introduction to EES / Answers to Selected Problems / Index

SUPPLEMENTS

Applied Fluid Mechanics: A Student Guide to Solving Problems/0-07-329406-3

Fluid Mechanics w/Student Resources DVD



Yunus A. Cengel, University of Nevada-Reno
John M. Cimbala, Pennsylvania State University–University Park

2006 / Hardcover / 864 pgs / ISBN 0-07-304465-2

Browse http://www.mhhe.com/cengel

Fluid Mechanics: Fundamentals and Applications communicates directly with tomorrow's engineers in a simple yet precise manner. The text covers the basic principles and equations of fluid mechanics in the context of numerous and diverse real-world engineering examples. The text helps students develop an intuitive understanding of fluid mechanics by emphasizing the physics, and by supplying attractive figures, numerous photographs and visual aids to reinforce the physics.

FEATURES

- EMPHASIS ON PHYSICS. This text emphasizes the physical aspects of the subject matter in addition to mathematical representations and manipulations. The authors believe that the emphasis in undergraduate education should remain on developing a sense of the underlying physical mechanisms and a mastery of solving practical problems than an engineer is likely to face in the real world.
- VISUAL PROGRAM. fluid mechanics is a highly visual subject,and students learn more effectively by visual stimulation. Our text features more illustrations and photographs than other books in this category. Some of the figures and photographs in the text are intended to serve as a means of emphasizing key concepts that would otherwise go unnoticed; some serve as page summaries.
- VIDEO CLIPS AND ANIMATIONS. In addition to text figures and photographs, there are narrated video clips of fluid mechanics experiments that complement the text material. There are also dozens of animations created with computational fluid dynamics. Both the video clips and animations can be found on the DVD that accompanies the text.
- SYSTEMATIC SOLUTION PROCEDURE. A well-structured approach is used in problem solving while maintaining an informal conversational style. The problem is first stated and the objectives are identified, and the assumptions made are stated together with their justifications. The properties needed to solve the problem are listed separately. Numerical values are used together with their units to emphasize that numbers without units are meaningless, and unit manipulations are a important as manipulating the numerical values with a calculator. The significance of the findings is discussed following the solutions. This approach is also used consistently in the solutions presented in the Instructor's Solutions Manual.
- REALISTIC END-OF-CHAPTER PROBLEMS. End-of-chapter problems are grouped under specific topics in the order they are covered to make problem selection easier for both instructors and students. Within each group of problems are CONCEPT QUESTIONS, to check the students' level of understanding of basic concepts. The COMPREHENSIVE AND REVIEW PROBLEMS are not directly tied to any specific section of a chapter—in some cases they require review of material used in previous chapters.
- DESIGN AND ESSAY PROBLEMS. This special category of end-of-chapter problems encourages students to make engineering judgments, to conduct independent exploration of topics of interest, and to communicate their findings in a professional manner.
- COMPUTER PROBLEMS. Throughout the text comprehensive problems that require conducting extensive parametric studies are incorporated using either a spreadsheet or the enclosed EES (or other suitable) software. These problems are designated by a computer icon for easy recognition.
- CHAPTER ON CFD. Commercial CFD (Computational Fluid Dynamics) codes are used widely in engineering practice in the design and analysis of flow systems, and it has become exceedingly important for students to have a solid understanding of the fundamental aspects, capabilities, and common pitfalls of CFD. Chapter 15 describes the fundamental concepts of CFD, and shows students how to use commercial CFD codes as a tool to solve complex fluid mechanics problems. We emphasize the application of CFD rather than the algorithms used in CFD code.
- APPLICATIONS SPOTLIGHT. Written by guest authors, this feature is designed to show how fluid mechanics has diverse applications in a wide variety of fields. The Application Spotlights highlight industry and university research worldwide.
- CHOICE OF SI ALONE OR SI/ENGLISH UNITS. In recognition of the fact that English units are still widely used in some industries, both SI and English units are used in this text, with an emphasis on SI. Problems, tables, and charts in English units are designated by "E" after the number for easy recognition, and they can be ignored easily by SI users.
- ACCURACY. The accuracy of the book will be insured by thorough testing.
- STUDENT DVD: Packaged free with the text, the Student Resources DVD features: 1) Limited Academic Version of EES (Engineering Equation Solver) software with scripted solutions to selected text problems, 2) Video Clips of fluid mechanics experiments; and 3) Animations Library (Courtesy of Fluent, Inc.) offering dozens of animations created with CFD.
- INSTRUCTOR'S RESOURCE CD. This CD provides all of the text images in Jpeg and PowerPoint formats and the detailed solutions to all text problems are delivered in our electronic solutions manual and organization system—COSMOS. COSMOS is a database management tool geared toward assembling homework assignments, tests, and quizzes.

CONTENTS

1 Introduction and Basic Concepts / 2 Properties of Fluids / 3 Pressure and Fluid Statics / 4 Fluid Kinematics / 5 Bernoulli and Energy Equations / 6 Momentum and Analysis of Flow Systems / 7 Dimensional Analysis and Flow Systems / 8 Flow in Pipes / 9 Differential Analysis of Fluid Flow / 10 Approximations of the Navier-Stokes Equation / 11 Flow Over Bodies: Drag and Lift / 12 Compressible Flow / 13 Open-Channel Flow / 14 Turbomachinery / 15 Computational Fluid Dynamics (CFD)/ Appendices / 1 Property Tables and Charts (SI Units) / 2 Property Tables and Charts (English Units) / 3 Introduction to EES

SUPPLEMENTS

Student Resources DVD T/A Fluid Mechanic s
COSMOS t/a Fundamentals of Fluid Mechanics

Microfluid Mechanics

William Liou
Yichuan Fang

2006 / Hardcover / 350 pgs / ISBN 0-07-144322-3

McGraw-Hill Professional

FEATURES

- Microfluid processes include: pumping, flow switching, and mixing incubating
- Molecule-particle separating in microchannels
- Simple and advanced numerical simulation methodologies
- Introduction to design and process control of various Micro-Electro-Mechanical Systems
- Fits in with McGraw-Hill's electronic strategy

CONTENTS

1 Introduction / 2 Basic Kinetic Theory / 3 Microfluid Properties / 4 Moment Method Navier-Stokes and Burnett Equations / 5 Statistical Method Direct Simulations Monte Carlo Method and Information Preservation Method / 6 Parallel Computing of DSMC / 7 Fluid/Solid Interface Mechanisms / 8 Development of Hybrid Continuum/Particle Method / 9 Low-Speed Microflows / 10 High-Speed Microflows / 11 Perturbation in Microflows

Biofluid Mechanics in Cardiovascular Systems

Lee Waite

2006 / Hardcover / 288 pgs / ISBN 0-07-144788-1

McGraw-Hill Professional

Biofliudics has gained in importance in recent years, forcing engineers to redefine mechanical engineering theories and apply them to biological functions. To date, no book has successfully done this. *Biofliud Mechanics in Cardiovascular Systems* is one of the first books to take an interdisciplinary approach to the subject. Written by a professor and researcher, this book will combine engineering principles with human biology to deliver a text specifically designed for biomedical engineering professionals and students.

FEATURES

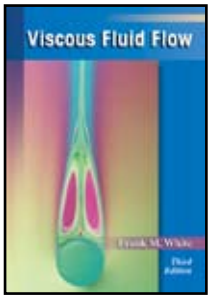
- Functional anatomy and physiology of the human heart
- Pressure-flow relationship in arteries, elastic properties of the arterial walls
- Application of imaging techniques on left ventricular dynamics
- Theoretical and experimental studies of pulsatile flow in large vessels

CONTENTS

1 Introduction and Review of Basic Fluids Concepts / 2 Cardiopulmonary Anatomy & Physiology / 3 Tematology / 4 Structure and Physiology of Blood Vessels/ 5 Heart Mechanics / 6 Heart Valves Mechanics / 7 Pulsatile Flow in Large Arteries / 8 Flow and Pressure Measurement / 9 Dimensional Analysis and Modeling

FLUID MECHANICS (ADVANCED): VISCOUS FLOW/BOUNDARY LAYER

Viscous Fluid Flow, 3E



Frank M. White, University of Rhode Island–Kingston

2006 / Hardcover / 640 pgs / ISBN 0-07-240231-8

The Instructor and Student Resource Web site includes general textbook information, the solutions to end-of-chapter problems, additional problems and solutions. (Browse http://www.mhhe.com/white3e)

Frank White's *Viscous Fluid Flow, Third Edition* continues to be the market leader in this course area. The text is for a senior graduate level elective in Mechanical Engineering, and has a strong professional and international appeal.

Author Frank White is has a strong reputation in the field, his book is accurate, conceptually strong, and contains excellent problem sets. Many of the problems are new to this third edition; a rarity among senior and graduate level textbooks. Frank White has always been recognized for his enagaging, and easy-to-read writing style.

NEW TO THIS EDITION

- Topically speaking, the text contains modern information on technological advances, such as Micro- and Nano-technology, Turbulence Modeling, Computational Fluid Dynamics (CFD), and Unsteady Boundary Layers.
- New material has been added to chapters 1, 3, and 4 on microflows, slip in liquids, gas slip flow in tubes and channels, and a novel micro-pump.
- Chapter five, The Stability of Laminar Flows, now begins with the classic Kelvin-Helmholtz wind-wave instability. A great wind-shear cloud-wave photo has been added too.
- The discussion of turbulence modeling in chapter six has been completely rewritten, expanded and updated.
- Users will be happy to find explanations of, and references to, ongoing controversies and trends in this course area.
- The role of Computerized Fluid Mechanics ("CFD") in viscous fluid flow/boundary layer analysis is mentioned, and 2 new applications of CFD are given for liquid spheres and a novel micro-pump.
- Each reference in the text reflects the most recent information available.

CONTENTS

1 Preliminary Concepts / 2 Fundamental Equations of Compressible Viscous Flow / 3 Solutions of the Newtonian Viscous-Flow Equations / 4 Laminar Boundary Layers / 5 The Stability of Laminar Flows / 6 Incompressible Turbulent Mean Flow / 7 Compressible Boundary Layer Flow/ Appendices / A Transport Properties of Various Newtonian Fluids / B Equations of Motion of Incompressible Newtonian Fluids in Cylindrical and Spherical Coordinates / C A Runge-Kutta Subroutine for N Simultaneous Differential Equations/ Bibliography / Index

FLUID MECHANICS: (ADVANCED): COMPRESSIBLE FLOW/GAS DYNAMICS

Modern Compressible Flow: With Historical Perspective, 3E

John D. Anderson, University of Maryland–College Park, National Air & Space Museum

2003 / Hardcover / 784 pgs / ISBN 0-07-242443-5

highered.mcgraw-hill.com/sites/0072424435

Anderson's book provides the most accessible approach to compressible flow for Mechanical and Aerospace Engineering students. In keeping with previous versions, the 3rd edition uses numerous historical vignettes that show the evolution of the field.

Pedagogical features—"Roadmaps" showing the development of a given topic, and "Design Boxes" giving examples of design decisions—will make the 3rd edition even more student-friendly than before.

The 3rd edition strikes a careful balance between classical methods of determining compressible flow, and modern numerical and computer techniques (such as CFD) now used in industry & research.

A Book Website will contain all problem solutions for instructors, and extended information on CFD.

FEATURES

- Integration of modern computer methods, especially Computerized Fluid Dynamics (CFD) in compressible flow applications.
- "Design Box" and "Road Map" features included throughout the book.
- Book Website that contains instructor solutions; and coverage of CFD methods/examples.
- Historical vignettes show the development of the field.

CONTENTS

1 Compressible Flow—Some History and Introductory Thoughts / 2 Integral Forms of the Conservation Equations for Inviscid Flows / 3 One-Dimensional Flow / 4 Oblique Shock and Expansion Waves / 5 Quasi-One-Dimensional Flow / 6 Differential Conservation Equations for Inviscid Flows / 7 Unsteady Wave Motion / 8 General Conservation Equations Revisited: Velocity Potential Equation / 9 Linearized Flow / 10 Conical Flow / 11 Numerical Techniques for Steady Supersonic Flow / 12 The Time-Marching Technique: With Application to Supersonic Blunt Bodies and Nozzles / 13 Three-Dimensional Flow / 14 Transonic Flow / 15 Hypersonic Flow / 16 Properties of High-Temperature Gases / 17 High-Temperature Flows: Basic Examples

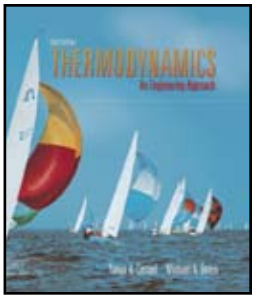
THERMODYNAMICS

THERMODYNAMICS: An Engineering Approach with Student Resource DVD, 6E

Yunus A. Cengel, University of Nevada-Reno
Michael A. Boles, NC State University-Raleigh

2008 / Hardcover with DVD / ISBN 0-07-330537-5

Browse http://www.mhhe.com/cengel



New Edition

The worldwide bestseller *Thermodynamics: An Engineering Approach* brings further refinement to an approach that emphasizes a physical understanding of the fundamental concepts of thermodynamics. The authors offer an engineering textbook that "talks directly to tomorrow's engineers in a simple yet precise manner, that encourages creative thinking, and is read by the students with interest and enthusiasm". Over 500 new or revised homework problems have been added to this 6/e.

The media package for this text is extensive, giving users a large variety of supplemental resources to choose from. A Student Resources DVD is packaged with each new copy of the text and contains the popular Engineering Equation Solver (EES) software, Physical Experiments, and an Interactive Thermodynamics tutorial. McGraw-Hill's new Assessment, Review, and Instruction System (ARIS) is available to students and instructors. ARIS is a complete, online tutorial, electronic homework, and course management system designed for greater ease of use than many other systems available. McGraw Hill has provided a solution to answers to homework problems circulating around campus by providing ARIS. This is an algorithmic problem generator, which allows you to generate your own problems

NEW TO THIS EDITION

- ARIS (Assessment, Review, Instruction System) is a complete, online tutorial, electronic homework, and course management system designed for greater ease of use than many other systems available.
- Hands-on Mechanics is a web site developed by McGraw-Hill in partnership with the United States Military Academy. The site is designed for instructors who are interested in incorporating 3-D, hands-on teaching aids into their lectures.
- Over 500 homework problems have been revised or are new to the sixth edition.

FEATURES

- This text features more illustrations and photographs than other books in this category. The illustrations again illustrate things we see around us, everyday experiences, so students can identify with what they are reading. Some of the figures and photographs in the text are intended to serve as a means of emphasizing key concepts that would otherwise go unnoticed; some serve as page summaries.
- Hundreds of industry-related problems, many of which are comprehensive computer problems.
- A Student Resources DVD is packaged with each new copy of the text. The DVD contains the Limited Academic Version of the Engineering Equation Solver (EES) software, 9 Physical Experiments including videos, write-ups and data, and an Interactive Thermodynamics Tutorial.
- A distinctive feature of this book is its emphasis on the physical aspects of the subject matter in addition to mathematical representations and manipulations.
  Cengel uses ordinary day to day experiences that builds up to a mathamatical problem—other texts give you the theory and math first—we build up to it and the competitors dive right into the theory and math
- The 1st Law of Thermodynamics is introduced early in a new Chapter 2: Energy, Energy Transfer, and General Energy Analysis.

CONTENTS

SUPPLEMENTS

Property Tables Booklet/Thermodynamics/0-07-327712-6

Fundamentals of Thermal-Fluid Sciences, 3E

New Edition

Yunus A. Cengel, University of Nevada–Reno
Robert H. Turner, University of Nevada–Reno

2008 / Hardcover / 1152 pgs / ISBN 0-07-332748-4

The best-selling *Fundamentals of Thermal-Fluid Sciences* is designed for the non-mechanical engineering student who needs exposure to key concepts in the thermal sciences in order to pass the Fundamentals of Engineering (FE) Exam. This lavishly illustrated text provides a highly intuitive and practical understanding of the material by emphasizing the physics and the underlying physical phenomena involved. Using a reader-friendly approach and a conversational writing style, the book is self-instructive and entertains while it teaches. It shows that highly technical matter can be communicated effectively using simple yet precise language. The text is made up of Thermodynamics, Heat Transfer and Fluids. The laws that govern these three subjects are all the same. Like all the other Cengel texts, it uses a similar pedagogical approach, by using familiar everyday examples.

FEATURES

- Exceptional homework problems—over 2,000 homework problems, including concept, review, design, computer essay, and lab-type problems, are grouped by topic for easy selection. Open-ended problem solving is encouraged and readers are given an early lead-in to design considerations. Numerous realistic economic and safety-related problems are presented to help promote cost, engineering practice, and safety awareness.
- EES (Engineering Equation Solver) CD-ROM packaged is free with text. EES is a powerful equation solver with built-in functions and property tables for thermodynamics and transport properties as well as automatic unit checking capability.
- An integrated and highly intuitive approach to the 1st Law of Thermodynamics unifies, in one chapter, coverage of the 1st Law as it relates to Closed Systems and Control Volumes.
- Numerous student-friendly examples relate thermal science concepts to students' everyday experiences (i.e., cooking, weight gain, cooling drinks).
- A structured approach to problem solving is used while maintaining an informal style, giving readers a strong grounding in the concepts of engineering thermal-fluid sciences.
- Current industrial practices are highlighted by offering two applications chapters to supplement the text. Chapters on the heating and cooling of buildings and the cooling of electronic equipment are available for free download on the book website.

CONTENTS

Introduction to Thermodynamics and Heat Transfer

Yunus A. Cengel, University of Nevada–Reno

1997 / Hardcover / 928 pgs / ISBN 0-07-011498-6

www.mhhe.com/cengel

This text provides balanced coverage of the basic concepts of thermodynamics and heat transfer. Together with the clear and numerous illustrations, student-friendly writing style, and accessible math, this is an ideal text for an introductory thermal science course for non-mechanical engineering majors.

CONTENTS
1 Basic Concepts of Thermodynamics / 2 Properties of Pure Substances / 3 The First Law of Thermodynamics: Closed Systems / 4 The First Law of Thermodynamics: Control Volumes / 5 The Second Law of Thermodynamics / 6 Entropy / 7 Thermodynamic Cycles / 8 Steady Heat Conduction / 9 Transient Heat Conduction / 10 Forced Convection / 11 Natural Convection / 12 Radiation Heat Transfer / 13 Heat Exchangers / 14 Cooling of Electronic Equipment / Appendices / 1 Property Tables and Charts (Si Units)) / 2 Property Tables and Charts (English Units)

SUPPLEMENT
Solutions Manual

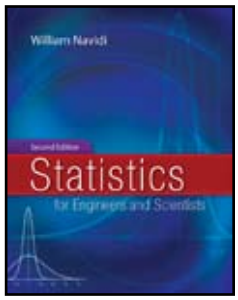
ENGINEERING MATH/STATISTICS

Statistics for Engineers and Scientists, 2E

William C. Navidi, Colorado School of Mines

2008 / Hardcover / 675 pgs / ISBN 0-07-330949-4

Browse http://www.mhhe.com/navidi2



New Edition

The second edition of this book is intended to extend the strengths of the first. Some of the changes include:

- More than 200 new exercises have been added.
- A new section on point estimation has been added to Chapter 4.
- The material on histograms in Chapter 1 has been completely revised.
- Chapter 2 now contains a discussion of Chebyshev's inequality.
- Chapter 4 now contains a discussion of the uniform distribution.
- The section on the normal distribution contains a discussion on linear functions of normal random variables.
- Chapter 7 contains additional material on the correlation coefficient.
- Chapter 10 contains a discussion of the relationship between control charts and hypothesis tests.
- The exposition has been improved in a number of places.

Also new for this edition is the ARIS online course management system. ARIS provides automatic grading of student assignments and keeps a record of students' grades. In addition, ARIS contains problems for student practice, along with Java applets that allow students to interactively explore ideas in the text. Customizable PowerPoint lecture notes for each chapter are available as well, along with suggested syllabi, and other features. More information can be found at aris.mhhe.com.

William Navidi is Professor of Mathematical and Computer Sciences at the Colorado School of Mines. He received the B.A. degree in mathematics from New College, the M.A. in mathematics from Michigan State University, and the Ph.D. in statistics from the University of California at Berkeley. Professor Navidi has authored more than 50 research papers both in statistical theory and in a wide variety of applications including computer networks, epidemiology, molecular biology, chemical engineering, and geophysics.

NEW TO THIS EDITION

- McGraw-Hill's ARIS online Homework Manager has been added to this edition and features algorithmic problems and gradebook capability. Instructors will have access to data sets, solutions, lecture powerpoints, and images from the text.
- Over 180 new homework problems have been added throughout.

FEATURES

- An engaging writing style explains difficult concepts clearly. While including the mathematics necessary for clear understanding, the text makes extensive use of examples to motivate fundamental concepts and to develop intuition.
- Contemporary, real world data sets are one of the defining features of this text. With a fresh approach to the subject, the author uses contemporary data sets to help motivate students and show direct connection to industry and research.
- In line with modern trends, the text contains exercises suitable for solving with computer software. These examples and exercises involve interpreting, as well as generating, computer output. The student edition of MINITAB, the widely used statistical software package, is available bundled with the text.
- A separate chapter provides **extensive coverage of propagation of error**, sometimes called "error analysis" or the "delta method." The coverage is more extensive than in most texts, with a flexible format allowing instructors to easily cover selected topics.
- The text presents an **extensive, self-contained introduction to simulation methods** at a level appropriate for introductory students, including the bootstrap and applications to estimating probabilities, estimating bias, computing confidence intervals, and testing hypotheses.
- The text provides **more extensive coverage of linear model diagnostic procedures** than is found in most competing texts including a lengthy section on checking model assumptions and transforming variables. The coverage emphasizes that linear models are appropriate only when the relationship between variables is linear. This point is all the more important since it is often overlooked in practice by engineers and scientists (not to mention statisticians).
- **Flexible presentation of probability** addresses the needs of different courses. Allowing for a mathematically rigorous approach, the major results are derived from axioms, with proofs given for most of them. Each result is illustrated with an example or two to promote intuitive understanding. Instructors who prefer a more informal approach may therefore focus on the examples rather than the proofs and skip the optional sections.

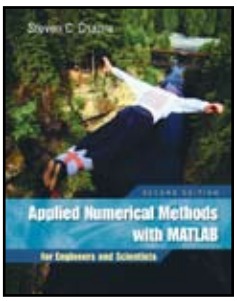
CONTENTS
1 Sampling and Descriptive Statistics / 2 Probability / 3 Propagation of Error / 4 Commonly Used Distributions / 5 Confidence Intervals / 6 Hypothesis Testing / 7 Correlation and Simple Linear Regression / 8 Multiple Regression / 9 Factorial Experiments / 10 Statistical Quality Control / A Tables / B Partial Derivatives / C Suggestions for Further Reading / Answers to Selected Exercises / Index

Applied Numerical Methods with MATLAB® for Engineers and Scientists, 2E

Steven C. Chapra, Tufts University

2008 / Hardcover / 544 pgs / ISBN 0-07-313290-X

The web site features student and instructor resources such as an image bank, lecture slides, helpful web links, study objectives, and more! (Browse http://www.mhhe.com/chapra)



New Edition

Steven Chapra's new second edition, *Applied Numerical Methods with MATLAB® for Engineers and Scientists*, is written for engineers and scientists who want to learn numerical problem solving. This text focuses on problem-solving (applications) rather than theory, using MATLAB®, and is intended for Numerical Methods users; hence theory is included only to inform key concepts. The new second edition feature new material such as Numerical Differentiation and ODE's: Boundary-Value Problems.

NEW TO THIS EDITION

- Based on response from users and reviewers, 4 New Chapters have been added to the second edition to provide a more accessible presentation, while maintaining its student-friendly flavor.
  - ~Optimization
  - ~Numerical Differentiation
  - ~ODES: Boundary-Value Problems
  - ~Fast Fourier Transform. This appendix chapter is presented in an introductory fashion to illustrate the power of MATLAB® and to let students go away recognizing that although they have just scratched the surface, they might want to pursue the topic in greater depth in future courses.
- 50% new or revised chapter and homework problems

FEATURES

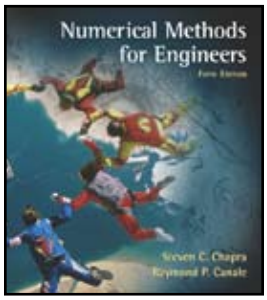
- Explanations are straight-forward and practically oriented. The math level is considered, just to be at the right level—not too easy or rigorous, just right.
- Extensive use of engineering examples, case studies, and applications are given throughout the text.
- Each chapter is well integrated with MATLAB® M-files. In addition, relevant MATLAB® functions are introduced in each chapter.

- MATLAB® is used as the primary computing environment. All algorithms are presented as m-files.
- A text Web site is available at http://www.mhhe.com/chapra

CONTENTS

Part One Modeling, Computers, and Error Analysis / 1 Mathematical Modeling Numerical Methods and Problem Solving / 2 MATLAB® Fundamentals / 3 Programming with MATLAB® / 4 Roundoff and Trunication Errors / Part Two Roots and Optimization / 5 Roots: Bracketing Methods / 6 Roots: Open Methods / 7 Optimization / Part Three Linear Systems / 8 Linear Algebraic Equations and Matrices / 9 Gauss Elimination / 10 LU Factorization / 11 Matrix Inverse and Condition / 12 Iterative Methods / Part Four Curve Fitting / 13 Linear Regression / 14 General Linear Least-Squares and Non-Linear Regression / 15 Polynomial Interpolation / 16 Splines and Piecewise Interpolation / Part Five Integration and Differentiation / 17 Numerical Integration Formulas / 18 Numerical Integration of Functions / 19 Numerical Differentiation / Part Six Ordinary Differential Equations / 20 Initial-Value Problems / 21 Adaptive Methods and Stiff Systems / 22 Boundary-Value Problems / Appendices / A: Eigenvalues Appendix / B: MATLAB® Built-in Functions / C: MATLAB® M-File Functions / Bibliography / Index

Numerical Methods for Engineers, 5E



Steven C. Chapra, *Tufts University*
Raymond Canale, *Emeritus University of Michigan*

2006 / Hardcover / 960 pgs / ISBN 0-07-310156-7

The text website features MATLAB® Appendix from Chapra's brief 2005 text; helpful web links; Study Objectives; COSMOS, PowerPoint images and lecture notes from the text; and a Solutions Manual. Browse http://www.mhhe.com/chapra

The fifth edition of *Numerical Methods for Engineers* continues its tradition of excellence. Instructors love this text because it is a comprehensive text that is easy to teach from. Students love it because it is written for them—with great pedagogy and clear explanations and examples throughout. The text features a broad array of applications, including all engineering disciplines.

The revision retains the successful pedagogy of the prior editions. Chapra and Canale's unique approach opens each part of the text with sections called Motivation, Mathematical Background, and Orientation, preparing the student for what is to come in a motivating and engaging manner. Each part closes with an Epilogue containing sections called Trade-Offs, Important Relationships and Formulas, and Advanced Methods and Additional References. Much more than a summary, the Epilogue deepens understanding of what has been learned and provides a peek into more advanced methods. Users will find use of software packages, specifically MATLAB® and Excel with VBA. This includes material on developing MATLAB® m-files and VBA macros.

The expanded breadth of engineering disciplines covered is especially evident in the problems, which now cover such areas as biotechnology and biomedical engineering.

NEW TO THIS EDITION

- Approximately 80% of the problems are new or revised for this edition.
- Users have access to an Online Learning Center which will house PowerPoint slides of all text figures, M-Files, general textbook information and more!
- Available to instructors only, the detailed solutions for all text problems will be delivered via CD-ROM, in our new, Complete Online Solutions Manual Organization System (COSMOS).

FEATURES

- Challenging problems drawn from all engineering disciplines are included in the text.
- Chapra is known for his clear explanations and elegantly rendered examples.
- The text includes a helpful appendix chapter, Getting Started with MATLAB®.

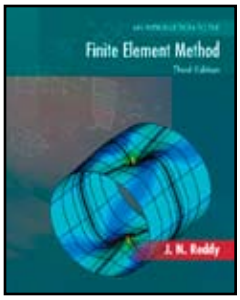
CONTENTS

Part 1 Modeling, Computers, and Error Analysis / 1 Mathematical Modeling and Engineering Problem Solving / 2 Programming and Software / 3 Approximations and Round-Off Errors / 4 Truncation Errors and the Taylor Series / **Part 2 Roots of Equations** / 5 Bracketing Methods / 6 Open Methods / 7 Roots of Polynomials / 8 Case Studies: Roots of Equations / **Part 3 Linear Algebraic Equations** / 9 Gauss Elimination / 10 LU Decomposition and Matrix Inversion / 11 Special Matrices and Gauss-Seidel / 12 Case Studies: Linear Algebraic Equations / **Part 4 Optimization** / 13 One-Dimensional Unconstrained Optimization / 14 Multidimensional Unconstrained Optimization / 15 Constrained Optimization / 16 Case Studies: Optimization / **Part 5 Curve Fitting** / 17 Least-Squares Regression / 18 Interpolation / 19 Fourier Approximation / 20 Case Studies: Curve Fitting/ **Part 6 Numerical Differentiation and Integration** / 21 Newton-Cotes Integration Formulas / 22 Integration of Equations / 23 Numerical Differentiation / 24 Case Studies: Numerical Integration and Differentiation / **Part 7 Ordinary Differential Equations** / 25 Runge-Kutta Methods / 26 Stiffness and Multistep Methods / 27 Boundary-Value and Eigenvalue Problems / 28 Case Studies: Ordinary Differential Equations / **Part 8 Partial Differential Equations** / 29 Finite Difference: Elliptic Equations / 30 Finite Difference: Parabolic Equations / 31 Finite-Element Method / 32 Case Studies: Partial Differential Equations / Appendices / A The Fourier Series / B Getting Started with MATLAB® / Bibliography / Index

SUPPLEMENT

COSMOS t/a Numerical Methods for Engineers

An Introduction to the Finite Element Method, 3E



J. N. Reddy, *Texas A & M University*

2006 / Hardcover / 912 pgs / ISBN 0-07-246685-5

The Instructor and Student Resource Web site contains general textbook information, solutions to end-of-chapter problems, executables and supplementary chapters on the FEM1D and FEM2D computer programs. (Browse http://www.mhhe.com/reddy3e)

J.N. Reddy's, *An Introduction to the Finite Element Method, third edition* is an update of one of the most popular FEM textbooks available. The book retains its strong conceptual approach, clearly examining the mathematical underpinnings of FEM, and providing a general approach of engineering application areas.

Known for its detailed, carefully selected example problems and extensive selection of homework problems, the author has comprehensively covered a wide range of engineering areas making the book approriate for all engineering majors, and underscores the wide range of use FEM has in the professional world.

NEW TO THIS EDITION

- Approximately 30% of the problems have been revised or are new to this edition.
- The previous Chapter 3, Second-Order Boundary Value Problems, has been split into two chapters for the third edition. Chapter 3 is now Second-Order Differential Equations in One-Dimension: Finite Element Models, and Chapter 4 is now Second-Order Differential Equations in One-Dimension: Applications.

FEATURES

- Worked examples are said to be one of the best features of this text. The examples are detailed, carefully selected and a number of examples that show FEM applications are included in this text.
- Strong coverage of FEM's mathematical foundations.
- Comprehensive coverage of material from general field problems as well heat transfer, fluid mechanics, and solid and structural mechanics (bars, beams, frames, plane elasticity and plate bending).
- The author's writing style is clear and his explanation plenty.
- The text includes a variety of problems including some for hand calculation, some to be solved using the computer, and others of the class project variety, which can be done with commercial FEM packages if the professor so chooses. The problems are a major feature of this text.

CONTENTS

1 Introduction / 2 Mathematical Preliminaries, Integral Formulations, and Variational Methods / 3 Second-order Differential Equations in One Dimension: Finite Element Models / 4 Second-order Differential Equations in One Dimension: Applications / 5 Beams and Frames / 6 Eigenvalue and Time-Dependent Problems / 7 Computer Implementation / 8 Single-Variable Problems in Two Dimensions / 9 Interpolation Functions, Numerical Integration, and Modeling Considerations / 10 Flows of Viscous Incompressible Fluids / 11 Plane Elasticity / 12 Bending of Elastic Plates / 13 Computer Implementation of Two-Dimensional Problems / 14 Prelude to Advanced Topics

Engineering Formulas, 8E

New!

Kurt Gieck, Heilbronn A.N., Germany
Reiner Gieck

2006 / Hardcover / 580 pgs / ISBN 0-07-145774-7

McGraw-Hill Professional

This is a revision of the famed pocket guide giving engineers, scientists, technicians, and students thousands of essential technical and mathematical formulas and hundreds of diagrams to simplify and speed their calculations.

NEW TO THIS EDITION

- A one stop source of essential engineering and scientific formulas
- Blank pages provide space for notes
- Environment additions including, noise, water, soil pollution, waste recycling, and ozone tables
- Current symbols and standards revised and updated
- Electrical engineering additions including small electric motors
- HVAC applications added

CONTENTS

1 Units / 2 Areas / 3 Solid Bodies / 4 Arithmetic / 5 Functions of a Circle / 6 Analytical Geometry / 7 Statistics / 8 Differential Calculus / 9 Integral Calculus / 10 Differential Equations / 11 Statics / 12 Kinematics / 13 Dynamics / 14 Hydraulics / 15 Heat / 16 Strength / 17 Machine Parts / 18 Production Engineering / 19 Electrical Engineering / 20 Control Engineering / 21 Chemistry / 22 Radiation Physics / 23 Tables

Standard Handbook of Engineering Calculations, 4E

Tyler G. Hicks

2005 / Hardcover / 1200 pgs / ISBN 0-07-142793-7

McGraw-Hill Professional

NEW TO THIS EDITION

- Wind-energy system calculations
- Complying with new environmental requirements in engineering
- Structural engineering changes in buildings to fight terrorism
- Data on suitable computer programs for solving repetitive computational problems
- Data on Websites containing useful engineering information on standards, units of measurement, design methodology, dimensioning, vibrations, etc.
- New power plant cost saving calculations
- Finite element analysis methods of calculation
- Data on refrigerants required to replace Freon gases
- New design code calculations in civil engineering
- New pump material and calculation methods
- All ten major engineering fields included

CONTENTS

Contributors and Advisors / Preface / How to Use This Handbook/ Section 1. Civil Engineering *(Max Kurtz)* / Section 2. Architectural Engineering *(Max Kurtz)* / Section 3. Mechanical Engineering *(Joseph Leto, Gerald M. Eisenberg, Stephen M. Eber, Jerome F. Mueller, Tyler G. Hicks, Edgar J. Kates, B.G.A. Skrotzki, Raymond J. Roark, S.W. Spielvogel, Rufus Oldenburger, Lyman F. Scheel)* / Section 4. Electrical Engineering *(Andrew W. Edwards, Harold L. Rorden, Frederick W. Suhr)* / Section 5. Chemical and Process Plant Engineering *(Robert L. Davidson, John S. Rearick, Tyler G. Hicks)* / Section 6. Water and Waste-Water Engineering *(Edmund B. Besselievre, Tyler G. Hicks, Max Kurtz)* / Section 7. Environmental Engineering *(Tyler G. Hicks, Joseph Leto)*

MANUFACTURING METHODS: GENERAL MANUFACTURING

Introduction to Manufacturing Processes, 3E

John A. Schey, University of Waterloo

2000 / Hardcover / 984 pgs / ISBN 0-07-031136-6

www.mhhe.com/engcs/mech/schey

This revision aims to address changes that have taken effect since the publication of the second edition. The most significant change has been in the attitude of industry to concurrent engineering. In 1987, mostly lip service was paid to it; today, it has become general practice in most competitive corporations. In the second edition , the author discussed this as a type of manufacturing system. In the third edition it becomes the focal point.

Concurrent engineering involves the whole product realization process, including product concept, performance criteria, mechanical design and analysis, materials selection, process planning and modeling, production control, automation, assembly, management, and others. An introductory text cannot possibly cover all of these topics, hence the emphasis of the third edition remains on the physical principles and the application of these principles to processes. The major difference relative to the second edition will be the emphasis on interactions between process and design. Capabilities and limitations of processes will be highlighted to show what they mean in terms of design possibilities, and design modifications will be suggested for ease of manufacture. Impact on the environment and possibilities for recycling will be woven into the entire text.

CONTENTS

1 Introduction to Manufacturing / 2 Manufacturing / 3 Geometric Attributes of Manufactured Products / 4 Service Attributes of Manufactured Products / 5 Materials in Design and Manufacturing / 6 Solidification and Heat Treatment of Metals / 7 Metal Casting / 8 Plastic Deformation of Metals / 9 Bulk Deformation Processes / 10 Sheet-Metalworking Processes / 11 Powder-Metallurgy / 12 Processing of Ceramics / 13 Polymers and Plastics / 14 Processing of Plastics / 15 Composites / 16 Machining / 17 Nontraditional Machining Processes / 18 Joining Processes / 19 Surface Treatments / 20 Manufacture of Semiconductor Devices / 21 Manufacturing Systems / 22 Competitive Aspects of Manufacturing Processes

SUPPLEMENT

Solutions Manual and CD-ROM

MANUFACTURING METHODS: CAD/CAM THEORY

CAD/CAM Theory and Practice

Ibrahim Zeid, Northeastern University

1991 / Hardcover / 576 pgs / ISBN 0-07-072857-7

This text is suitable for an introduction to CAD/CAM taught in departments of mechanical engineering. The book combines a good balance of the three main ingredients of CAD/CAM: computer science, engineering design and applications, and industrial implementations and technology.

CONTENTS

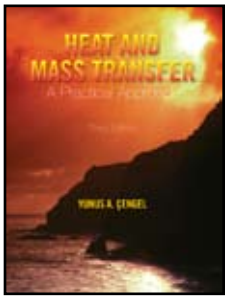
I Overview of CAD/CAM Systems / 1 Introduction / 2 CAD/CAM Hardware / 3 CAD/CAM Software / 4 Microcomputer Based CAD/CAM / **II Geometric Modeling** / 5 Types and Mathematical Representations of Curves / 6 Types and Mathematical Representations of Surfaces / 7 Types and Mathematical Representations of Solids / 8 CAD/CAM Data Exchange / **III Two and Three Dimensional Graphics Concepts** / 9 Geometrical Transformation / 10 Visual Realism / **IV Interactive Tools** / 11 Graphics Aids / 12 Graphics Manipulations / 13 Computer Animation / 14 Mechanical Assembly / 15 Interactive Computer Programming / **V Design Applications** / 16 Mechanical Tolerancing / 17 Mass Property Calculations / 18 Finite Element Modeling and Analysis / 19 Design Projects with CAE Focus / **VI CAD and CAM Integration** / 20 Part Programming and Manufacturing

SUPPLEMENT

Solutions Manual

HEAT TRANSFER

Heat and Mass Transfer: A Practical Approach, 3E



Yunus A. Cengel, University of Nevada-Reno

2007 / Hardcover / ISBN 0-07-325035-X

This website will include EES Software information, Solutions Manual, Image Sets, Lecture Slides, additional chapters, and a Student Survival Guide. Browse http://www.mhhe.com/cengel

With complete coverage of the basic principles of heat transfer and a broad range of applications in a flexible format, *Heat and Mass Transfer: A Practical Approach* provides the perfect blend of fundamentals and applications. The text provides a highly intuitive and practical understanding of the material by emphasizing the physics and the underlying physical phenomena involved. Using a reader-friendly approach and a conversational writing style, the book is self-instructive and engaging. It shows that highly technical matter can be communicated effectively in a simple yet precise language.

NEW TO THIS EDITION

- ~50% of the problems are new or revised to this edition.
- Fundamentals of Engineering Exam Problems have been added to the end of each chapter.
- Mathematical details of analytical solutions of 1-D transient heat conduction have been added.
- Select "Guest Authors" have been chosen to contribute content to various topics such as Transitional Flow.
- Chapters on *Refrigeration and the Freezing of Foods*, *Heating and Cooling of Buildings* and *Cooling of Electronic Equipment* can be found on the Online Learning Center.
- The Appendix chapter *An Introduction to EES* has been placed on the Online Learning Center.
- Supplements such as lecture slides and helpful web links have been added to the Online Learning Center.
- A list of chapter objectives have been added to the beginning of each chapter.
- Nomenclature has been updated to be consistent with Cengel's *Fluid Mechanics* and *Thermodynamics*.
- The text and its solutions manual have been carefully checked for accuracy.
- Approximately 2,000 Homework Problems including design, computer, essay, and lab-type problems are included.
- Offers unique physics-based approach using real-world, everyday applications to lead students through heat transfer concepts
- A list of helpful web links have been added to the text's web site at http://www.mhhe.com/cengel.
- PowerPoint lecture slides have been added to the text's web site at http://www.mhhe.com/cengel.

FEATURES

- Radiation is covered in two chapters instead of one.
- Electronic Solutions Manual. The detailed solutions for all text problems will be delivered via COSMOS, our Complete Online Solution Manual Organization System. COSMOS helps you to quickly find solutions and also keeps a record of problems assigned to avoid duplication in subsequent semesters.
- EES (Engineering Equation Solver) CD-ROM packaged free with text. EES is a powerful equation solver with built-in functions and property tables for thermodynamics and transport properties as well as automatic unit checking capability.
- More than 1000 illustrations. This text has a sensational visual appeal that highlight its key learning features.
- The book offers contemporary coverage of the important practical applications, including specific sections and chapters on the Cooling of Electronic Equipment, Heating and Cooling of Buildings, and Refrigeration and Freezing of Foods.
- Complete coverage of the the essential heat transfer topic, convection. Forced convection is covered in three chapters with separate chapters for external flow and internal flow.
- A "Topics of Special Interest" feature is included at the end of most chapters.
- Numerous worked examples with sketches, step-by- step procedures, and process diagrams.
- Safety awareness is promoted through the use of safety-related problems.
- Both SI and English units of measurement are included, with an emphasis on SI.
- Comprehensive computer problems are included. Students can plot the key variables and generate results by using the powerful and intuitive Engineering Equation Solver(EES) software tool (or other suitable programs).

CONTENTS

Fundamentals of Thermal-Fluid Sciences, 3E

New Edition

Yunus A. Cengel, University of Nevada–Reno
Robert H. Turner, University of Nevada–Reno

2008 / Hardcover / 1152 pgs / ISBN 0-07-332748-4

The best-selling *Fundamentals of Thermal-Fluid Sciences* is designed for the non-mechanical engineering student who needs exposure to key concepts in the thermal sciences in order to pass the Fundamentals of Engineering (FE) Exam. This lavishly illustrated text provides a highly intuitive and practical understanding of the material by emphasizing the physics and the underlying physical phenomena involved. Using a reader-friendly approach and a conversational writing style, the book is self-instructive and entertains while it teaches. It shows that highly technical matter can be communicated effectively using simple yet precise language. The text is made up of Thermodynamics, Heat Transfer and Fluids. The laws that govern these three subjects are all the same. Like all the other Cengel texts, it uses a similar pedagogical approach, by using familiar everyday examples.

FEATURES

- Exceptional homework problems—over 2,000 homework problems, including concept, review, design, computer essay, and lab-type problems, are grouped by topic for easy selection. Open-ended problem solving is encouraged and readers are given an early lead-in to design considerations. Numerous realistic economic and safety-related problems are presented to help promote cost, engineering practice, and safety awareness.
- EES (Engineering Equation Solver) CD-ROM packaged is free with text. EES is a powerful equation solver with built-in functions and property tables for thermodynamics and transport properties as well as automatic unit checking capability.
- An integrated and highly intuitive approach to the 1st Law of Thermodynamics unifies, in one chapter, coverage of the 1st Law as it relates to Closed Systems and Control Volumes.
- Numerous student-friendly examples relate thermal science concepts to students' everyday experiences (i.e., cooking, weight gain, cooling drinks).
- A structured approach to problem solving is used while maintaining an informal style, giving readers a strong grounding in the concepts of engineering thermal-fluid sciences.
- Current industrial practices are highlighted by offering two applications chapters to supplement the text. Chapters on the heating and cooling of buildings and the cooling of electronic equipment are available for free download on the book website.

CONTENTS

Heat Transfer Calculations

Myer Kutz, Myer Kutz Assoc., Inc.

2006 / Softcover / 768 pgs / ISBN 0-07-141041-4

FEATURES

- Step by step procedures for solving specific problems such as heat exchanger design and air-conditioning systems heat load
- Solutions to thousands of problems in the area of mechanical heat transfer
- Logical organization for accessibility
- Calculation procedures with thermal properties of materials

CONTENTS

CONTRIBUTORS / PREFACE/ **Part 1—Introductory Calculations** / 1 Multiphase Films and Phase Change / 2 Industrial Heat-Transfer Calculations/ **Part 2—Steady-State Calculations** / 3 Heat Transfer and Temperature Results for a Moving Sheet Situated in a Moving Fluid / 4 Solution for the Heat-Transfer Design of a Cooled Gas Turbine Airfoil / 5 Steady-State Heat-Transfer Sample Problem: Cooling Fin / 6 Cooling of a Fuel Cell / 7 Turbogenerator Rotor Cooling Calculation / 8 Heat Transfer through a Double Glazed Window/ **Part 3—Transient and Cyclic Calculations** / 9 On the Use of Green's Function to Solve for Temperatures in a Bi-Material Slab Exposed to a Periodic Heat Flux Applied to Corrosion Detection / 10 Lumped Capacitance Model of a Tube Heated by a Periodic Source with Application to a Pulsed Detonation Engine Tube / 11 Calculation of Decoking Intervals for Direct-Fired Gas and Liquid Cracking Heaters / 12 Transient Heat-Transfer Sample Problem: Tape Pack Cooling / 13 Calculation of the Transient Response of a Roof to Diurnal Heat Load Variations / 14 Transient Heating of a Painted Vehicle Body Panel in an Automobile Assembly Plant Paint Shop Oven / 15 Thermal System Transient Response / 16 Thermal Response of Laminates to Cyclic Heat Input from the Edge / 17 A Simple Calculation Procedure for Transient Heat and Mass Transfer with Phase Change: Moist Air Example / 18 A Calculation Procedure for First and Second Law Efficiency Optimization of Refrigeration Cycles / 19 Transient Analysis of a Low-Temperature, Low-Energy Carrier, LoTEC(c) / 20 Parameter Estimation of LoTEC(c) / **Part 4—Heat-Transfer Coefficient Determination** / 21 Calculation of Convective Heat-Transfer Coefficient using the Semi-Infinite Solid Assumption / 22 Determination of Heat-Transfer Film Coefficients by the Wilson Analysis / **Part 5—Tubes, Pipes, and Ducts** / 23 Calculation of Local Inside-Wall Convective Heat-Transfer Parameters from Measurements of the Local Outside-Wall Temperatures along an Electrically Heated Circular Tube / 24 Two-Phase Pressure Drop in Pipes / 25 Heat-Transfer Calculations for Predicting Solids Deposition in Pipeline Transportation of "Waxy" Crude Oils / 26 Heat Transfer in a Circular Duct / **Part 6—Heat Exchangers** / 27 Air Cooling of a High-Voltage Power Supply Using a Compact Heat Exchanger / 28 Energy Recovery from an Industrial Clothes Dryer Using a Condensing Heat Exchanger / 29 Sizing of a Crossflow Compact Heat Exchanger / 30 Single-Phase Natural Circulation Loops: An Analysis Methodology with an Example (Numerical) Calculation for an Air-Cooled Heat Exchanger / 31 Evaluation of Condensation Heat Transfer in a Vertical Tube Heat Exchanger / 32 Heat Exchanger Design Using an Evolutionary Algorithm / **Part 7—Fluidized Beds** / 33 Fluidized Bed Heat Transfer / **Part 8—Parameter and Boundary Estimation** / 34 Estimation of Parameters in Models / 35 Upper Bounds of Heat Transfer from Boxes / 36 Estimating Freezing Time of Foods/ **Part 9—Temperature Control** / 37 Precision Temperature Control Using a Thermoelectric Module/ **Part 10—Thermal Analysis and Design** / 38 Thermal Analysis of a Large Telescope Mirror / 39 Thermal Design and Operation of a Portable PCM Cooler / 40 A First-Order Thermal Analysis of Balloon-Borne Air-Cooled Electronics / 41 Thermal Analysis of Convectively Cooled Heat Dissipating Components on Printed Circuit Boards / 42 Design of a Fusion Bonding Process for Fabricating Thermoplastic-Matrix Composites / **Part 11–Economic Optimization** / 43 Economic Optimization of Heat-Transfer Systems / 44 Turkey Oven Design Problem

Heat Transfer, 9E

Jack P. Holman, Southern Methodist University

2002 / Hardcover / 688 pgs / ISBN 0-07-240655-0

www.mhhe.com/engcs/mech/holman/

As one of the most popular heat transfer texts, Jack Holman's *Heat Transfer* is noted for its clarity, accessible approach, and inclusion of many examples and problem sets. The Ninth Edition retains the straight-forward, to-the-point writing style while covering both analytical and empirical approaches to the subject. Throughout the book, emphasis is placed on physical understanding while, at the same time, relying on meaningful experimental data in those situations that do not permit a simple analytical solution. New examples and templates provide students with updated resources for computer-numerical solutions.

CONTENTS

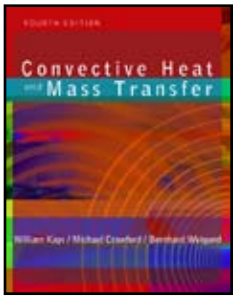
1 Introduction / 2 Steady-State Conduction—One Dimension / 3 Steady-State Conduction—Multiple Dimensions / 4 Unsteady-State Conduction / 5 Principles of Convection / 6 Empirical and Practical Relations for Forced-Convection Heat Transfer / 7 Natural Convection Systems / 8 Radiation Heat Transfer / 9 Condensation and Boiling Heat Transfer / 10 Heat Exchangers / 11 Mass Transfer / Appendixes / A Tables / B Exact Solutions of Laminar-Boundary-Layer Equations / C Analytical Relations for the Heisler Charts / D Use of Microsoft Excel for Solution of Heat-Transfer Problems

SUPPLEMENT

Instructor's Solutions Manual

HEAT TRANSFER (ADVANCED): CONVECTIVE

Convective Heat & Mass Transfer, 4E



William M. Kays, Stanford University
Michael E. Crawford, University of Texas at Austin
Bernhard Weigand, Universitat Stuttgart

2005 / Hardcover / 576 pgs / ISBN 0-07-299073-2

Find password-protected solutions to chapter problems for instructors and additional information on TEXSTAN. (Browse http://highered.mcgraw-hill.com/sites/0072990732)

The 4th edition *Convective Heat and Mass Transfer* continues the trend of encouraging the use of a numerically based, computational approach to solving convective heat and mass transfer problems, in addition to classical problem-solving approaches. This best-selling text also presents a strong theoretical basis for the subject of convective heat and mass transfer by focusing on boundary layer theory and provides optional coverage of the software teaching tool TEXSTAN.

NEW TO THIS EDITION

- Significant revisions include an expanded chapter on convective heat transfer with body forces, reduced focus on heat exchanger theory, completely rewritten chapters on mass transfer to include more engineering examples for both low and high transfer rates that provide the student with more insight into a seemingly difficult subject.
- The use of TEXSTAN software is covered in the appendix and integrated into computer problems throughout the book.
- Increased coverage of modern numerical and computer techniques.
- Instructors can find password-protected solutions on EngineeringCS.com as well as additional information on TEXSTAN.

FEATURES

- Numerous design sections show how analytical techniques are actually used to model heat exchangers, etc.
- Computer Problems included in each chapter problem set.

CONTENTS

1 Introduction / 2 Conservation Principles / 3 Fluid Stresses and Flux Laws / 4 Differential Equations for the Laminar Boundary Layer / 5 Integral Equations for the Boundary Layer / 6 Differential Equations for the Turbulent Boundary Layer / 7 Laminar Internal Flows: Momentum Transfer / 8 Laminar Internal Flows: Heat Transfer / 9 Laminar External Boundary Layers: Momentum Transfer / 10 Laminar External Boundary Layers: Heat Transfer / 11 Turbulent External Boundary Layers: Momentum Transfer / 12 Turbulent External Boundary Layers: Heat Transfer / 13 Turbulent Internal Flows: Momentum Transfer / 14 Turbulent Internal Flows: Heat Transfer / 15 Influence of Temperature-Dependent Fluid Properties / 16 Convective Heat Transfer at High Velocities / 17 Convective Heat Transfer with Body Forces / 18 Convective Mass Transfer: Basic Definitions and Formulation of a Simplified Theory / 19 Convective Mass Transfer: Evaluation of the Mass-Transfer Conductance from the Conserved-Property(*P*) Equation / 20 Convection Mass Transfer: Examples for Application of the Simplified Method / Appendices / A Property Values / B Dimensions and Conversion to SI / C Some Tables of Functions Useful in Boundary-Layer Analysis / D Operations Implied by the Operator / E Detailed Derivation of the Simplified Mass-Diffusion and Energy Equation (P) for Convective Mass Transfer Problems and the Corresponding Boundary Conditions / F The TEXSTAN Boundary-Layer Code / G Blasius Flow—A Sample Data Set for TEXSTAN / H TEXSTAN Data Sets

COMBUSTION ENGINEERING

An Introduction to Combustion: Concepts and Applications w/Software, 2E

Stephen R. Turns, *Pennsylvania State University–University Park*

2000 / ISBN 0-07-235044-X

This Second Edition retains all the same primary objectives as the original text: First, to present basic combustion concepts using relatively simple and easy-to -understand analyses; and second, to introduce a wide variety of practical applications which motivate or relate to the various theoretical concepts. The overarching goal is to provide a textbook which is useful for both formal undergraduate study in mechanical engineering and in related fields, and informal study by practicing engineers.

CONTENTS

SUPPLEMENT

Instructor's Solutions Manual

Steam Plant Operation, 8E

Everett B. Woodruff
Herbert B. Lammers (deceased)
Thomas F. Lammers. Babcock & Wilcox, Co., Ohio

2005 / Hardcover / 850 pgs / ISBN 0-07-141846-6

McGraw-Hill Professional

NEW TO THIS EDITION

- Used nationwide as a guide for local operating license examinations
- Questions and problems are provided at the end of each chapter
- Includes major updates and changes in the areas of pumps, valves, turbines, condensers, feed-water systems, and cooling towers
- Revised to reflect the latest code changes

CONTENTS

KINEMATICS/DYNAMICS OF MACHINES

Design of Machinery, 3E

Robert L. Norton, *Worcester Polytechnic Institute*

2004 / Hardcover with CD-ROM / 880 pgs / ISBN 0-07-310944-4

This website will include 50 interactive FE exam questions, MATLAB® simulations, links to the MSC/Working Model and The MathWorks websites, suggested projects, and learning review features for students. (Browse http://highered.mcgraw-hill.com/sites/0072470461)

Robert Norton's *DESIGN OF MACHINERY* 3/e continues the tradition of this bestselling book by emphasizing the design aspects of mechanisms and providing numerous industry examples and illustrations for readers. Norton provides a solid conceptual foundation for the kinematics and dynamics of machinery, presented in the context of what a design engineer needs to work with.

The new 3/e has revised and expanded chapter problem set—231 new problems have been added. 88 Project Assignments are also included to give readers an in-depth look at mechanism design and analysis procedures in a realistic format. Coverage of compliant mechanisms and MEMS has been added in Chapter 2; a section entitled "Some Useful Mechanisms" is now in Chapter 3; treatment of cams in Chapters 8 has been condensed and modernized. Information on transmissions and engine dynamics has been enhanced and expanded as well.

The third edition comes with a bound-in Student Resources CD-ROM, with Norton's own student-version programs, an extensive group of Working Model simulations (by Sid Wang, North Carolina A&T University), additional Working Model examples, and the MSC Working Model 2-D program itself (demonstration version). A new Book Website includes additional instructor and student resources. Detailed solutions to all chapter problems and project assignments, are available to instructors on the website, under password protection.

NEW TO THIS EDITION

- Added coverage of MEMS and compliant mechanisms in Chapter 2.
- MATLAB® simulations, linked to the text, are now included on the Book Website.

FEATURES

- Part I of the text is suitable for a one-term course in kinematics, while Part II can be used for a separate dynamics of machinery course or section.
- Clear, informal, and accessible writing style.
- Complete, modern, and thorough treatment of cam design and cam-follower systems.
- Detailed worked Examples are presented both verbally and graphically.
- Up-to-date methods and techniques for synthesis and analysis used throughout.
- Emphasis on computer-aided engineering as an approach to the design and analysis of engineering problems.

CONTENTS

MACHINE DESIGN

Shigley's Mechanical Engineering Design, 8E

Richard Budynas, Rochester Institute of Technology
J. Keith Nisbett, University of Missouri-Rolla

2008 / Hardcover / 992 pages / ISBN 0-07-331260-6

Browse http://www.mhhe.com/shigley

New Edition

The eighth edition of *Shigley's Mechanical Engineering Design* maintains the basic approaches that have made this book the standard in machine design for over 40 years. At the same time it combines the straightforward focus on fundamentals instructors have come to expect with a modern emphasis on design and new applications. Overall coverage of basic concepts are clear and concise so that readers can easily navigate key topics. Problem sets have been improved, with new problems added to help students progressively work through them. The book has included ARIS, which will have algorithmic problems. All standards have been updated, which will make this the most current text!

NEW TO THIS EDITION

- The 8th edition of *Shigley's Mechanical Engineering Design* features a major new case study developed to help illuminate the complexities of shafts and axles.
- New Finite Elements Chapter—This is a trendy topic and makes this book cutting edge.
- Part III has been updated to reflect current standards. Making this the most current book out in the market in terms of standards.
- A new co-author, Keith Nisbett brings to the book an accessible writing style that is evident throughout the entire text. He is also writting the entire chapter with the case study, which is new. Case is on Power Transmissions
- Parts I and II have been streamlined to improve readability and simplify the presentation without sacrificing content.

FEATURES

- ARIS site offers a wealth of learning resources for students such as FE Exam problems, machine design tutorials, MATLAB® simulations, and PPTs of important figures.
- As in previous editions, the new edition of Shigley featuers authoritative coverage of the design considerations for major machine elements (i.e., gears, brakes, clutches).

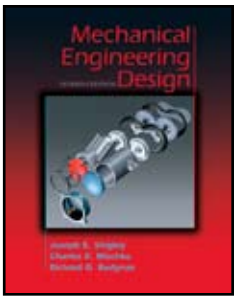
CONTENTS

Part I Basics / 1 Introduction to Mechanical Design / 2 Materials / 3 Load and Stress Analysis / 4 Deflection and Stiffness / Part II Failure Prevention / 5 Failures Resulting from Static Loading / 6 Failure Resulting from Variable Loading / Part III Design of Mechanical Elements / 7 Shafts and Axles / 8 Screws, Fasteners, and the Design of Nonpermanent Joints / 9 Welding, Brazing, Bonding, and the Design of Permanent Joints / 10 Mechanical Springs / 11 Rolling-Contact Bearings / 12 Lubrication and Journal Bearings / 13 Gears—General / 14 Spur and Helical Gears / 15 Bevel and Worm Gears / 16 Clutches, Brakes, Couplings and Flywheels / 17 Flexible Mechanical Elements / 18 Power Transmission Case Study / Part IV—Analysis Tools / 19 Finite-Element Analysis / 20 Statistical Considerations / Appendices / A Useful Tables / B Solutions to Selected Problems / Index

Mechanical Engineering Design, 7E

Joseph Shigley (deceased)
Charles Mischke, Iowa State University
Richard Budynas, Rochester Institute of Technology

2004 / Hardcover with access card / 1056 pgs / ISBN 0-07-292193-5



This Online Learning Center features Tutorials covering major concepts in the text, interactive FE Exam questions, the FEPC finite element tool and accompanying Finite Element Primer, and MATLAB® for Machine Design. There are complete chapter problem solutions and PowerPoint slides of text illustrations for instructors, under password protection. Students will be able to access quizzes, key terms, crossword puzzles and flashcards to aid in their learning of machine design topics. (Browse http://www.mhhe.com/shigley)

The seventh edition of *Mechanical Engineering Design* marks a return to the basic approaches that have made this book the standard in machine design for over 40 years. At the same time it has been significantly updated and modernized for today's engineering students and professional engineers.

Working from extensive market research and reviews of the 6th edition, the new 7th edition features reduced coverage of uncertainty and statistical methods. Statistics is now treated (in chapter 2) as one of several methods available to design engineers, and statistical applications are no longer integrated throughout the text, examples and problem sets.

Other major changes include updated coverage of the design process, streamlined coverage of statistics, a more practical overview of materials and materials selection (moved to chapter 3), revised coverage of failure and fatigue, and review of basic strength of materials topics to make a clearer link with prerequisite courses.

Overall coverage of basic concepts has been made more clear and concise, with some advanced topics deleted, so that readers can easily navigate key topics. Problem sets have been improved, with new problems added to help students progressively work through them.

NEW TO THIS EDITION

- Mainstream coverage of Machine Design topics, with moderate coverage (only) of statistical methods.
- Revised and expanded problem sets with each chapter.
- Improved engineering mechanics coverage, treatment of failure, fracture and fatigue in Part II of the text.
- Practical coverage of engineering materials, now moved up to Part I of the text.
- More accessible writing style evident throughout the book.
- Extensive checking has been done to guarantee accuracy of the text, examples, problems and solutions.

FEATURES

- Coverage in the 7/e is much more concise, and focused on major topics.
- Authoritative coverage of the design considerations for major machine elements (i.e., gears, brakes, clutches).

CONTENTS

Part I Basics / 1 Introduction / 2 Statistical Considerations / 3 Materials / 4 Load and Stress Analysis / 5 Deflection and Stiffness / **Part II Failure Prevention** / 6 Failures Resulting from Static Loading / 7 Fatigue Failure Resulting from Variable Loading / **Part III Design of Mechanical Elements** / 8 Screws, Fasteners, and the Design of Nonpermanent Joints / 9 Welding, Brazing, Bonding, and the Design of Permanent Joints / 10 Mechanical Springs / 11 Rolling-Contact Bearings / 12 Lubrication and Journal Bearings / 13 Gears—General / 14 Spur and Helical Gears / 15 Bevel and Worm Gears / 16 Clutches, Brakes, Couplings and Flywheels / 17 Flexible Mechanical Elements / 18 Shafts and Axles / Appendices / A Useful Tables / B Solutions to Selected Problems / Index

SUPPLEMENT

Solutions Manual

Fundamentals of Machine Elements, 2E

Bernard J. Hamrock, Ohio State University
Steven R. Schmid , University of Notre Dame
Bo O. Jacobson , Lund University

2005 / Hardcover / 1008 pgs / ISBN 0-07-297682-9

The Online Learning Center will include general text information, lecture slides, the text figures, links to important sites, FE Exam questions and more!
(Browse http://www.mhhe.com/harmrock2)

The second edition of *Fundamentals of Machine Elements* provides undergraduates and praticing engineers with a clear understanding of the theory and applications behind the fundamental concepts of machine elements.

The text is rich with examples and homework problems designed to test student understanding and build their skills in analysis and design. The engineering design process is stressed throughout the book through the use of Case Studies, open-ended problems, design procedure boxes, and in-text discussion.

The book is divided into two parts: Part I (chs 1-8) covers fundamental background topics, and Part II (chs 9-20), presents the design of various machine components. Unique coverage of MEMS devices is provided in chapter 20, reflecting the importance of microsystems in today's industry.

The book is complemented by extensive online resources for instructors and students.

NEW TO THIS EDITION

- Extensive outside error-checking has been done for the revised text.
- New chapter 15 on Helical, Bevel and Worms Gears.
- New chapter 20 on Microelectromechanical Devices.

FEATURES

- Over 600 homework problems are found in the text.
- Approximately 200 worked examples with step-by-step solutions are in the text. These examples are solved using a consistent problem-solving methodology, that is first outlined in chapter 1. Many examples mention practical applications that will interest students.
- Students are exposed to design principles beginning in chapter 1, and continuing throughout the book. There are numerous open-ended problems and case studies sprinkled throughout the text.

CONTENTS

Mechanical Design: An Integrated Approach

Ansel Ugural, New Jersey Institute of Technology

2004 / Hardcover / 832 pgs / ISBN 0-07-292185-4

The Online Learning Center will contain problem solutions and PowerPoint figures for instructors; FE Exam interactive problems and extensive MATLAB® simulations. (Browse http://www.mhhe.com/ugural)

Ugural's *Mechanical Design: An Integrated Approach* provides a comprehensive, integrated view of machine element design for Mechanical Engineering students and practicing engineers. The author's expertise in engineering mechanics is demonstrated in Part I (Fundamentals), where readers receive an exceptionally strong treatment of the design process, stress & strain, deflection & stiffness, energy methods, and failure/fatigue criteria. Advanced topics in mechanics (marked with an asterisk in the Table of Contents) are provided for optional use.

The first 8 chapters provide the conceptual basis for Part II (Applications), where the major classes of machine components are covered. Optional coverage of finite element analysis is included, in the final chapter of the text, with selected examples and cases showing FEA applications in mechanical design.

In addition to numerous worked-out examples and chapter problems, detailed Case Studies are included to show the intricacies of real design work, and the integration of engineering mechanics concepts with actual design procedures. The author provides a brief but comprehensive listing of derivations for users to avoid the "cookbook" approach many books take. Numerous illustrations provide a visual interpretation of the equations used, making the text appropriate for diverse learning styles. The approach is designed to allow for use of calculators and computers throughout, and to show the ways computer analysis can be used to model problems and explore "what if?" design analysis scenarios.

An Online Learning Center website provides a wealth of resources for instructors, students and other readers.

FEATURES

- Strong coverage of engineering mechanics concepts provided in Part I of the book.
- Case Studies, showing application of chapter topics to real-world engineering design, are included in most chapters.
- Examples and problems are structured to allow for use of computers, when desired, in problem analysis and solution.
- A complete Online Learning Center is included, with student learning features, solutions and PowerPoint for instructors, MATLAB® simulations and interactive FE Exam questions, and finite element resources.

CONTENTS

I-DEAS Student Guide, 2E

SDRC

2004 / Softcover / 480 pgs / ISBN 0-07-252544-4

The *I-DEAS Student Guide Revised Edition*—created by Mark Lawry—provides the "big picture" of the powerful EDS software product I-DEAS, and shows its use as an integrated CAD/CAM environment for concurrent engineering. The book provides a quick technical introduction to I-DEAS, including the new I-DEAS version 10, and is ideal for users who want to learn other capabilities of the software. Numerous screen captures provide a visual parallel to the explanations given in the text.

The Student Guide covers basic commands and procedures, in a format that makes for convenient reference. The chapter-ending section includes a series of Tutorials that demonstrate basic concepts in a hands-on way. Workshop sections follow the Tutorials, and allow users to apply their knowledge in a design context.

The Appendix of the book includes an Icon Summary list, a section on Advanced Features and Interfaces, and a practical Troubleshooting Reference. The Index is set up to further increase the reference value of the Student Guide.

NEW TO THIS EDITION

- Up-to-date coverage of the professional versions 9 and 10 of I-DEAS.

FEATURES

- The Student Guide uses a tutorial approach to presenting I-DEAS.
- The Student Guide provides an easy, affordable reference of I-DEAS commands and procedures.
- The Student Guide will contain appendices that cover Advanced Features, Icon Summary, and Trouble-Shooting Reference.

CONTENTS
How to Use This Guide / 1 Introduction to I-DEAS / 2 Part Modeling / 3 Modifying Parts / 4 Constraints & Constrait Networks / 5 Surfacing Techniques / 6 Assemblies and Mechanisms / 7 Annotation & Drafting / 8 Manufacturing / 9 Simulation / 10 Other I-DEAS Applications / Sheet Metal, Harness, Mold Design, Test / 11 Best Practices / 12 Collaboration / Appendices / A Icon Summary / B Advanced Features and Interfaces / C Troubleshooting Reference

Mark's Calculations for Machine Design

Thomas H. Brown

2005 / Hardcover / 445 pgs / ISBN 0-07-143689-8

FEATURES

- The basic principles of the mechanics of Machine Design
- Tabular information and calculations from the most complex to the simple machines
- Analyze problems in a simple and logical manner
- Free-body diagrams and vector methods in problem solving

CONTENTS
Part 1: Strength of Machines / 1 Fundamental Loadings / 2 Beams: Reactions, Shear Force and Bending Moment Distributions, and Deflections / 3 Advanced Loadings / 4 Combined Loadings/ 5 Principal Stresses and Mohr's Circle / 6 Static Design and Column Buckling / 7 Fatigue and Dynamic Design/ **Part 2: Application to Machines** / 8 Machine Assembly / 9 Machine Energy / 10 Machine Motion

INTERNAL COMBUSTION ENGINES

Internal Combustion Engine Fundamentals

John Heywood, Massachusetts Institute of Technology

1988 / Hardcover / 930 pgs / ISBN 0-07-028637-X

This text, by a leading authority in the field, presents a fundamental and factual development of the science and engineering underlying the design of combustion engines and turbines. An extensive illustration program supports the concepts and theories discussed.

CONTENTS
1 Engine Types and Their Operations / 2 Engine Design and Operating Parameters / 3 Thermochemistry of Fuel-Air Mixtures / 4 Properties of Working Fluids / 5 Ideal Models of Engine Cycles / 6 Gas Exchange Processes /7 SI Engine Fuel Metering and Manifold Phenomena / 8 Charge Motion within the Cylinder / 9 Combustion in Ignition Engines / 10 Combustion in Compression Ignition Engines / 11 Pollutant Formation and Control / 12 Engine Heat Transfer / 13 Engine Friction and Lubrication / 14 Modeling Real Engine Flow and Combustion Processes / 15 Engine Operating Characteristics / Appendices

SUPPLEMENT
Solutions Manual

ENGINEERING MEASUREMENTS/ EXPERIMENTATION/INSTRUMENTATION

Measurement and Data Analysis for Engineering and Science

Patrick F. Dunn, University of Notre Dame

2005 / Hardcover / 560 pgs / ISBN 0-07-282538-3

For instructors, the Web site includes review and homework problems solutions, laboratory exercise solutions, and the WebCT course file. For students, the site offers, a laboratory exercise manual, MATLAB® M-files and data files, and general text information. (Browse http://highered.mcgraw-hill.com/sites/0072825383)

Dunn's *Measurement and Data Analysis for Engineering & Science* places emphasis on the process of experimentation, rather than the products of experimentation.

Dunn's objective is to expose undergraduates and experimentalists to the essential tools of experimentation, to the scientific detail behind these tools, and to the role of experimentation in the scientific process. Guided by worked examples, MATLAB® sidebars, and laboratory exercises, the reader builds a strong working knowledge while moving progressively through the text.

The first three chapters of the text cover the basics—experimental methods, units & significant figures, technical communications and basic electronics. Hardware issues are then presented, with a focus on measurement systems, and calibration & response. The final chapters deal with data analysis, with an overview of basic probability & statistics, uncertainty analysis, signal characteristics, and digital signal analysis. Following the text chapters, a full laboratory manual, with an introduction and twelve lab experiments, is included. This gives users a chance to put their basic skills to work in actual engineering experiments, which are taken from a variety of engineering subject areas.

Throughout the book computer techniques are discussed, and specific MATLAB® applications are included, for problem modeling, exploration and solution. MATLAB® "sidebars" are used to present MATLAB®, and associated M-files are provided on the Web site.

FEATURES

- Over 75 MATLAB® "sidebars" and examples used throughout the text.
- Dunn covers transducers and sensors by starting with a physical principle upon which a sensor can be based and then showing the variety of sensors that can be made using this principle.
- The role of experimentation is explained clearly in this text (the only text to do this thoroughly).
- Dunn adds a historical perspective by using historical equipment and quotations throughout the text.
- Dunn presents the descriptions of 12 experiments and provides all of the data from these experiments such that instructors can use the data in classroom exercises or as virtual experiments in which they give students the raw data and have them analyze it.
- Crossword puzzles conclude each chapter.
- Over 70 worked examples can be found in the text.
- A text Web site, available at http://www.mhhe.com/pdunn provides instructors with solutions to review and homework problems, a laboratory exercise solutions manual, and a WebCT course file. The site provides students with a laboratory exercise manual and MATLAB® M-files and data files.

CONTENTS
Basics / 1 Experiments / 2 Units and Significant Figures / 3 Technical Communication / 4 Basic Electronics / Hardware / 5 Calibration and Response / 6 Measurement Systems / Analyses / 7 Probability / 8 Statistics / 9 Uncertainty Analysis / 10 Regression and Correlation / 11 Signal Characteristics / 12 Digital Signal Analysis / Appendices / A Symbols / B Glossary / C Conversions / D Learning Objective Nomenclature / E Physical Principles / F Review Puzzle Solutions / G Problem Solutions / H Laboratory Exercises / I Derivations

Measurement Systems, 5E

Ernest Doebelin, Ohio State University-Columbus

2004 / Hardcover with CD-ROM / ISBN 0-07-299072-4

The book's website will feature instructor solutions for all chapter problems (with password protection), background information for MATLAB® and DASYLab computer tools, and a run-time version of DASYLab. (Browse http://highered.mcgraw-hill.com/sites/007292201x)

Doebelin's MEASUREMENT SYSTEMS: APPLICATION & DESIGN 5/e provides a comprehensive and up-to-date overview of measurement, instrumentation and experimentation for engineering students. The book is also an invaluable resource for engineering professionals.

MEASUREMENT SYSTEMS retains its original organization, with coverage of general concepts (Part I), measuring devices (Part II), and the manipulation, transmission and recording of data (Part III). The 5/e is updated throughout; it features expanded coverage of sensors, and the use of computer tools in measurement & data acquisition. Measurement techniques related to micro- and nano-technologies are also discussed, reflecting the growing importance of these technologies,

The newest computer methods are covered, and Doebelin has added a significant commercial software connection for users of the book. Specific coverage of MATLAB®, SIMULINK, and the lab simulation package DASYLab are provided with the book. In

addition, the DASYLab v.7 Student Edition is offered free to purchasers of the text through its website, located at www.McGrawHillEngineeringCS.com; this provides an easy-to-use tool for virtual instrumentation and data acquisition.

NEW TO THIS EDITION

- 30% more chapter problems to aid students in testing their knowledge.
- Access to DASYLab software download via the book website to allow for computer applications in the class; MATLAB® & SIMULINK coverage and applications are also included.
- New coverage of sensor technologies, an important modern topic in this field.
- More extensive coverage in the book of software tools, techniques now used.
- Web resources, including full solutions to all chapter problems.

CONTENTS

Part 1 General Concepts / 1 Types of Applications of Measurement Instrumentation / 2 Generalized Configurations and Functional Descriptions of Measuring Instruments / 3 Generalized Performance Characteristics of Instruments / **Part 2 Measuring Devices** / 4 Motion and Dimensional Measurement / 5 Force, Torque, and Shaft Power Measurement / 6 Pressure and Sound Measurement / 7 Flow Measurement / 8 Temperature and Heat-Flux Measurement / 9 Miscellaneous Measurements / **Part 3 Manipulation, Transmission, and Recording of Data** / 10 Manipulating, Computing, and Compensating Devices / 11 Data Transmission and Instrument Connectivity / 12 Voltage-Indicating and -Recording Devices / 13 Data-Acquisition Systems for Personal Computers / 14 Measurement Systems Applied to Micro- and Nanotechnology

Experimental Methods for Engineers, 7E

Jack P. Holman, Southern Methodist University

2001 / Hardcover / 720 pgs / ISBN 0-07-366055-8

www.mhhe.com/engcs/engmech/holman/

This market leader offers the broadest range of experimental measurement techniques available for mechanical and general engineering applications. Offering clear descriptions of the general behavior of different measurement techniques, such as pressure, flow, and temperature, the text emphasizes the use of uncertainty analysis and statistical data analysis in estimating the accuracy of measurements.

CONTENTS

1 Introduction / 2 Basic Concepts / 3 Analysis of Experimental Data / 4 Basic Electrical Measurements and Sensing Devices / 5 Displacement and Area Measurements / 6 Pressure Measurement / 7 Flow Measurement / 8 The Measurement of Temperature / 9 Thermal and Transport-Property Measurements / 10 Force, Torque, and Strain Measurements / 11 Motion and Vibration Measurement / 12 Thermal and Nuclear-Radiation Measurements / 13 Air-Pollution Sampling and Measurement / 14 Data Acquisition and Processing / 15 Report Writing and Presentation / 16 Design of Experiments

SUPPLEMENT

Solutions Manual

MECHANICAL ENGINEERING DESIGN (CAPSTONE)

The Mechanical Design Process, 3E

David G. Ullman , Oregon State University

2003 / Hardcover / 432 pgs / ISBN 0-07-237338-5

This website will have solutions to chapter problems for instructors and PowerPoint figures. (Browse http://highered.mcgraw-hill.com/sites/0072373385)

The third edition of *The Mechanical Design Process* combines a practical overview of the design process with case material and real-life engineering insights. Ullman's work as an innovative designer comes through consistently, and has made this book a favorite with readers.

This book conveys the "flavor" of design, addressing both traditional engineering topics as well as real-world issues like creative thinking, synthesis of ideas, visualization, teamwork, sense of customer needs and product success factors, and the financial aspects of design alternatives, in a practical and motivating manner. Its ongoing use of a bicycle design case brings the design stages and concepts to life, and shows the actual steps taken to generate design ideas and bring them to fruition. Approaches to concept generation, including TRIZ and axiomatic design, are given strong coverage.

This text is appropriate primarily for the Senior Design course taken by mechanical engineering students, though it can also be used in design courses offered earlier in the curriculum. Working engineers also find it to be a readable, practical overview of the modern design process.

NEW TO THIS EDITION

- Trends in engineering, such as design team development, concurrent engineering and robust design techniques, are reflected in this new edition.

FEATURES

- Gives step-by-step coverage of the design process.
- A detailed example illustrating the design of a bicycle takes the reader through the entire design process and is integrated throughout the text.

CONTENTS

1 Why Study the Design Process? / 2 Describing Mechanical Design Problems and Process / 3 Designers and Design Teams / 4 The Design Process / 5 Project Definition and Planning / 6 Understanding the Problem and the Development of Engineering Specifications / 7 Concept Generation / 8 Concept Evaluation / 9 The Product Design Phase / 10 Product Generation / 11 Product Evaluation for Performance and the Effects of Variation / 12 Product Evaluation for Cost, Manufacture, Assembly, and other Measures / 13 Launching and Supporting the Product / Appendices / A Properties of 25 Materials Most Commonly Used in Mechanical Design / B Normal Probability / C The Factor of Safety as a Design Variable / D Human Factors in Design / E TRIZ / F Belief Map Masters

Engineering Design: A Materials and Processing Approach, 3E

George Dieter, University of Maryland–College Park

2000 / Hardcover / 816 pgs / ISBN 0-07-366136-8

www.mhhe.com/engcs/mech/dieter/

The third edition of *Engineering Design* represents a major reorganization and expansion. The revision has resulted from the recognition that engineering students need more structure to guide them through the design process. Chapters have been reordered to be more in the natural progression of the design process. The book is broader in content than most design texts, but now contains much more prescriptive guidance on how to carry out design.

CONTENTS

Prefaces / 1 The Product Design Process / 2 Need Identification and Problem Definition / 3 Team Behavior and Tools / 4 Gathering Information / 5 Concept Generation and Evaluation / 6 Embodiment Design / 7 Modeling and Simulation / 8 Materials Selection and Materials in Design / 9 Materials Processing and Design / 10 Engineering Statistics / 11 Risk, Reliability, and Safety / 12 Robust and Quality Design / 13 Economic Decision Making / 14 Cost Evaluation / 15 Legal and Ethical Issues in Design / 16 Detail Design / 17 Communicating the Design / Appendices / Index

SUPPLEMENT

Instructor's Solutions Manual

COMPUTATIONAL FLUID DYNAMICS

Computational Fluid Dynamics

John D. Anderson, University of Maryland–College Park, National Air & Space Museum

1995 / Hardcover / 574 pgs / ISBN 0-07-001685-2

This pioneering text provides an excellent introduction to CFD at the senior level in aerospace and mechanical engineering, and to some extent, chemical and civil engineering. It can also serve as a one-semester introductory course at the beginning graduate level, as a useful precursor to a more serious study of CFD in advanced books. It is presented in a very readable, informal, enjoyable style.

CONTENTS
I Basic Thoughts and Equations / 1 Philosophy of Computational Fluid Dynamics / 2 The Governing Equations of Fluid Dynamics: Their Derivation, A Discussion of Their Physical Meaning, and A Presentation of Forms Particularly Suitable to CFD / 3 Mathematical Behavior of Partial Differential Equations The Impact on Computational Fluid Dynamics / **II Basics of the Numerics** / 4 Basic Aspects of Discretization / 5 Grids and Meshes, with Appropriate Transformations / 6 Some Simple CFD Techniques A Beginning / **III Some Applications** / 7 Numerical Solutions of Quasi-One-Dimensional Nozzle Flows / 8 Numerical Solution of A Two-Dimensional Supersonic Flow Prandtl-Meyer Expansion Wave / 9 Incompressible Couette Flow Numerical Solution by Means of an Implicit Method and the Pressure Correction Method / 10 Incompressible, Inviscid Slow Over a Circular Cylinder Solution by the Technique Relaxation / **IV Other Topics** / 11 Some Advanced Topics in Modern CFD A Discussion / 12 The Future of Computational Fluid Dynamics / Appendices / Thomas's Algorithm for the Solution of A Tridiagonal System of Equations References

SUPPLEMENT
Solutions Manual

COMPRESSIBLE FLOW/GAS DYNAMICS

Modern Compressible Flow: With Historical Perspective, 3E

John D. Anderson, University of Maryland–College Park, National Air & Space Museum

2003 / Hardcover / 784 pgs / ISBN 0-07-242443-5

highered.mcgraw-hill.com/sites/0072424435

Anderson's book provides the most accessible approach to compressible flow for Mechanical and Aerospace Engineering students. In keeping with previous versions, the 3rd edition uses numerous historical vignettes that show the evolution of the field.

Pedagogical features—"Roadmaps" showing the development of a given topic, and "Design Boxes" giving examples of design decisions—will make the 3rd edition even more student-friendly than before.

The 3rd edition strikes a careful balance between classical methods of determining compressible flow, and modern numerical and computer techniques (such as CFD) now used in industry & research.

A Book Website will contain all problem solutions for instructors, and extended information on CFD.

FEATURES

- Integration of modern computer methods, especially Computerized Fluid Dynamics (CFD) in compressible flow applications.
- "Design Box" and "Road Map" features included throughout the book.
- Book Website that contains instructor solutions; and coverage of CFD methods/examples.
- Historical vignettes show the development of the field.

CONTENTS
1 Compressible Flow—Some History and Introductory Thoughts / 2 Integral Forms of the Conservation Equations for Inviscid Flows / 3 One-Dimensional Flow / 4 Oblique Shock and Expansion Waves / 5 Quasi-One-Dimensional Flow / 6 Differential Conservation Equations for Inviscid Flows / 7 Unsteady Wave Motion / 8 General Conservation Equations Revisited: Velocity Potential Equation / 9 Linearized Flow / 10 Conical Flow / 11 Numerical Techniques for Steady Supersonic Flow / 12 The Time-Marching Technique: With Application to Supersonic Blunt Bodies and Nozzles / 13 Three-Dimensional Flow / 14 Transonic Flow / 15 Hypersonic Flow / 16 Properties of High-Temperature Gases / 17 High-Temperature Flows: Basic Examples

VIBRATIONS

Fundamentals of Vibrations

Leonard Meirovitch, Virginia Polytechnic Institute

2001 / Hardcover / 816 pgs / ISBN 0-07-288180-1

www.mhhe.com/engcs/mech/meirovitch

Intended for introductory vibrations courses, Meirovitch offers a masterfully crafted textbook that covers all basic concepts at a level appropriate for undergraduate students. The book contains a chapter on the use of Finite Element Methods in vibrational analysis. Meirovitch uses selective worked examples to show the application of MATLAB® software in this course. The author's approach challenges students with a precise and thoughtful explanations and motivates them through use of physical explanations, plentiful problems, worked-out examples, and illustrations.

CONTENTS
1 Concepts from Vibrations / 2 Response of Single-Degree-of-Freedom Systems to Initial Excitations / 3 Response of Single-Degree-of-Freedom Systems to Harmonic and Periodic Excitations / 4 Response of Single-Degree-of-Freedom Systems to Nonperiodic Excitations / 5 Two-Degree-of-Freedom Systems / 6 Elements of Analytical Dynamics / 7 Multi-Degree-of-Freedom Systems / 8 Distributed-Parameter Systems: Exact Solutions / 9 Distributed-Parameter Systems: Approximate Methods / 10 The Finite Element Method / 11 Nonlinear Oscilations / 12 Random Vibrations / Appendices / A Fourier Series / B Laplace Transformation / C Linear Algebra

SUPPLEMENT
Solutions Manual

STRESS ANALYSIS

Intermediate Mechanicsof Materials

James R. Barber

2001 / Hardcover / 608 pgs / ISBN 0-07-232519-4

www.mhhe.com/engcs/mech/barber/

This book offers an original approach to second-level course in Mechanics of Materials/ Strength, taken by Mechanical, Aerospace, and Civil Engineering students in their junior/ senior year. Barber begins by discussing the tenets of engineering design, and links subsequent mechanics concepts to the design work practicing engineers do. Physical and often intuitive interpretations are provided, in addition to analytical explanations. The author also presents simple experiments students can perform to gain a better understanding of mechanics concepts. Throughout the book he strives to simplify the mathematics and engineering terminology, and develop explanations in a way students can follow clearly.

CONTENTS
1 Introduction / 2 Material Behavior and Failure / 3 Energy Methods / 4 Unsymmetrical Bending / 5 Elastic-Plastic Bending / 6 Shear and Torsion of Thin-Walled Beams / 7 Membrane Stresses in Axisymmetric Shells / 8 Beams On Elastic Foundations / 9 Axisymmetric Bending of Cylindrical Shells / 10 Thick Walled Cylinders and Disks / 11 Curved Beams / 12 Elastic Stability / Appendices / A The Finite Element Method / B Properties of Areas / C Stress Concentration Factors

Roark's Formulas for Stress and Strain, 7E

Warren C. Young, University of Wisconsin at Madison
Richard Budynas, Rochester Institute of Technology

2002 / Hardcover / 832 pgs / ISBN 0-07-072542-X

McGraw-Hill Professional

Now updated with 30% new material: the ultimate resource for designers, engineers, and analyst working with calculations of loads and stress. This landmark reference continues its tradition of presenting equations and diagrams of structural properties—all in an easy-to-use, thumb-through format. New to this edition: expanded coverage of joints, bearing and shear stress, experimental stress analysis, and stress concentrations, plus material behavior coverage and stress and strain measurement. Now includes expanded tables and cases; improved notations and figures in the tables; consistent table and equation numbering; verification of correction factors. Features a solutions-based approach to quick calculations in structural element design and analysis.

CONTENTS

Advanced Strength and Applied Stress Analysis, 2E

Richard Budynas, Rochester Institute of Technology

1999 / Hardcover / 960 pgs / ISBN 0-07-008985-X

This book provides a broad and comprehensive coverage of the theoretical, experimental, and numerical techniques employed in the field of stress analysis. Designed to provide a clear transition from the topics of elementary to advanced mechanics of materials. Its broad range of coverage allows instructors to easily select many different topics for use in one or more courses. The highly readable writing style and mathematical clarity of the first edition are continued in this edition. Major revisions in this edition include: an expanded coverage of three-dimensional stress/strain transformations; additional topics from the theory of elasticity; examples and problems which test the mastery of the prerequisite elementary topics; clarified and additional topics from advanced mechanics of materials; new sections on fracture mechanics and structural stability; a completely rewritten chapter on the finite element method; a new chapter on finite element modeling techniques employed in practice when using commercial FEM software; and a significant increase in the number of end of chapter exercise problems some of which are oriented towards computer applications.

CONTENTS

SUPPLEMENT

Instructor's Solutions Manual

DYNAMIC SYSTEMS/SYSTEMS ANALYSIS

System Dynamics

William J. Palm III

2005 / Hardcover / 704 pgs / ISBN 0-07-301603-9

Find password-protected solutions to chapter problems for instructors and files for MATLAB® and SIMULINK applications included in the book. (Browse http://highered.mcgraw-hill.com/sites/0073016039/)

William Palm's *System Dynamics* is a major new entry in this course offered for Mechanical, Aerospace and Electrical Engineering students, as well as for practicing engineers.

Palm's text is notable for having the strongest coverage of computational software and system simulation of any available book. MATLAB® is introduced in Chapter 1, and every subsequent chapter has a standalone MATLAB® Applications section. No previous experience with MATLAB® is assumed; methods are carefully explained, and a detailed appendix outlines use of the program. SIMULINK is introduced in Chapter 5, and used in subsequent chapters to demonstrate the use of system simulation techniques.

This textbook also makes a point of using real-world systems, such as vehicle suspension systems and motion control systems, to illustrate textbook content.

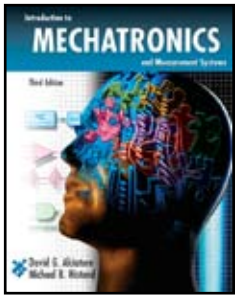
FEATURES

- MATLAB® is introduced in the first chapter, and integrated throughout the book.
- A MATLAB® Primer is included (as Appendix A) to give readers a short course in using the program.
- SIMULINK is introduced in chapter 5 and used as an optional feature in remaining chapters for doing systems simulation.
- Chapters 11-12 provide real-world engineering application examples of systems dynamics and the integration of concepts in the preceding chapters.
- Later chapters feature coverage of Controls and Vibrations.
- MATLAB® files for all users of the book and a password-protected instructor solutions manual are provided on the text-specific Web Site.

CONTENTS

MECHATRONICS

Introduction to Mechatronics and Measurement Systems, 3E



David G. Alciatore, Colorado State University
Michael B. Histand, Colorado State University

2007 / Hardcover / 512 pgs / ISBN 0-07-296305-0

Author Web site containing general textbook information, video presentations, class project assignments, microcontroller resources, MATHCAD examples from the text, and more! (Browse http://www.engr.colostate.edu/~dga/mechatronics/)

Introduction to Mechatronics and Measurement Systems provides comprehensive and accessible coverage of the evolving field of mechatronics for mechanical, electrical and aerospace engineering majors. The authors present a concise review of electrical circuits, solid-state devices, digital circuits, and motors- all of which are fundamental to understanding mechatronic systems.

Mechatronics design considerations are presented throughout the text, and in "Design Example" features. The text's numerous illustrations, examples, class discussion items, and chapter questions & exercises provide an opportunity to understand and apply mechatronics concepts to actual problems encountered in engineering practice. This text has been tested over several years to ensure accuracy.

NEW TO THIS EDITION

- NEW—Expanded coverage of microcontroller programming and interfacing, including new threaded design examples and a detailed case study.
- NEW—Visual icons throughout the book highlight cross-references to extensive online resources including video demonstrations, MathCAD examples, laboratory exercises, and Internet links to useful information.
- NEW—Expanded chapter on data acquisition with an introduction to LabView.
- NEW—An introduction to control theory and its application in mechatronic systems.
- Photographs and descriptions of real devices and mechatronics systems (e.g. the Segway) have been added.
- Additional clipart has been added as a pedagogical feature.
- Additional system analysis and design examples have been added, as well as an additional Case Study in the later chapters.
- Various types of voltage sources (power supplies, batteries, AC/DC converters) have been added to chapter 2.
- An introduction to controls section has been added to chapter 11.
- Microcontroller hardware and software design examples have been added to the text.
- Information on PIC processors and how to select them is included. Also explains how to use and communicate among multiple PICs in a project.

FEATURES

- Integrates design examples and problems throughout the text.
- The text's focus on measurement systems, circuits and electronics, interfacing, sensors, and acutators, along with analysis and synthesis of mechatronic systems, provides a thorough cross-disciplinary and real-world overview of Mechatronics.
- Content coverage of important subjects like MEMS, cutting edge sensor technology, and micromachines.
- Provides an overview of measurement systems, circuits, interfacing, sensors, actuators and design analysis and synthesis of mechatronic systems.
- Supporting information is available including a typical course outline and laboratory syllabus, MathCAD files for examples from the book, Class Discussion Item hints, links to mechatronics resources, and other supplemental material, is available on the Internet at http://www.engr.colostate.edu/~dga/mechatronics/
- Helpful pedagogy includes Integrated Lab Exercises and Class Discussion items, both of which link theory with practice and hands-on exploration of mechatronics.

CONTENTS

MEMS AND SENSORS

Neurorehabilitation Devices

Thompson Sarkodie-Gyan

2006 / Hardcover / 250 pgs / ISBN 0-07-144830-6

McGraw-Hill Professional

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