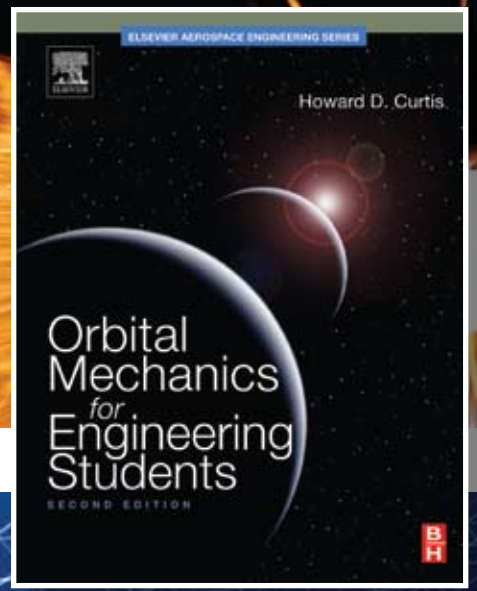
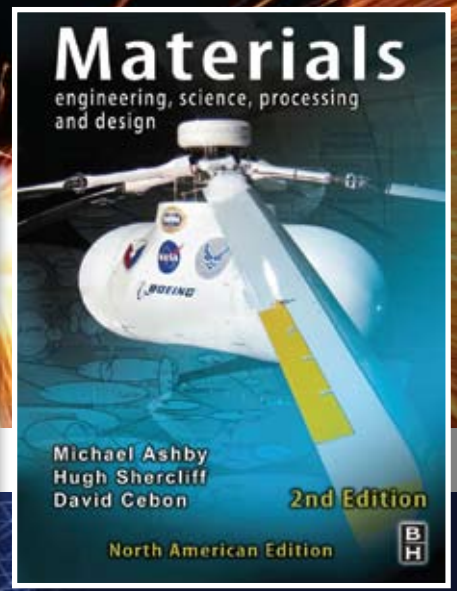
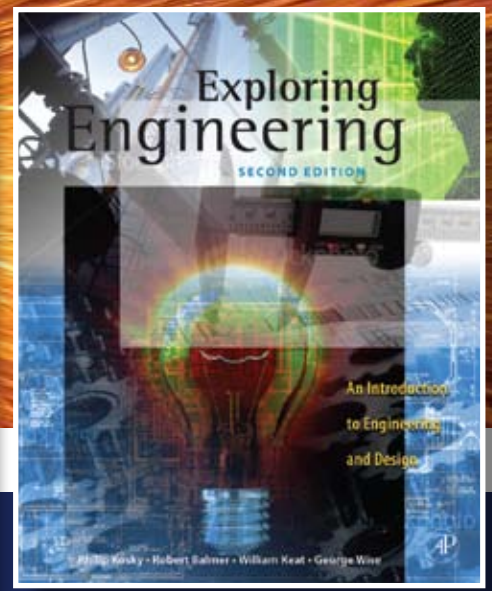
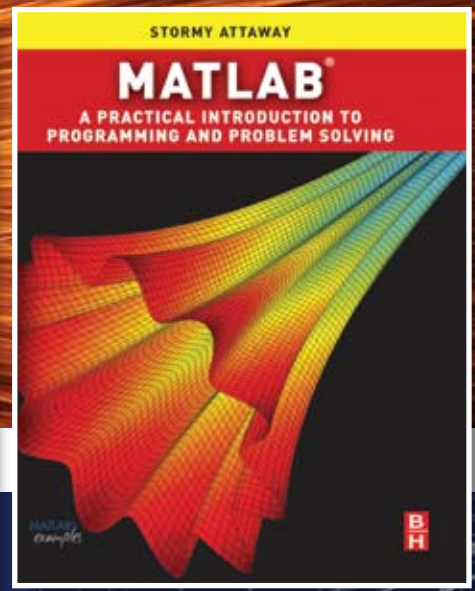
Elsevier ENGINEERING TEXTBOOKS









Visit **http://textbooks.elsevier.com/engineering**

ELSEVIER

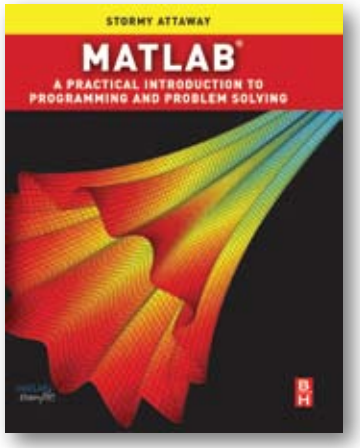
TABLE OF CONTENTS

General 3
Aerospace 7
Biomedical 9
Chemical & Nuclear 12
Civil & Environmental 14
Electrical 16
Materials Science 20
Mechanical 25

Visit **http://textbooks.elsevier.com** for more information

ELSEVIER

Register for your adoption copy online today at **http://textbooks.elsevier.com**



MATLAB: A Practical Introduction to Programming and Problem Solving

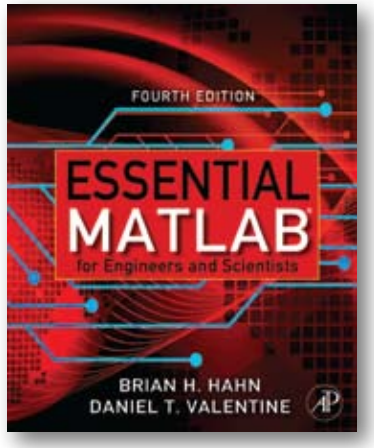
Stormy Attaway

This book takes a hybrid approach, introducing both the programming and the efficient uses of MATLAB®. We believe the best approach for beginning students is to give them both—the programming concepts and the efficient built-in functions.

"This is the only MATLAB textbook that I have come across that teaches the concept of programming so readers can pick up the basics and start writing their own scripts. Many MATLAB textbooks only teach how to use certain functions/features but fail terribly to impart the fundamentals of MATLAB—something that students really need to know so they can use MATLAB efficiently for their homework/projects/etc." —E. Tan, Amazon.com review

Want a closer look at the book? **Click here now.**

Feb 2009 | Paperback | 480 pp | $44.95 | €29.95 | £27.99 | AUD 74 | ISBN: 978-0-7506-8762-1



Essential MATLAB for Engineers and Scientists, 4th Edition

Brian Hahn and **Dan Valentine**

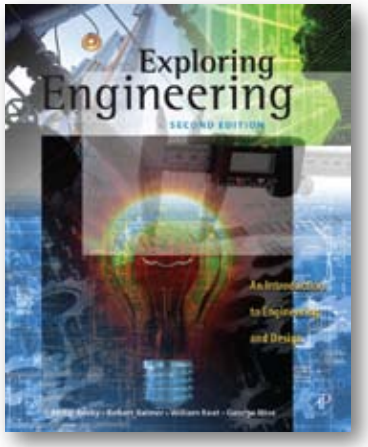
"I adopted this book because I like it stylistically as well as its range of topics. Other books tend to neglect teaching how to program at the expense of laying out the usage of MATLAB, or else not cover enough of relevance to engineering students." —Peter Bernard, Professor at UMD

- New chapters on Symbolic Math and SIMULINK provide complete coverage of all the functions available in the student edition of MATLAB.
- More exercises and examples, including new examples of beam bending, flow over an airfoil, and other physics-based problems
- Bibliography provides sources for the engineering problems and examples discussed in the text
- Companion website for students providing M-files used within the book

Oct 2009 | Paperback | 480 pp | $49.95 | €33.95 | £30.99 | AUD 80 | ISBN: 978-0-12-374883-6

Visit **http://textbooks.elsevier.com** for more information

ELSEVIER



Exploring Engineering, 2nd Edition

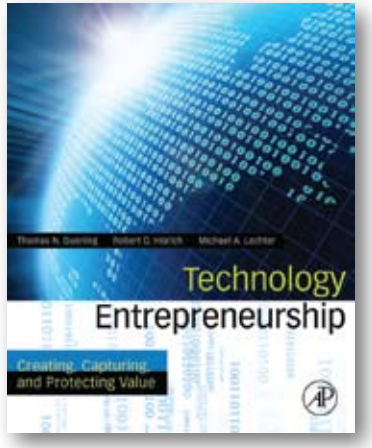
Philip Kosky, Robert T. Balmer, William D. Keat and **George Wise**

In this text we have tried to provide an exciting introduction to the engineering profession. You will find material on classical engineering fields as well as introductory material leading to emerging 21st century engineering fields such as bioengineering, nanotechnology, and mechatronics.

This text is divided into two parts: Part 1: Minds-on and Part 2: Hands-on. Most chapters in Part 1 are organized around just one or two principles and have several worked examples and exercises with an increasing level of complexity at the end of the chapter. Answers are given to selected exercises to encourage students to work toward self-proficiency.

Part 2 provides the content for a Design Studio, and is associated with the design of engineering systems. This Hands-on section is just as essential and challenging as the minds-on aspects covered in Part 1.

May 2009 | 456 pp | Hardback | $89.95 | €59.95 | £54.99 | AUD 140.95 | ISBN: 978-0-12-374723-5



Technology Entrepreneurship

Thomas N. Duening, Robert A. Hisrich and **Michael A. Lechter**

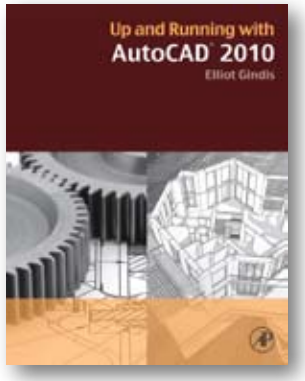
Technology Entrepreneurship is organized around the central concept of "value." The authors have attempted to create a flow and structure that encapsulates creating, capturing, and protecting value. One of the key innovations in this text is the sequence in which the material is presented. Most entrepreneurship textbooks begin with value creation and move on to value protection and value capture. They have inverted that logic in this text based on their experience in teaching entrepreneurship to technology students as well as forming new technology ventures.

A solutions manual, set of PowerPoint lecture slides, and additional questions/exercises will be available by registering at www.textbooks.elsevier.com. Additional learning resources for students will be posted from time to time at the book web site, www.elsevierdirect.com/9780123745026.

Sep 2009 | Hardback | 590 pp | $94.95 | €63.95 | £57.99 | AUD 145 | ISBN: 978-0-12-374502-6

Visit **http://textbooks.elsevier.com** for more information

ELSEVIER



Up and Running with AutoCAD 2010

Coming in August, AutoCAD 2011

Elliot Gindis

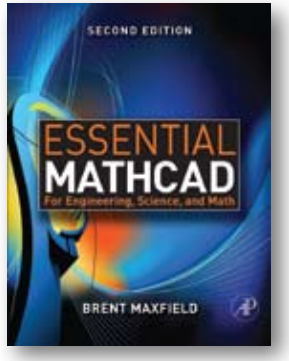
Strips away complexities, both real and perceived, and reduces AutoCAD to easy-to-understand basic concepts

Explains the why and how of AutoCAD commands: all concepts are explained first in theory, and only then is AutoCAD introduced and the actual button pushing discussed.

All basic commands are documented step-by-step, meaning that what the reader needs to type in and how AutoCAD responds is all spelled out in discrete and clear steps with screen shots added as needed.

Using the author's extensive multi-industry knowledge of what is important and widely used in practice the material is presented by immediately immersing the reader in practical, critically essential knowledge, with no padding of text or filler material.

Nov 2009 | Paperback | 520 pp | $49.95 | €33.95 | £30.99 | AUD 74.95 | ISBN: 978-0-12-375719-7



Essential Mathcad for Engineering, Science, and Math w/CD, 2nd Edition

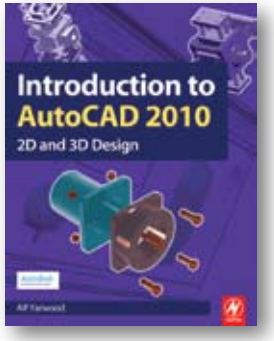
Brent Maxfield

- Many more applied examples and exercises from a wide variety of engineering, science, and math fields
- New: more thorough discussions of differential equations, 3D plotting, and curve fitting, reading from files and writing to files
- Full non-expiring version of Mathcad 14 software included on CD-ROM (North America only). The included software is for educational purposes only
- New: A new chapter 1 introduces many basics of Mathcad, allowing the reader to begin using the program in less time
- A step-by-step approach enables easy learning for professionals and students alike

Essential Mathcad introduces the most powerful functions and features of the software and teaches students how to apply these to create comprehensive calculations for any quantitative subject. Examples from a variety of fields demonstrate the power and utility of Mathcad's tools, while also demonstrating how other software, such as Excel spreadsheets, can be incorporated effectively.

Mar 2009 | Paperback | 528 pp | Not available in UK, Europe or Australia | $49.95 | ISBN: 978-0-12-374783-9

Visit **http://textbooks.elsevier.com** for more information



Introduction to AutoCAD 2010

Alf Yarwood

- Written by a member of the Autodesk Developer Network
- Hundreds of full-color drawings and screen shots illustrating the stages in the design process
- Accompanying website with worked solutions and AutoCAD drawing files of stages and results for the exercises in the book

Jul 2009 | Paperback | 456 pp | $47.95 | €26.95 | £23.99 | AUD 79.95 | ISBN: 978-1-85617-868-6

A Guide to Microsoft Excel 2007 for Scientists and Engineers

Bernard Liengme

This text provides a straightforward guide to using these functions of Microsoft Excel, guiding the student from basic principles to more complicated areas such as formulae, charts, curve-fitting, equation solving, integration, macros, statistical functions, and presenting quantitative data. **Click here to read chapter 1 now**.

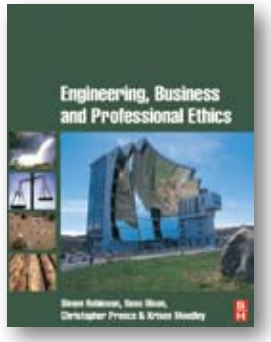
Nov 2008 | Paperback | 336 pp | $39.95 | €26.95 | £24.99 | AUD 60 | ISBN: 978-0-12-374623-8

Engineering Ethics

Gail Dawn Baura

- Covers importance and practical benefits of systematic ethical behavior in any engineering work environment
- Only book to explain implications of the Sarbanes/Oxley "Whistle-Blowing" federal legislation
- 13 actual case histories, plus 10 additional "anonymous" case histories—in consistent format—will clearly demonstrate the relevance of ethics in the outcomes of each one

Apr 2006 | Paperback | 256 pp | $48.95 | €32.95 | £29.99 | AUD 70 | ISBN: 978-0-12-088531-2



Engineering, Business, and Professional Ethics

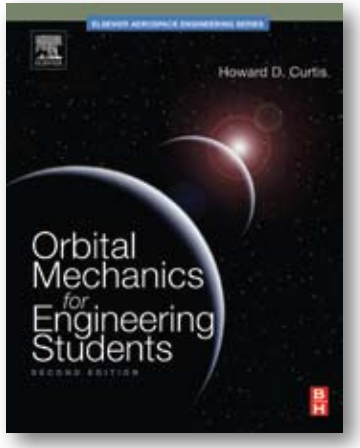
Simon Robinson, Ross Dixon, Christopher Preece and **Krisen Moodley**

- Integrates ethical considerations into everyday decision-making
- Shows how to review and overcome professional ethical problems
- Practical case studies and examples throughout

Mar 2007 | Paperback | 256 pp | $46.95 | €30.95 | £28.99 | AUD 66 | ISBN: 978-0-7506-6741-8

Visit **http://textbooks.elsevier.com** for more information

ELSEVIER



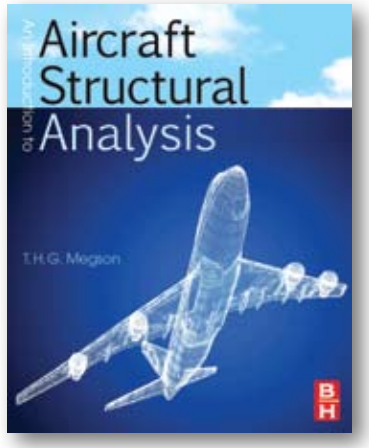
Orbital Mechanics for Engineering Students, 2nd Edition

Howard Curtis

- NEW: Reorganized and improved discussions of coordinate systems, new discussion on perturbations and quarternions
- NEW: Increased coverage of attitude dynamics, including new MATLAB algorithms and examples in chapter 10
- Highly illustrated and fully supported with downloadable MATLAB algorithms for project and practical work; fully worked examples throughout; extensive homework exercises; Instructor's Manual and lecture slides

Orbital mechanics is a cornerstone subject for aerospace engineering students. Howard Curtis provides the tools needed to understand the subject. Fully supported by the analytical features and computer based tools required by today's students, it also includes a substantial number of worked examples, accompanying figures, and end of chapter exercises.

Oct 2009 | 744 pp | Hardback | $99.95 | €66.95 | £60.99 | AUD150 | ISBN: 978-0-12-374778-5



Introduction to Aircraft Structural Analysis

T.H.G. Megson

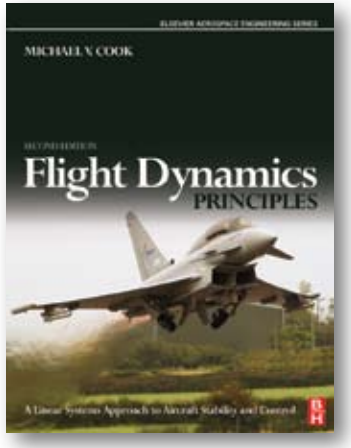
Based on Megson's well-respected text in *Aircraft Structures,* this brief book covers the basics of structural analysis as applied to aircraft structures.

- Coverage of elasticity, energy methods and virtual work set the stage for discussions of airworthiness/airframe loads and stress analysis of aircraft components
- Numerous worked examples, illustrations, and sample problems show how to apply the concepts to realistic situations
- Self-contained, this student-friendly priced book is an excellent resource for anyone learning the subject

Feb 2010 | 648 pp | Paperback | $79.95 | €57.95 | £48.99 | ISBN: 978-1-85-617932-4

Visit http://textbooks.elsevier.com for more information

ELSEVIER



Flight Dynamics Principles, 2nd Edition

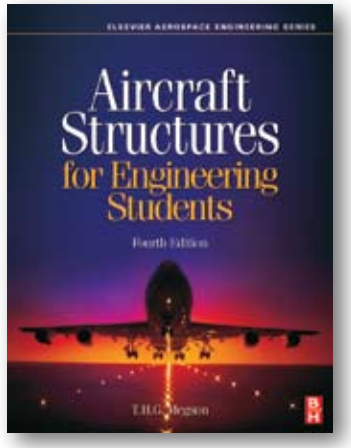
A Linear Systems Approach to Aircraft Stability and Control

Michael Cook

- Suitable as a complete first course text, it provides a secure foundation from which to move on to more advanced topics such a non-linear flight dynamics, simulation and advanced flight control
- End of chapter exercises, detailed worked examples, and case studies aid understanding and relate concepts to real world applications
- Covers key contemporary topics including all aspects of optimization, emissions, regulation and automatic flight control and UAVs

Written for those coming to the subject for the first time the book is suitable as a complete first course text. It provides a secure foundation from which to move on to more advanced topics such a non-linear flight dynamics, simulation and advanced flight control and is ideal for those on course including flight mechanics, aircraft handling qualities, aircraft stability and control.

Sept 2007 | Hardback | 488 pp | $87.95 | €58.95 | £53.99 | AUD 123 | ISBN: 978-0-7506-6927-6



Aircraft Structures for Engineering Students, 4th Edition

T. H. G. Megson

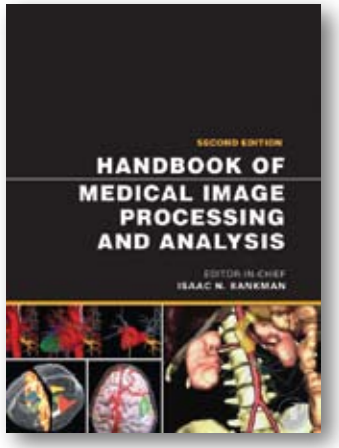
- New organization aids understanding of the fundamentals of structural analysis and emphasizes applications to aircraft structures
- New worked examples throughout the text aid understanding and relate concepts to real world applications
- Additional coverage includes virtual work, tension field beams, post buckling behavior, material properties, composite structures and crack propagation

Aircraft Structures for Engineering Students is the leading self contained aircraft structures course text. It covers all fundamental subjects, including elasticity, structural analysis, airworthiness and aeroelasticity. Now in its fourth edition, the author has revised and updated the text throughout and added new case study and worked example material to make the text even more accessible.

Mar 2007 | Paperback | 824 pp | $99.95 | €66.95 | £60.99 | AUD 120 | ISBN: 978-0-7506-6739-5

Visit **http://textbooks.elsevier.com** for more information

ELSEVIER



Handbook of Medical Image Processing and Analysis, 2nd Edition

Isaac Bankman

- Includes contributions from internationally renowned authors from leading institutions
- NEW! 35 of 56 chapters have been revised and updated
- Provides a complete collection of algorithms in computer processing of medical images
- Contains over 60 pages of stunning, four-color images

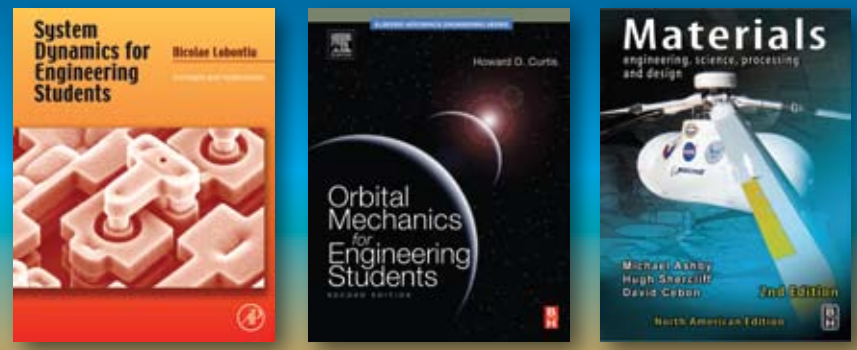
For those looking to explore advanced concepts and access essential information, this second edition is an invaluable resource. Including 35 updated chapters reflecting new technology and research, this edition also includes five new chapters on important topics including Nonlinear 3D Boundary Detection, Adaptive Algorithms for Cancer Cytological Diagnosis, Dynamic Mammogram Retrieval from Web-Based Image Libraries, and much more!

Dec 2008 | Hardback | 1000 pp | $175.00 | €117.00 | £110.00 | AUD 276 | ISBN: 978-0-12-373904-9

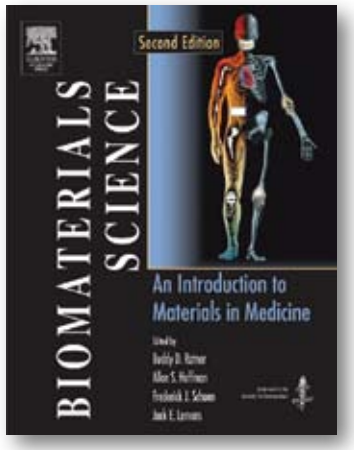
Some of our books offer Elsevier online, algorithmic testing

This Web-based testing and assessment feature allows you create online tests and assignments that automatically assess student responses and performance, providing them with immediate feedback. Includes a selection of algorithmic questions, giving instructors the ability to create essentially unlimited variations of the same problem.

Click here to view a demonstration of the online testing



Visit http://textbooks.elsevier.com for more information



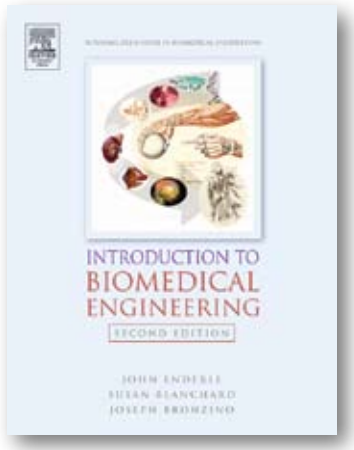
Biomaterials Science, 2nd Edition

Dr. Buddy D. Ratner, Allan S. Hoffman, **Frederick J. Schoen** and **Jack E. Lemons**

- Coverage of principles and applications of all classes of biomaterials
- Integrates concepts of biomaterials science and biological interactions with clinical science and societal issues
- Successes and failures of biomaterials applications in clinical medicine and the future directions of the field
- Covers biomaterial compositions including polymers, metals, ceramics, glasses, carbons, natural materials, and composites

The second edition presents the most up-to-date reviews of all aspects of biomaterials science by providing a balanced, curricular approach to learning biomaterials.

Jul 2004 | Hardback | 864 pp | $119.00 | €79.95 | £73.00 | AUD 155 | ISBN: 978-0-12-582463-7



Introduction to Biomedical Engineering, 2nd Edition

John Enderle, **Susan M. Blanchard** and **Joseph Bronzino**

- 60% update from first edition to reflect the developing field of biomedical engineering
- New chapters on Computational Biology, Medical Imaging, Genomics, and Bioinformatics
- Companion site: http://intro-bme-book.bme.uconn.edu/
- MATLAB and SIMULINK software used throughout to model and simulate dynamic systems
- Numerous self-study homework problems and thorough cross-referencing for easy use

Under the direction of John Enderle, Susan Blanchard and Joe Bronzino, leaders in the field contribute chapters on the most relevant subjects for BME students. These chapters coincide with courses offered in all biomedical engineering programs, and can be used at different levels.

Apr 2005 | Hardback | 1144 pp | $108.00 | €72.95 | £65.99 | AUD 140 | ISBN: 978-0-12-238662-6

Visit **http://textbooks.elsevier.com** for more information

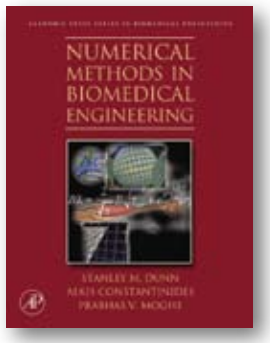
ELSEVIER

Tissue Engineering

Clemens van Blitterswijk, Peter Thomsen, Jeffrey Hubbell, Ranieri Cancedda, J.D. de Bruijn, Anders Lindahl, Jerome Sohier and **David F. Williams**

Key topics covered include stem cells; morphogenesis and cellular signaling; the extracellular matrix; biocompatibility; scaffold design and fabrication; controlled release strategies; bioreactors; tissue engineering of skin, cartilage, bone and organ systems; and ethical issues.

Mar 2008 | Hardback | 760 pp | $115.00 | €76.95 | £69.99 | AUD 158 | ISBN: 978-0-12-370869-4

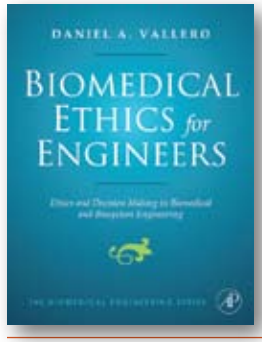


Numerical Methods in Biomedical Engineering

Stanley Dunn, Alkis Constantinides and **Prabhas V. Moghe**

Computing has become ubiquitous, moving from the domain of the computer scientist or engineer to become a general problem-solving tool for all engineering disciplines. ***Numerical Modeling in Biomedical Engineering*** brings together the integrative set of computational problem solving tools important to biomedical engineers. Through the use of comprehensive homework exercises, relevant examples and extensive case studies, this book integrates principles and techniques of numerical analysis.

Nov 2005 | Hardback | 632 pp | $113.00 | €75.95 | £68.99 | AUD 149 | ISBN: 978-0-12-186031-8

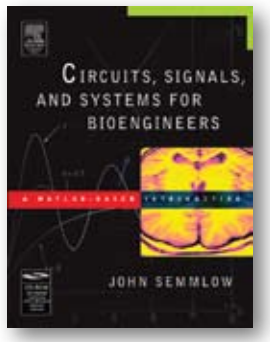


Biomedical Ethics for Engineers

Daniel Vallero

Tissue Engineering provides biomedical engineers with a new set of tools, and an understanding that the application of ethical measures will seldom reach consensus. It discusses the full suite of emerging biomedical and environmental issues that must be addressed by engineers and scientists within a global and societal context.

Mar 2007 | Hardback | 408 pp | $55.95.00 | €37.95 | £33.99 | AUD 79 | ISBN: 978-0-7506-8227-5



Circuits, Signals, and Systems for Bioengineers

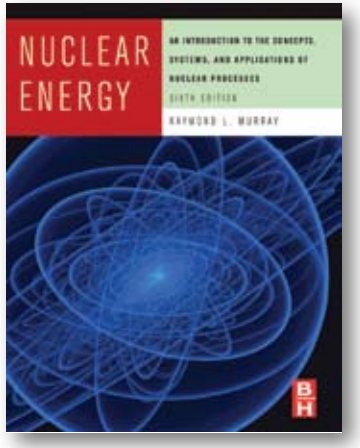
John Semmlow

This book guides the reader through the electrical engineering principles that can be applied to biological systems and are therefore important to biomedical studies. The basic engineering concepts that underlie biomedical systems, medical devices, biocontrol, and biosignal analysis are explained in detail.

Mar 2005 | Hardback | 464 pp | $119.00 | €79.95 | £73.00 | AUD 190 | ISBN: 978-0-12-088493-3

Visit **http://textbooks.elsevier.com** for more information

ELSEVIER



Nuclear Energy, 6th Edition

Raymond L. Murray

- New coverage on nuclear safety concerns following 9/11, including radiation and terrorism, nuclear plant security, and use of nuclear techniques to detect weapons materials
- New developments in the use of nuclear-powered systems for generating cheap and abundant hydrogen from water using nuclear technology
- New information on prospects for new nuclear power reactors and their applications for electricity and desalination

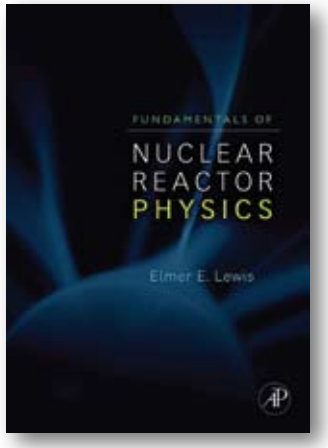
Nuclear Energy is one of the most popular texts ever published on basic nuclear physics, systems, and applications of nuclear energy. This newest edition continues the tradition of offering a holistic treatment of everything the undergraduate engineering student needs to know in a clear and accessible way. Presented is a comprehensive overview of radioactivity, radiation protection, nuclear reactors, waste disposal, and nuclear medicine.

Nov 2008 | Hardback | 552 pp | $89.95 | €59.95 | £54.99 | AUD 133 | ISBN: 978-0-12-370547-1

All texts available electronically and print

Visit http://textbooks.elsevier.com for more information

ELSEVIER



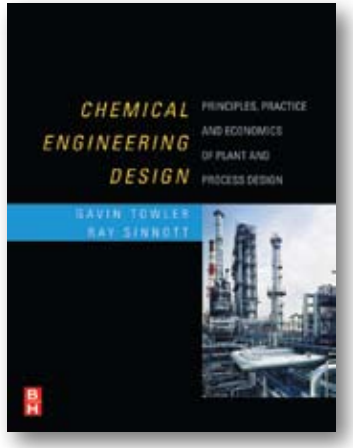
Fundamentals of Nuclear Reactor Physics

Elmer E. Lewis, PhD

- A clear, general overview of atomic physics from the standpoint of reactor functionality and design, including the sequence of fission reactions and their energy release
- In-depth discussion of neutron reactions, including neutron kinetics and the neutron energy spectrum, as well as neutron spatial distribution
- Ample worked-out examples and over 100 end-of-chapter problems

This book offers an engineering-oriented introduction to nuclear physics, with a particular focus on how those physics are put to work in the service of generating nuclear-based power, particularly the importance of neutron reactions and neutron behavior. Engineering students will find this applications-oriented approach, with many worked-out examples, more accessible and more meaningful as they aspire to become future nuclear engineers.

Jan 2008 | Hardback | 280 pp | $104.00 | €69.95 | £63.99 | AUD 141 | ISBN: 978-0-12-370631-7



Chemical Engineering Design

Gavin Towler and **R. K. Sinnott**

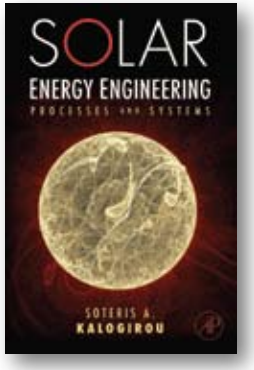
- Provides students with a text of unmatched relevance for the Senior Design Course and Introductory Chemical Engineering Courses
- Strong emphasis on HS&E issues, codes and standards, including API, ASME and ISA design codes and ANSI standards
- A rigorous pedagogy assists learning, with detailed worked examples, end of chapter exercises, plus supporting data and Excel spreadsheet calculations plus over 150 Patent References, for downloading from the companion website

Chemical Engineering Design is one of the best-known and widely adopted texts available for students of chemical engineering. It deals with the application of chemical engineering principles to the design of chemical processes and equipment. Revised throughout, this US edition has been specifically developed for the US market.

Nov 2007 | Hardback | 1266 pp | $93.95 | €62.95 | £56.99 | ISBN: 978-0-7506-8423-1

Visit **http://textbooks.elsevier.com** for more information

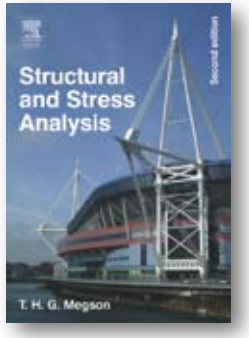
ELSEVIER



Solar Energy Engineering

Soteris Kalogirou

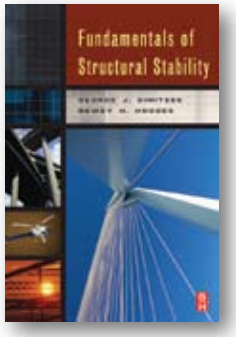
Jun 2009 | Hardback | 744 pp
$125.00 | €83.95 | £76.00
AUD 200 | ISBN: 978-0-12-374501-9



Structural and Stress Analysis, 2nd Edition

T. H. G. Megson

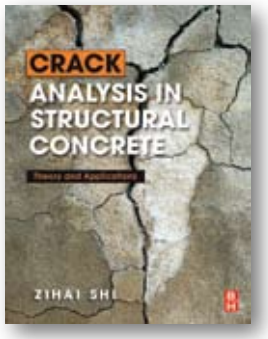
Apr 2005 | Paperback | 744 pp
$65.95.00 | €43.95 | £39.99
AUD 94 | ISBN: 978-0-7506-6221-5



Fundamentals of Structural Stability

George Simitses and **Dewey H. Hodges**

Dec 2005 | Hardback | 480 pp
$106.00 | €70.95 | £64.99
AUD 136 | ISBN: 978-0-7506-7875-9



Crack Analysis in Structural Concrete

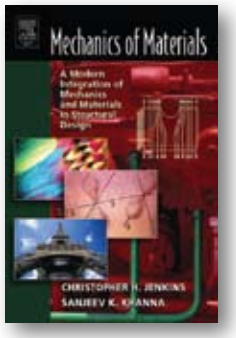
Zihai Shi

Jun 2009 | Hardback | 384 pp
$99.95 | €66.95 | £60.99
AUD 150 | ISBN: 978-0-7506-8446-0

Structural Analysis

Alan Williams

Dec 2008 | Paperback | 632 pp
$89.95 | €59.95 | £54.99
AUD 140 | ISBN: 978-1-85617-550-0



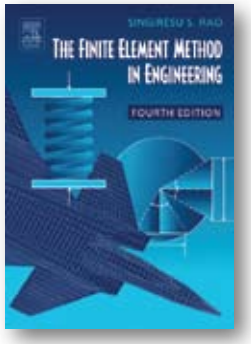
Mechanics of Materials

Professor **Sanjeev Khanna**

Mar 2005 | Hardback | 408 pp
$113.00 | €75.95 | £68.99
AUD 162 | ISBN: 978-0-12-383852-0

Visit http://textbooks.elsevier.com for more information

ELSEVIER

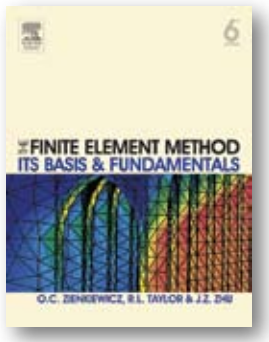


New edition coming fall 2010

The Finite Element Method in Engineering, 4th Edition

Dr. S.S. Rao

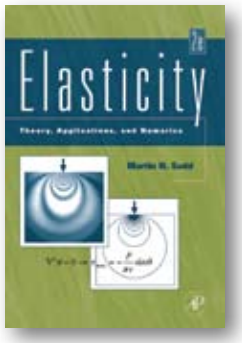
Dec 2004 | Hardback | 688 pp
$113.00 | €75.95 | £68.99
AUD 166 | ISBN: 978-0-7506-7828-5



The Finite Element Method, 6th Edition

O. C. Zienkiewicz, R. L. Taylor and **Dr. J.Z. Zhu**

Apr 2005 | Hardback | 752 pp
$125.00 | €83.95 | £76.00
AUD 162 | ISBN: 978-0-7506-6320-5



Elasticity, 2nd Edition

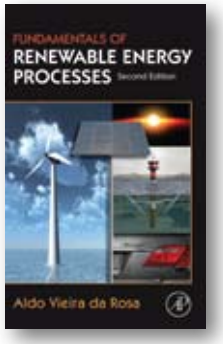
Martin H. Sadd

Jan 2009 | Hardback | 552 pp
$99.95 | €66.95 | £60.99
AUD 153 | ISBN: 978-0-12-374446-3

Open Channel Hydraulics

A. Osman Akan

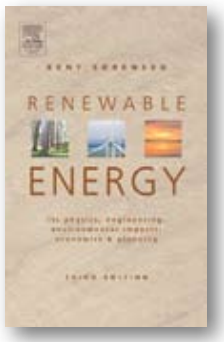
Mar 2006 | Paperback | 384 pp
$83.95.00 | €55.95 | £50.99 | AUD 109
ISBN: 978-0-7506-6857-6



Fundamentals of Renewable Energy Processes, 2nd Edition

Aldo V. da Rosa

Mar 2009 | Hardback | 864 pp
$120.00 | €80.95 | £73:00
AUD 215 | ISBN: 978-0-12-374639-9

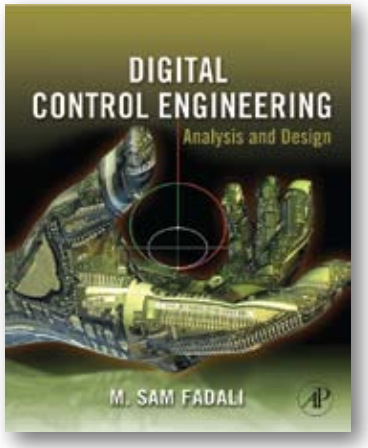


Renewable Energy, 3rd Edition

Dr. Bent Sørensen

Jul 2004 | Hardback | 952 pp
$102.00 | €68.95 | £61.99
AUD 153 | ISBN: 978-0-12-656153-1

Visit **http://textbooks.elsevier.com** for more information



Digital Control Engineering: Analysis and Design

M. Sami Fadali and **Antonio Visioli**

- Extensive use of computational tools: MATLAB sections at end of each chapter show how to implement concepts from the chapter
- Frees the student from the drudgery of mundane calculations and allows him to consider more subtle aspects of control system analysis and design
- An engineering approach to digital controls

Digital controllers are part of nearly all modern personal, industrial, and transportation systems. Every senior or graduate student of electrical, chemical or mechanical engineering should therefore be familiar with the basic theory of digital controllers. This new text covers the fundamental principles and applications of digital control engineering, with emphasis on engineering design.

Feb 2009 | Hardback | 552 pp | $99.95 | €66.95 | £60.99 | AUD 153 | ISBN: 978-0-12-374498-2

Coming in 2010

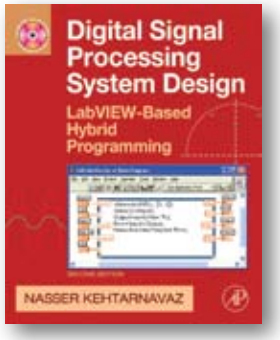
Signals and Systems

By **Luis Chaparro**
ISBN: 978-0-12-374716-7
EMEA 25 Nov 2010 | US 15 Oct 2010
EUR 73.95 | USD 99.95 | £49.99

Digital Signal Processing

By **Winser Alexander**
ISBN: 978-0-12-374742-6
EMEA 27 Oct 2010 | US 15 Sep 2010
EUR 94.95 | USD 139.95 | £39.99

Visit **http://textbooks.elsevier.com** for more information



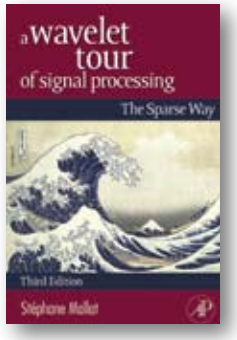
Digital Signal Processing System Design, 2nd Edition

Nasser Kehtarnavaz,

- The only DSP project book that combines textual and graphical programming
- 12 Lab projects that incorporate MATLAB code blocks into the LabVIEW graphical programming environment via the MathScripting feature

The hybrid programming approach allows the use of previously developed textual programming solutions to be integrated into LabVIEW's highly interactive and visual environment, providing an easier and quicker method for building DSP systems.

Apr 2008 | Paperback | 344 pp | $62.95.00
€41.95 | £38.99 | AUD 80 | ISBN: 978-0-12-374490-6



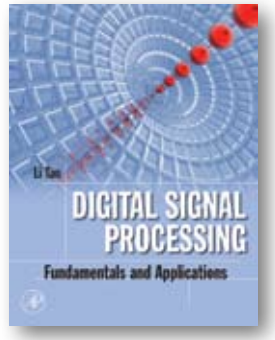
A Wavelet Tour of Signal Processing, 3rd Edition

Stephane Mallat

- Includes all the latest developments since the book was published in 1999, including its application to JPEG 2000 and MPEG-4
- Algorithms and numerical examples are implemented in Wavelab, a MATLAB toolbox
- Balances presentation of the mathematics with applications to signal processing

The new edition of this classic gives all the major concepts, techniques and applications of sparse representation, reflecting the key role the subject plays in today's signal processing. The book clearly presents the standard representations of Fourier, wavelet and time-frequency tools, which enable sparse representations of large classes of signals and images, including the construction of orthogonal bases with fast algorithms.

Dec 2008 | Hardback | 832 pp | $99.95 | €66.95 | £60.99 | AUD 158
ISBN: 978-0-12-374370-1



Digital Signal Processing

Li Tan

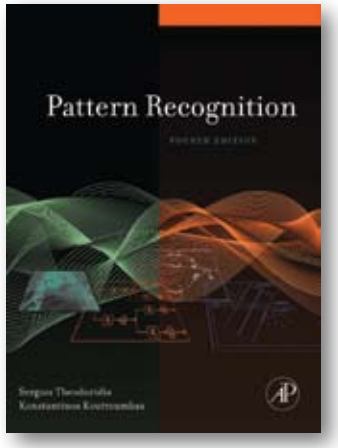
- Covers DSP principles and hardware issues with emphasis on applications and many worked examples
- Website with MATLAB programs for simulation and C programs for real-time DSP
- End of chapter problems are helpful in ensuring retention and understanding of what was just read

This textbook presents digital signal processing (DSP) principles, applications, and hardware implementation issues, emphasizing achievable results and conclusions through the presentation of numerous worked examples, while reducing the use of mathematics for an easier grasp of the concepts.

Jul 2007 | Hardback | 840 pp | List Price:$98.95 | €65.95 | £59.99
AUD 133 | ISBN: 978-0-12-374090-8

Visit **http://textbooks.elsevier.com** for more information

ELSEVIER



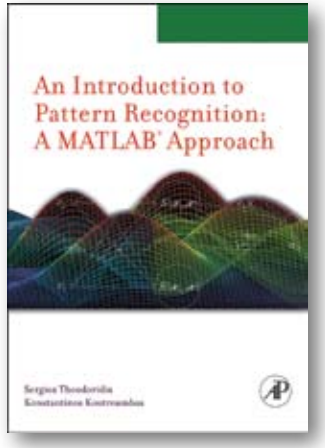
Pattern Recognition, 4th Edition

Sergios Theodoridis

- Thoroughly developed to include many more worked examples to give greater understanding of the various methods and techniques
- Many more diagrams included--now in two color--to provide greater insight through visual presentation
- MATLAB code of the most common methods are given at the end of each chapter

This book considers classical and current theory and practice of supervised, and unsupervised and semi-supervised pattern recognition, to build a complete background for professionals and students of engineering. The authors, leading experts in the field of pattern recognition, have provided an up-to-date, self-contained volume encapsulating this wide spectrum of information.

Oct 2008 | Hardback | 984 pp | $99.95 | €66.95 | £60.99 | AUD 145 | ISBN: 978-1-59749-272-0



Introduction to Pattern Recognition: A MATLAB Approach

Sergios Theodoridis, Aggelos Pikrakis, Konstantinos Koutroumbas and **Dionisis Cavouras**

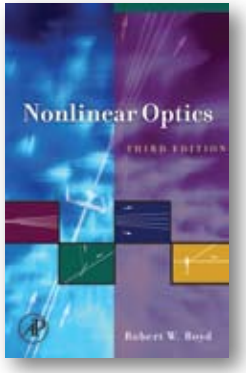
- MATLAB code and descriptive summary of the most common methods and algorithms in *Theodoridis, Pattern Recognition 4e*
- Solved examples in MATLAB, including real-life data sets in imaging and audio recognition
- Available separately or at a special package price with the main text

An accompanying manual to ***Theodoridis, Pattern Recognition,*** that includes MATLAB code of the most common methods and algorithms in the book, together with a descriptive summary and solved examples, and including real-life data sets in imaging and audio recognition.

Dec. 2009 | Hardback | 150 pp | $39.95 | €28.95 | £24.99 | AUD 60 | ISBN: 978-0-12-374486-9

These two titles can also be purchased together:

Available Mar 2010 • €82.95 | $140.00 | £69.99 | AUD 195 • ISBN: 978-0-12-374491-3



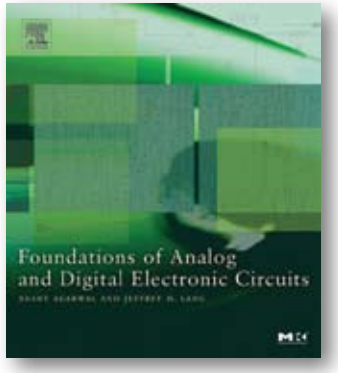
Nonlinear Optics, 3rd Edition

Robert W. Boyd

- Presents an introduction to the entire field of optical physics from the perspective of nonlinear optics
- Combines first rate pedagogy with a treatment of fundamental aspects of nonlinear optics
- Covers all the latest topics and technology in this ever-evolving industry
- Strong emphasis on the fundamentals

The third edition of this textbook has been rewritten to conform to the standard SI system of units and includes updated material on the latest developments in the field. The book introduces the entire field of optical physics and specifically the area of nonlinear optics.

Mar 2008 | Hardback | 640 pp | $104.00 | €69.95 | £63.99 | AUD 158
ISBN: 978-0-12-369470-6

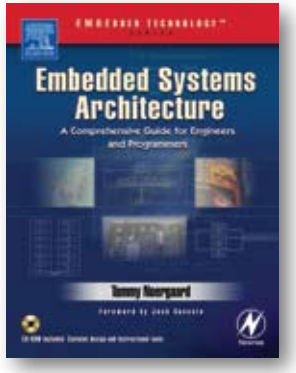


Foundations of Analog and Digital Electronic Circuits

Anant Agarwal and **Jeffrey Lang**

Unlike books currently on the market, this book satisfies two goals: combine circuits and electronics into a single, unified treatment, and establish a strong connection with the contemporary world of digital systems. It introduces a new way of looking not only at the treatment of circuits, but also at the treatment of introductory coursework in engineering in general.

Jul 2005 | Hardback | 1008 pp | $99.95 | €59.95 | £51.00
AUD 148 | ISBN: 978-1-55860-735-4



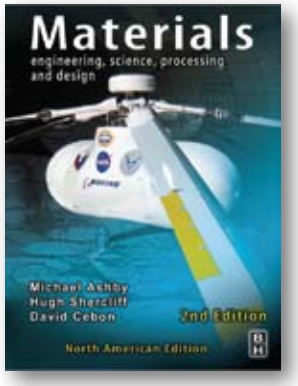
Embedded Systems Architecture

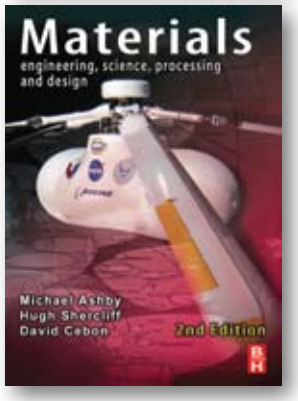
Tammy Noergaard

This comprehensive textbook provides a broad and in-depth overview of embedded systems architecture for engineering students and embedded systems professionals. The book is well suited for undergraduate embedded systems courses in electronics/electrical engineering and engineering technology (EET) departments in universities and colleges, as well as for corporate training of employees.

Feb 2005 | Paperback | 656 pp | $86.95.00 | €57.95 | £52.99
AUD 131 | ISBN: 978-0-7506-7792-9

Visit http://textbooks.elsevier.com for more information



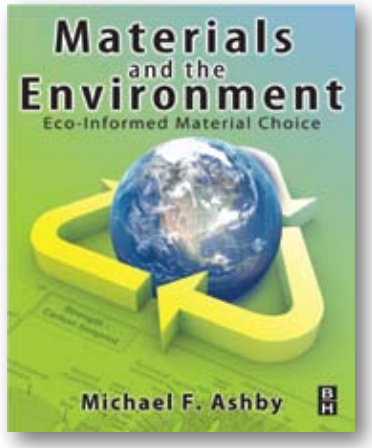


Materials, 2nd Edition: Engineering, Science, Processing and Design

Michael F. Ashby

- "Guided Learning" sections on crystallography, phase diagrams and phase transformations enhance students' learning of these key foundation topics
- More than 50 new worked examples placed throughout the text
- Highly visual full color graphics facilitate understanding of materials concepts and properties
- For instructors, you will find the following resources available to you at our textbooks website:
  - Solutions Manual (PDF)
  - Figures from the Text in JPEG and PowerPoint
  - Link to Interactive Materials Science Tutorial
  - Sample syllabi (coming soon)
  - Lecture Slides
- Web-based testing and assessment.
  Click here to view a demonstration of the online testing

Oct 2009 | Hardback | 672 pp | $99.95 | €66.95 | £60.99 | ISBN: 978-1-85617-743-6
Book + Elsevier online testing | US ISBN: 978-1-85617-893-8 | Price: $119.95



Materials and the Environment

Michael F. Ashby

- The first book devoted solely to the environmental aspects of materials and their selection, production, use and disposal, by noted materials authority Mike Ashby
- Introduces methods and tools for thinking about and designing with materials within the context of their role in products and the environmental consequences
- Contains numerous case studies showing how the methods discussed in the book can be applied to real-world situations

As concern for the environment grows, there is a corresponding trend among colleges and universities worldwide to incorporate sustainability into engineering education. Addressing this growing trend this book is devoted exclusively to the environmental aspects of materials, a core subject area for undergraduate students in several engineering disciplines, including mechanical, materials, civil, aerospace, manufacturing and design.

Feb 2009 | Paperback | 400 pp | $69.95 | €41.95 | £37.99 | AUD 114 | ISBN: 978-1-85617-608-8

Visit http://textbooks.elsevier.com for more information

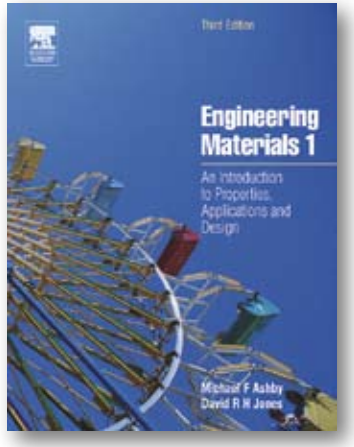
Materials and Design, 2nd Edition

Michael F. Ashby and **Kara Johnson**

- The best guide ever published on the on the role of materials, now with even better photos and drawings on the Design Process
- Significant new section on the use of recycled materials in products and the importance of sustainable design for manufactured goods and services
- Enhanced materials profiles, with addition of new materials types like nanomaterials, advanced plastics and bio-based materials

This renowned book explores the role of materials and materials processing in product design, with a particular emphasis on creating both desired aesthetics and functionality. The new edition will feature even more of the highly useful "materials profiles" that give critical design, processing, performance and applications criteria for each material in question.

Oct 2009 | Paperback | $59.95 | €39.95 | £36.99 | AUD 90 | ISBN: 978-1-85617-497-8



Engineering Materials 1: An Introduction to Properties, Applications and Design, 3rd Edition

Michael Ashby and **D. R. H. Jones**

- One of the best-selling materials properties texts; well known, well established and well liked
- New student friendly format, with enhanced pedagogy including many more case studies, worked examples, student questions, full instructor's manual and online tutorial material for adopting tutors
- World-renowned author team

Widely adopted around the world, this is a core materials science and mechanical engineering text. EM1 gives a broad introduction to the properties of materials used in engineering applications. It provides a complete course in engineering materials for students with no previous background in the subject.

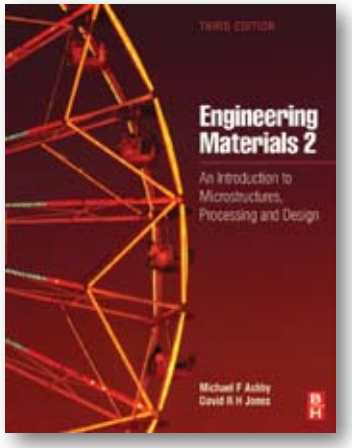
Mar 2005 | Paperback | 448 pp | $60.95 | €32.95 | £27.99 | AUD 90 | ISBN: 978-0-7506-6380-9

Visit http://textbooks.elsevier.com for more information

ELSEVIER

Register for your adoption copy online today at http://textbooks.elsevier.com

New Edition Coming in September 2010



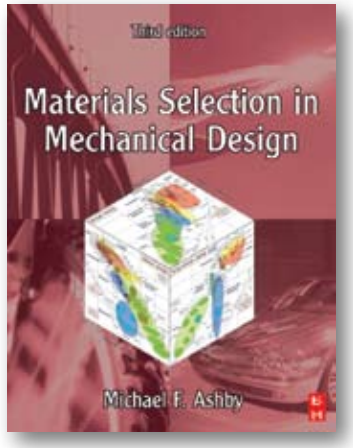
Engineering Materials 2: An Introduction to Microstructures, Processing and Design, 3rd Edition

Michael Ashby and **D. R. H. Jones**

- One of the best-selling materials properties texts; companion text to Ashby & Jones *Engineering Materials 1: An Introduction to their Properties and Applications*
- New student-friendly format, with enhanced pedagogy including more case studies, worked examples, student questions and a full instructor's manual
- One of the leading self-contained course texts for more advanced students of materials science and mechanical engineering

This book provides a detailed understanding of the fundamental properties of engineering materials: how they are controlled by processing, then formed, joined and finished, and how all of these factors influence the selection and design of materials in real-world engineering applications.

Dec 2005 | Paperback | 352 pp | $63.95.00 | €42.95 | £38.99 | AUD 91 | ISBN: 978-0-7506-6381-6



Materials Selection in Mechanical Design, 3rd Edition

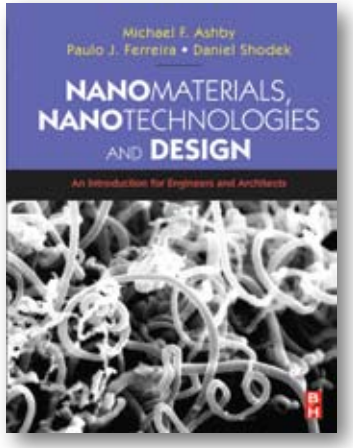
Michael Ashby

- Material on key emerging topics, student-friendly approach, and attractive, easy to use two-color presentation
- Improved tutor resources, plus supporting online materials and Instructor's Manual

Understanding materials, their properties and behavior is fundamental to engineering design, and a key application of materials science. Written for all students of engineering, materials science and design, this book describes the procedures for material selection in mechanical design in order to ensure that the most suitable materials for a given application are identified from the full range of materials and section shapes available.

Jan 2005 | Paperback | 624 pp | $85.95 | €39.95 | £33.99 | AUD 125 | ISBN: 978-0-7506-6168-3

Visit http://textbooks.elsevier.com for more information



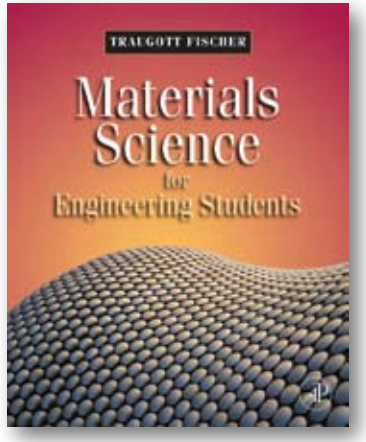
Nanomaterials, Nanotechnologies and Design

Daniel L. Schodek, Paulo Ferreira and **Michael F. Ashby**

- World-renowned author team address the hot-topic of nanotechnology
- The first book to address and explore the impacts and opportunities of nanotech for mainstream designers, engineers and architects
- Full-color production and excellent design: guaranteed to appeal to everyone concerned with good design and the use of new materials

How could nanotechnology not perk the interest of any designer, engineer or architect? Exploring the intriguing new approaches to design that nanotechnologies offer, this book is set against the sometimes fantastic sounding potential of this technology. It is for engineering and design students and professionals who need to understand enough about the subject to apply it with real meaning to their own work.

May 2009 | Paperback | 560 pp | $69.95 | €46.95 | £42.99 | AUD 104 | ISBN: 978-0-7506-8149-0



Materials Science for Engineering Students

Traugott Fischer

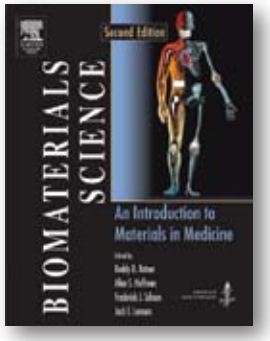
- Presents balanced coverage of both structural and functional materials.
- Types of materials are introduced first, followed by explanation of physical and chemical phenomena that drive their specific properties
- The first materials science text to include a whole chapter devoted to batteries

Materials Science for Engineering Students offers students of introductory materials science and engineering, and their instructors, a fresh perspective on the rapidly evolving world of advanced engineering materials. This new, concise text takes a more contemporary approach to materials science than the more traditional books in this subject, with a special emphasis on using an inductive method to first introduce materials and their particular properties.

Oct 2008 | Hardback | 600 pp | $99.95 | €66.95 | £60.99 | AUD 146 | ISBN: 978-0-12-373587-4

Visit **http://textbooks.elsevier.com** for more information

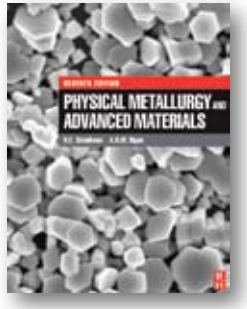
ELSEVIER



Biomaterials Science, 2nd Edition

Dr. Buddy D. Ratner, Allan S. Hoffman, Frederick J. Schoen and **Jack E. Lemons**

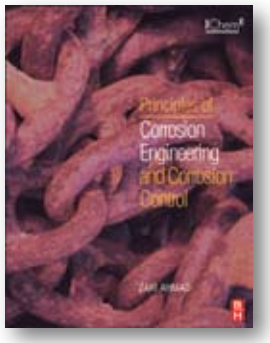
Jul 2004 | Hardback | 864 pp | $119.00 | €79.95 | £73.00 | AUD 155
ISBN: 978-0-12-582463-7



Physical Metallurgy and Advanced Materials, 7th Edition

R E Smallman and **A.H.W. Ngan**

Nov 2007 | Hardback | 672 pp | $93.95 | €62.95 | £56.99 | AUD 119
ISBN: 978-0-7506-6906-1



Principles of Corrosion Engineering and Corrosion Control

Dr. Zaki Ahmad

Sept 2006 | Paperback | 672 pp | $87.95 | €58.95 | £53.99
AUD 125 | ISBN: 978-0-7506-5924-6

Plastics: Microstructure and Engineering Applications, 3rd Edition

Nigel Mills

Oct 2005 | Paperback | 528 pp | $65.95 | €43.95 | £39.99 | AUD 92
ISBN: 978-0-7506-5148-6

Visit **http://textbooks.elsevier.com** for more information

ELSEVIER

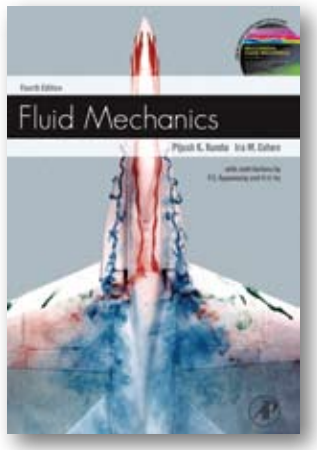
Introduction to Continuum Mechanics, 4th Edition

W Michael Lai

- Presents the principles of tensor calculus underlying all of continuum mechanics
- New edition includes expanded coverage of elasticity, with solutions based on the fundamental potential functions of Papkovitch and Neuber to the solutions of some 3D problems
- Offers advanced coverage on equations in cylindrical and spherical coordinates, along with finite deformation theory

This classic text by noted educators Lai, Rubin and Krempl has been used for over 30 years to introduce continuum mechanics from the upper undergraduate to graduate level. The book provides examples of everyday applications of continuum methods to such classic problems as loading and deformation of solids as well as stress response in both Newtonian viscous and Non-Newtonian fluids.

Sep 2009 | Hardback | 624 pp | $99.95 | €66.95 | £60.99 | AUD 153 | ISBN: 978-0-7506-8560-3



Fluid Mechanics with Multimedia DVD, 4th Edition

Ira M. Cohen

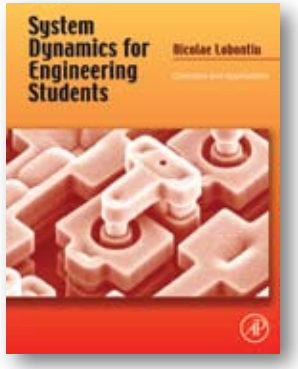
Fluid Mechanics, Fourth Edition is suitable for both a first or second course in fluid mechanics at the graduate or advanced undergraduate level. The leading advanced general text on fluid mechanics, this text guides students from the fundamentals to the analysis and application of fluid mechanics, including compressible flow and such diverse applications as hydraulics and aerodynamics.

- NEW TO THE 4th EDITION: Updates to several chapters and sections, including Boundary Layers, Turbulence, Geophysical Fluid Dynamics, Thermodynamics and Compressibility
- Fully revised and updated chapter on Computational Fluid Dynamics
- New chapter on Biofluid Mechanics by Professor Portonovo Ayyaswamy, the Asa Whitney Professor of Dynamical Engineering at the University of Pennsylvania
- Visual Resources appendix provides a list of fluid mechanics films available for viewing online
- Now includes free copy of *Multimedia Fluid Mechanics 2e* DVD containing nearly 1,000 fluid videos, 20 virtual labs and simulations, and dozens of interactive demonstrations and animations

Jan 2010 | Hardback | 904 pp | $109.95 | €60.95 | £49.99 | AUD 159.95 | ISBN: 978-0-12-381399-2

Visit **http://textbooks.elsevier.com** for more information

ELSEVIER



System Dynamics for Engineering Students

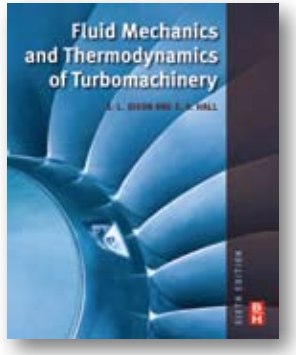
Concepts and Applications

Nicolae Lobontiu

System Dynamics for Engineering Students, takes the classical approach to system dynamics, rearranges it into a more logical teaching progression, provides a more balanced coverage of the main field systems (mechanical, electrical/electromagnetic, thermal and fluid/pneumatic), and is the first system dynamics textbook to include extensive examples from the relatively new application areas of microelectromechanical systems (MEMS) and compliant (flexible) mechanical devices.

Features: The first textbook to include a chapter on the important area of coupled-field systems. Provides a more systematic approach to the modeling and analysis of system dynamics problems by fully covering the input-system-output range. Includes treatment of topics that have not been included thus far in system dynamics texts, such as those from the magnetic and piezoelectric domains or actuation, sensing and instrumentation. MATLAB/Simulink computational software tools incorporated throughout the book. With available online instructor's manual, image bank, PowerPoint lecture slides, and optional design projects, provides more instructor support than any other system dynamics text.

Mar 2010 | Hardback | 600 pp | $129.95 | €76.95 | £64.99 | AUD 195 | ISBN: 978-0-240-81128-4



Fluid Mechanics and Thermodynamics of Turbomachinery, 6th Edition

S.L. Dixon and **Cesare Hall**

Fluid Mechanics and Thermodynamics of Turbomachinery is the leading turbomachinery textbook. For this new edition, author S. Larry Dixon is joined by Cesare Hall from the University of Cambridge.

New and Key Features

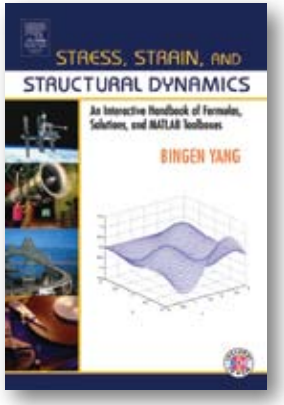
- Provides the most comprehensive coverage of the fundamentals of turbomachinery of any text in the field.
- Content has been reorganized to more closely match how instructors currently teach turbomachinery courses
- Coverage of fluid mechanics and thermodynamics, the basis on which good turbomachine performance depends, has been moved to the front of the book
- Includes new design studies of several turbomachines, applying the theories developed in the book
- Figures have been updated, along with new photos added, to better illustrate the topics presented
- Includes new examples and additional end-of-chapter exercises

Mar 2010 | Hardback | 440 pp | $89.95 | €47.95 | £39.99 | AUD 129.95 | ISBN: 978-1-85617-793-1

Visit http://textbooks.elsevier.com for more information

Register for your adoption copy online today at http://textbooks.elsevier.com

ELSEVIER

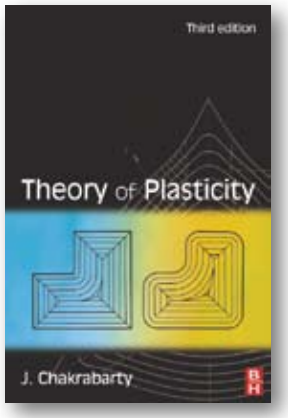


Stress, Strain, and Structural Dynamics

Dr. Bingen Yang

This text integrates the development of fundamental theories, formulas and mathematical models with user-friendly interactive computer programs, written in the powerful and popular MATLAB. This unique merger of technical referencing and interactive computing allows instant solution of a variety of engineering problems, and in-depth exploration of the physics of deformation, stress and motion by analysis, simulation, graphics, and animation.

Feb 2005 | Hardback | 960 pp | $113.00 | €75.95 | £68.99 | AUD 166 | ISBN: 978-0-12-787767-9

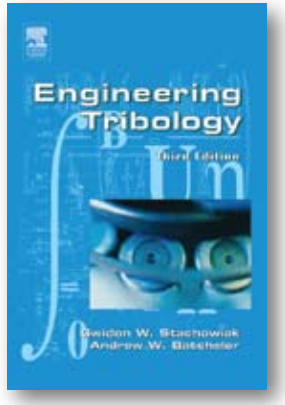


Theory of Plasticity, 3rd Edition

Jagabanduhu Chakrabarty

Theory of Plasticity is the most comprehensive reference on the subject as well as the most up to date. This edition presents extensive new material on the use of computational methods, plus coverage of important developments in cyclic plasticity and soil plasticity, and is accompanied by a fully worked solutions manual.

© 2006 | Paperback | 896 pp | $96.95 | €64.95 | £58.99 | AUD 153
ISBN: 978-0-7506-6638-1

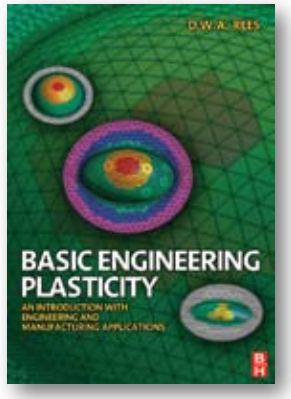


Engineering Tribology, 3rd Edition

Gwidon Stachowiak and **A W Batchelor**

The book offers an extensive range of illustrations that communicate the basic concepts of tribology in engineering better than text alone. All chapters include an extensive list of references and citations to facilitate further in-depth research and thorough navigation through particular subjects covered in each chapter.

Sep 2005 | Hardback | 832 pp | $113.00 | €75.95 | £68.99 | AUD 160
ISBN: 978-0-7506-7836-0



Basic Engineering Plasticity

David Rees

No other book is available that provides a complete Plasticity text for these courses. Rees' approach delivers a comprehensive and accessible introduction to theories of plasticity, along with extensive engineering application examples and real-world manufacturing processes.

Aug 2006 | Paperback | 528 pp | $77.95 | €51.95 | £47.99 | AUD 109
ISBN: 978-0-7506-8025-7

Visit http://textbooks.elsevier.com for more information

ELSEVIER

Further Information

All publication dates, prices, and other details are correct at the time of going to press, but are subject to change without further notice.

Secure Online Ordering

Order online at elsevierdirect.com. Sign up today at **elsevierdirect.com** to receive exclusive offers, including discounts, free chapter downloads, video clips, contests, and more.

Professors/Instructors

Register at our instructor site **http://textbooks.elsevier.com**, to browse our list of cutting-edge books at student-friendly prices, request review copies, access ancillaries, view selected books electronically, and contact your textbook representative.

Corporate/Bulk/Special Sales/Custom Content

For bulk purchases or to explore customized content for your corporation please see elsevierdirect.com/corporatesales or email the Elsevier corporate sales team at **corporatesales@elsevier.com**.

Press

If you are a member of the press and would like a gratis copy of any book to consider for review, excerpt, or an author interview, please email the Elsevier Publicity Team at **bookpublicity@elsevier.com**.

Librarians

Librarians can register for this free site **http://www.virtualelibrary.com**, specifically designed to fit their needs. Save frequently used search criteria, create wish lists, read peer reviews, and more.

20100463

Visit **http://textbooks.elsevier.com** for more information

ELSEVIER