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Spring 2025



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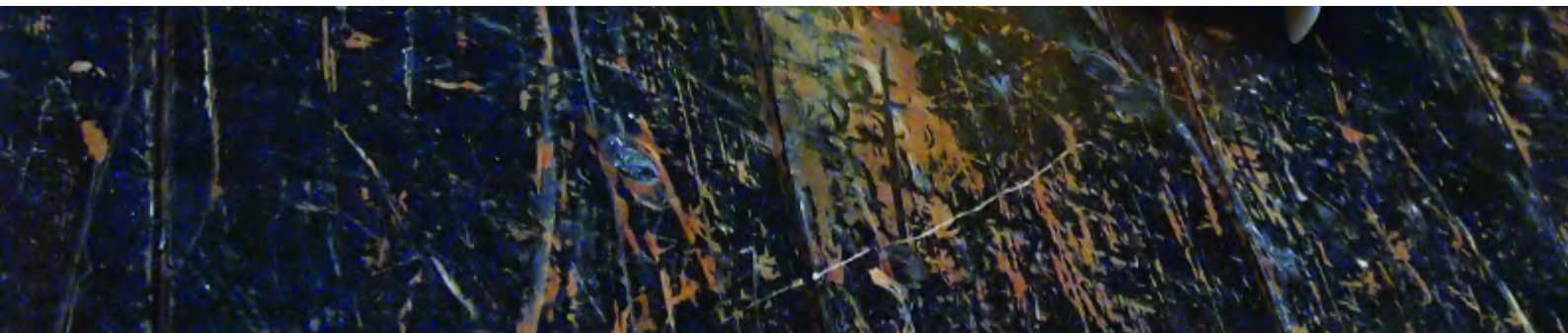


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5TH EDITION

Construction Economics

A New Approach



Danny Myers University of the West of England, UK, and University of Bath, UK

Provides students with the principles underlying the relationship between economic theory and the construction industry. The new edition discusses the economic impact of the Covid pandemic on the industry and the implications of the promise to build back better. It includes new coverage of the opportunities offered by technology, new standards for energy efficiency and wellbeing, coverage of the circular economy, retrofitting and recycling, and a new research section on the journey involved in writing a dissertation or extended essay. Essential undergraduate textbook for construction, quantity surveying, building surveying, architecture and engineering students.

Routledge
May 2022 : 368pp
Pb: 978-1-032-26261-1 : **£49.99**
Hb: 978-1-032-26282-6 : **£135**
eBook: 978-1-003-28751-3

* For full contents and more information, visit: www.routledge.com/9781032262611

Infrastructure Procurement and Funding

Harnessing Investment to Deliver a Better Future



Sharon McClements

Infrastructure Procurement and Funding explores the key models of procuring and financing major projects and infrastructure works whilst critically acknowledging the inherent challenges in successfully securing the necessary funding. The book is ideal reading for international courses in construction procurement, construction project management, infrastructure asset management, real estate investment and finance, but will also be useful for those construction business leaders in public and private sectors who are responsible for making major project and infrastructure financial and investment decisions.

Routledge
September 2022 : 130pp
Pb: 978-0-367-76752-5 : **£47.99**
Hb: 978-0-367-77527-8 : **£135**
eBook: 978-1-003-17180-5

* For full contents and more information, visit: www.routledge.com/9780367767525

Cost Accounting and Financial Management for Construction Project Managers



Len Holm University of Washington, USA

Provides a seamless connection between cost accounting and construction project management from the construction management practitioner's perspective. Covers key topics like financial statements, ratios, cost control, earned value, equipment depreciation, cash flow, cost estimates, change orders, pay requests, project close-out and more advanced topics such as supply chain management, activity based accounting, lean construction techniques, and taxes. Chapters contain review questions and there is a companion website. Ideal for use in cost accounting and financial management classes on undergraduate and graduate construction management or construction engineering programs.

Routledge
August 2018 : 300pp
Pb: 978-1-138-55065-0 : **£71.99**
Hb: 978-1-138-55064-3 : **£135**
eBook: 978-1-315-14730-7

* For full contents and more information, visit: www.routledge.com/9781138550650

Infrastructure Development and Construction Management



J. C. Edison

This is a comprehensive book on 'Infrastructure Development and Construction Management'. It covers infrastructure development, construction industry in India, financial analysis of real estate industry in India, economic analysis of projects, tendering and bidding, contracts and contract management, FIDIC conditions of contract, construction disputes and claims, arbitration, conciliation and dispute resolution, international construction project exports and identifying, analysing and managing construction project risk. This is an essential book for students of construction management, construction professionals, academicians and researchers.

Routledge
October 2020 : 318pp
Pb: 978-0-367-51892-9 : **£37.99**
Hb: 978-0-367-51894-3 : **£135**
eBook: 978-1-003-05562-4

* For full contents and more information, visit: www.routledge.com/9780367518929

5TH EDITION

Construction Contracts

Law and Management



Will Hughes University of Reading, UK, **Ronan Champion** Champion Pearce, UK, **John Murdoch** University of Reading, UK

@text: The fifth edition of this bestselling textbook has been thoroughly revised to provide the most up-to-date and comprehensive coverage of the legislation, administration and management of construction contracts. Includes the latest formats of JCT and FIDIC, as well as coverage of the NEC.

Routledge

April 2015 : 468pp

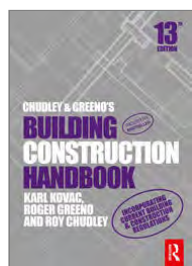
Pb: 978-0-415-65704-4 : **£54.99**Hb: 978-0-415-65705-1 : **£195**

eBook: 978-1-315-69521-1

* For full contents and more information, visit: www.routledge.com/9780415657044

13TH EDITION

Chudley and Greeno's Building Construction Handbook



Roy Chudley Formerly Guildford College of Technology, UK, **Roger Greeno** Construction Consultant, UK, **Karl Kovac** Sheffield Hallam University, UK

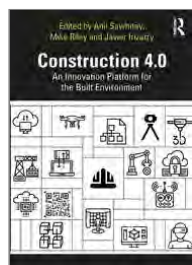
The 13th edition of Chudley and Greeno's Building Construction Handbook remains THE authoritative reference for all construction students and professionals. This new edition has been updated to reflect recent changes to the building regulations, as well as new material on modern methods of construction, greater emphasis on sustainability and health and safety. An easy-to-use resource for undergraduate and vocational students on a wide range of courses including NVQ and BTEC National, through to Higher National Certificate and Diploma, to Foundation and three-year Degree level.

Routledge
May 2024 : 728pp
Pb: 978-1-032-49288-9 : **£37.99**
Hb: 978-1-032-49290-2 : **£145**
eBook: 978-1-003-39299-6

* For full contents and more information, visit: www.routledge.com/9781032492889

Construction 4.0

An Innovation Platform for the Built Environment



Edited by **Anil Sawhney, Michael Riley, Javier Irizarry**

The aim of this handbook is to describe the Construction 4.0 framework and consequently highlight the resultant processes and practices that allow us to plan, design, deliver and operate built environment assets more effectively and efficiently by focusing on the physical-to-digital transformation and then digital-to-physical transformation. This book is essential reading for all built environment and AEC stakeholders who need to get to grips with the technological transformations currently shaping their industry, research and teaching.

Routledge
October 2023 : 526pp
Pb: 978-1-032-65360-0 : **£49.99**
Hb: 978-0-367-02730-8 : **£170**
eBook: 978-0-429-39810-0

* For full contents and more information, visit: www.routledge.com/9781032653600

Construction Company Management



Abid Hasan, Asheem Shrestha, Kumar Neeraj Jha

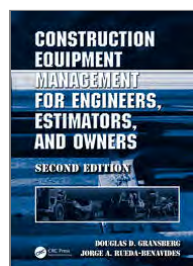
This book will give readers a detailed understanding of the critical aspects of running a successful construction company in today's complex regulatory, economic, and social environment. The lifecycle approach will introduce different dimensions of construction company management, including starting up and managing a construction firm successfully. The topics covered reflect current business practices in the industry relevant to international contexts with the help of case studies from different regions of the world. The book serves both students and those who teach construction management courses. Practitioners will also find the practices discussed in the book valuable.

Routledge
September 2024 : 284pp
Pb: 978-1-032-11956-4 : **£46.99**
Hb: 978-1-032-12112-3 : **£155**
eBook: 978-1-003-22309-2

* For full contents and more information, visit: www.routledge.com/9781032119564

2ND EDITION

Construction Equipment Management for Engineers, Estimators, and Owners



Douglas D. Gransberg Iowa State University, Ames, USA, **Jorge A. Rueda-Benavides**

Construction Equipment Management for Engineers, Estimators, and Construction Managers, Second Edition has been extensively rewritten to not only bring it up to date with the state of current practice, but also to serve as a textbook for university courses in construction engineering and management. The authors advanced the previous edition's practical, hands-on approach and added material on the future of construction equipment fleet management, which they believe will require a new technology-based skillset to maximize the cost-effectiveness of construction equipment operations. As such, the book covers the latest construction equipment technologies.

CRC Press
February 2022 : 350pp
Pb: 978-0-367-48884-0 : **£58.99**
Hb: 978-1-498-78848-9 : **£150**
eBook: 978-0-429-18635-6

* For full contents and more information, visit: www.routledge.com/9780367488840

International Construction Management

How the Global Industry Reshapes the World



Igor Martek Deakin University - Australia

This book tells you everything you need to know about international construction: the companies, their markets, the types of projects they build, how they compete and operate, and how it affects us all. The insights provide guidance on how global construction companies develop competitive advantage and stay resilient in the face of a mercurial global economy. These lessons will be of interest to the student and manager alike.

Routledge
February 2022 : 300pp
Pb: 978-0-367-56362-2 : **£44.99**
Hb: 978-0-367-56361-5 : **£135**
eBook: 978-1-003-09740-2

* For full contents and more information, visit: www.routledge.com/9780367563622

2ND EDITION

Introduction to Construction Management



Fred Sherratt University of Bolton, UK

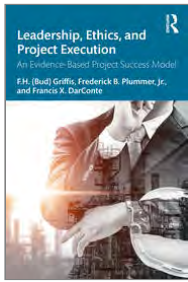
Introduction to Construction Management, Second Edition is the beginner's guide to key concepts, terms, processes and practices associated with modern construction management. The new edition has been fully updated with new data, case studies, and enhancements and remains the most practical and accessible book on the subject available. Supported by diagrams, illustrations and case studies, this is the most approachable text available for anyone starting to learn about construction management at any level.

Routledge
September 2022 : 476pp
Pb: 978-1-032-00744-1 : **£49.99**
Hb: 978-1-032-00752-6 : **£150**
eBook: 978-1-003-17544-5

* For full contents and more information, visit: www.routledge.com/9781032007441

Leadership, Ethics, and Project Execution

An Evidence-Based Project Success Model



F.H. (Bud) Griffis New York University, New York,
Frederick B. Plummer University of Illinois, Champaign,
Francis X. DarConte New York University, New York

Leadership, Ethics, and Project Execution provides a masterclass in the project and people management skills that set apart the most accomplished design and construction professionals. Interactive exercises allow readers to take the role of junior project managers and other emerging professionals and reason through the ethical dilemmas surrounding building projects from the initial bid to completion. Chapters on stakeholder alignment, productivity, and project success ensure that aspiring leaders' business decisions are as economically sound as they are ethically correct.

Routledge

November 2021 : 374pp

Pb: 978-0-367-65425-2 : **£61.99**

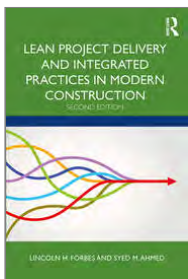
Hb: 978-0-367-65530-3 : **£165**

eBook: 978-1-003-12994-3

* For full contents and more information, visit: www.routledge.com/9780367654252

2ND EDITION

Lean Project Delivery and Integrated Practices in Modern Construction



Lincoln H. Forbes Florida International University, Miami, USA,
Syed M. Ahmed East Carolina University, USA

Lean Project Delivery and Integrated Practices in Modern Construction is the new and enhanced edition of Modern Construction by Lincoln H. Forbes and Syed M. Ahmed. This book provides a multi-faceted approach for applying lean methodologies to improve design and construction processes. It builds on the groundwork established by the first edition as a compendium of the latest research and thinking on lean and integrated construction practices. Recognizing the wide diversity in the landscape of projects, and encompassing private and public sector activity, buildings and infrastructure, the book offers a number of approaches to improving construction project management.

Routledge

April 2020 : 522pp

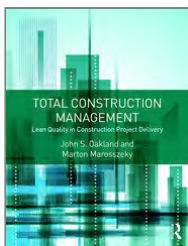
Hb: 978-1-138-31124-4 : **£79.99**

eBook: 978-0-429-45898-9

* For full contents and more information, visit: www.routledge.com/9781138311244

Total Construction Management

Lean Quality in Construction Project Delivery



John S. Oakland, **Marton Marosszeky**

Starting by introducing the language of total quality, lean, and operational excellence, this book takes the reader right up to the latest industry practice in this sector, and demonstrates the best way to manage change. Written by two of the world's leading experts, Total Construction Management offers a clearly structured introduction to the most important management concepts and practices used in the global construction industry today. This authoritative book covers issues such as BIM, institutional waste, and construction safety, all explained with international case studies. It is a perfect guide for construction managers and ideal for those preparing to enter the industry.

Routledge

February 2017 : 634pp

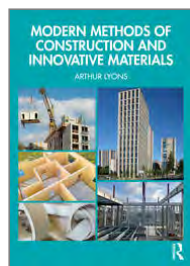
Pb: 978-1-138-90854-3 : **£68.99**

Hb: 978-1-138-90853-6 : **£185**

eBook: 978-1-315-69435-1

* For full contents and more information, visit: www.routledge.com/9781138908543

Modern Methods of Construction and Innovative Materials



Arthur Lyons

This new textbook has two main themes. The first is Modern Methods of Construction (MMC), the second is the wide range of developing products for the construction industry. This book is the only book combining these important elements of the future of the industry in an easy-to-read, full colour guide for students and new practitioners. It is essential reading for anyone studying and working in the built environment, be they architects, construction managers, surveyors, or engineers.

Routledge

April 2024 : 254pp

Pb: 978-1-032-41482-9 : **£48.99**

Hb: 978-1-032-41934-3 : **£165**

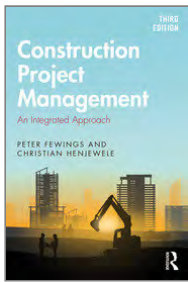
eBook: 978-1-003-36046-9

* For full contents and more information, visit: www.routledge.com/9781032414829

3RD EDITION

Construction Project Management

An Integrated Approach



Peter Fewings University of the West of England, UK,
Peter Fewings, **Christian Henjewe** Anglia Ruskin University, UK

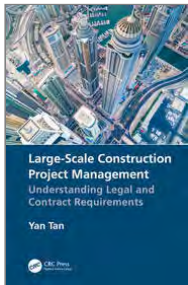
This book combines best practice in construction with the theories underpinning project management and presents a wealth of practical case studies – many new. It focuses on all construction disciplines who may manage projects. The book is uniquely valuable for those in the later years of undergraduate courses, specialist postgraduate courses in project management and for practitioners of all disciplines and clients who have experienced the frustration of the fragmentation of construction projects.

Routledge
 April 2019 : 524pp
 Pb: 978-0-815-35865-7 : **£36.99**
 Hb: 978-0-815-35864-0 : **£135**
 eBook: 978-1-351-12203-0

* For full contents and more information, visit: www.routledge.com/9780815358657

Large-Scale Construction Project Management

Understanding Legal and Contract Requirements



Yan Tan

A majority of large-scale construction and major infrastructure projects are funded by public funds from taxpayers. However, these projects are often subject to severe delays and cost overruns. This book introduces integrated approaches to project management and control mechanisms to effectively manage large-scale construction projects. It explains integrated project governance with regard to time, cost, risk, change, contract management, and more. Further, it discusses the legal issues of scheduling delays and disruptions with regard to the Delay and Disruption Protocol (Society of Construction Law) as well as Forensic Schedule Analysis guidance (American Association of Cost Engineering).

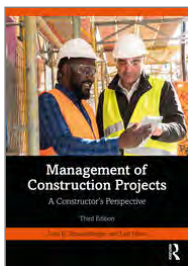
CRC Press
 April 2020 : 243pp
 Hb: 978-1-138-38933-5 : **£110**
 eBook: 978-0-429-42399-4

* For full contents and more information, visit: www.routledge.com/9781138389335

3RD EDITION

Management of Construction Projects

A Constructor's Perspective



John Schaufelberger, **Len Holm** University of Washington, USA

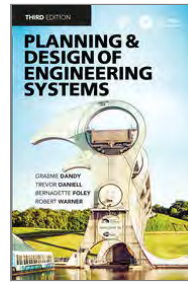
Unique among construction project management textbooks, *Management of Construction Projects*, 3rd edition, takes the constructor's perspective, carefully analyzing a complex, real-world construction case study from multiple angles to demonstrate the skills, knowledge, and techniques students require to become successful project managers. Popular as an undergraduate text and as a contractor resource, the book prepares upcoming construction project managers with everything they need to see a successful project through from start to finish.

Routledge
 March 2024 : 296pp
 Pb: 978-1-032-49596-5 : **£94.99**
 Hb: 978-1-032-49598-9 : **£230**
 eBook: 978-1-032-70131-8 : **£86.99**

* For full contents and more information, visit: www.routledge.com/9781032495965

3RD EDITION

Planning and Design of Engineering Systems



Graeme Dandy, **Trevor Daniell**, **Robert Warner**,
Bernadette Foley, **Graeme Dandy**, **David Walker**
 University of Adelaide, Australia, **Trevor Daniell**

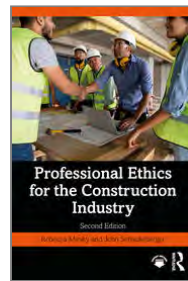
This newly updated book offers a comprehensive introduction to the scope and nature of engineering work, taking a rigorous but common sense approach to the solution of engineering problems

CRC Press
 December 2017 : 460pp
 Pb: 978-1-138-03190-6 : **£42.99**
 Hb: 978-1-138-03189-0 : **£110**
 eBook: 978-1-351-22812-1

* For full contents and more information, visit: www.routledge.com/9781138031906

2ND EDITION

Professional Ethics for the Construction Industry



Rebecca Mirsky Boise State University, USA, **John Schaufelberger** University of Washington, USA

Professional Ethics for the Construction Industry, 2nd Edition, empowers a new generation of built environment professionals to navigate the ethical challenges confronting them at every stage of a project, from the initial bid to its completion and beyond. Authored by veteran educators and industry professionals, this textbook introduces ethical dilemmas aspiring construction professionals will face on the job—and the critical thinking skills to reason their way out of them. Written to meet curriculum requirements for all levels of construction education, this book explores ethics specific to the construction industry, illustrated by detailed and realistic case studies.

Routledge
 June 2022 : 132pp
 Pb: 978-1-032-26811-8 : **£49.99**
 Hb: 978-1-032-26812-5 : **£120**
 eBook: 978-1-003-29002-5

* For full contents and more information, visit: www.routledge.com/9781032268118

Risk and Systems

With Applications in Infrastructure Project Management



David G. Carmichael

Risk is related to the uncertainty and magnitude of an outcomes. This varies according to a discipline or situation, and depends on a stakeholder's value system. Risk management provides a way of addressing this. This textbook takes a distinctively systems approach, setting out the principles of risk and risk management and looking at a series of applications and more specialist tools and approaches. It offers a rational treatment of risk and risk management which applies across all disciplines, and disciplines beyond engineering and suits both university students and practitioners in industry.

CRC Press
 December 2022 : 206pp
 Pb: 978-1-032-38121-3 : **£43.99**
 Hb: 978-1-032-38122-0 : **£125**
 eBook: 978-1-003-34359-2

* For full contents and more information, visit: www.routledge.com/9781032381213

2ND EDITION

Fundamentals of Economics for Applied Engineering



S. Kant Vajpayee University of Southern Mississippi, USA,
MD Sarder Bowling Green State University, USA

This one-semester introduction to basic engineering economics provides an overview of the theory and mathematics underlying operational business decisions that engineering technology, engineering, and industrial technology students will face in the workplace. Plain language is used and concepts have been kept straightforward with an emphasis on applying economic principles. Practical examples as throughout the text make good use of Microsoft Excel templates, provided on the book's companion website, for students. Exercises provide discussion and multiple-choice questions along with numerical problems, and a solutions manual and instructor resources is given for adopting instructors.

CRC Press

August 2019 : 470pp

Pb: 978-0-367-18947-1 : **£58.99**

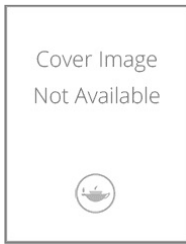
Hb: 978-0-367-18946-4 : **£135**

eBook: 978-0-429-19945-5

* For full contents and more information, visit: www.routledge.com/9780367189471

2ND EDITION

Fundamentals of Sustainability in Civil Engineering

**Andrew Braham , Sadie Casillas**

This book provides a foundation to understand the development of sustainability in civil engineering, and tools to address the three pillars of sustainability: economics, environment, and society. It includes case studies in the five major areas of civil engineering: environmental, structural, geotechnical, transportation, and construction management. This second edition is updated throughout and adds new chapters on construction engineering as well as an overview of the most common certification programs that revolve around environmental sustainability.

CRC Press

August 2024 : 272pp

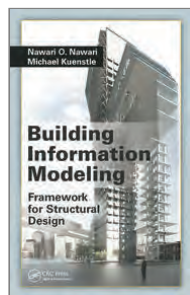
Pb: 978-0-367-67587-5 : **£45.99**Hb: 978-0-367-42025-3 : **£105**

eBook: 978-0-367-81744-2

* For full contents and more information, visit: www.routledge.com/9780367675875

Building Information Modeling

Framework for Structural Design



Nawari O. Nawari University of Florida, Gainesville, USA,
Michael Kuenstle University of Florida, Gainesville, USA

This book focuses on how engineers and architects can benefit from new frameworks and technologies by reviewing the building information management (BIM) concept, discussing how BIM will affect education and practice, evaluating current BIM technology, exploring critical issues for best practices in BIM environments, and reviewing fundamentals of architectural and structural analysis under the new framework. The book provides professionals and students with the necessary knowledge and tools to assist them in understanding architectural structures and utilizing BIM to offer practical design solutions.

CRC Press

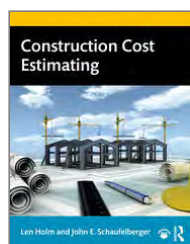
April 2015 : 284pp

Hb: 978-1-482-24043-6 : £120

eBook: 978-0-429-17208-3

* For full contents and more information, visit: www.routledge.com/9781482240436

Construction Cost Estimating



Len Holm , John E. Schaufelberger

Construction Cost Estimating equips a new generation of students and early-career professionals with the skills they need to bid successfully on projects. From developing bid strategies to submitting a completed bid, this innovative textbook introduces the fundamentals of construction estimating through a real life case study that unfolds across its 24 chapters. Construction Cost Estimating ensures that readers are familiar with the entire estimating process before they even set foot on the jobsite.

Routledge

April 2021 : 354pp

Pb: 978-0-367-90268-1 : £64.99

Hb: 978-0-367-90271-1 : £145

eBook: 978-1-003-02349-4

* For full contents and more information, visit: www.routledge.com/9780367902681

4TH EDITION

Dissertation Research and Writing for Built Environment Students



Shamil G. Naoum London South Bank University, UK

Dissertation Research and Writing for Built Environment Students is the essential guide to get students through their final year research project. Trusted and developed over three previous editions, the new fourth edition shows you how to select a dissertation topic, write a proposal, conduct a literature review, select the research approach, gather the data, analyse and present the information and ultimately produce a well-written dissertation.

Routledge

May 2019: 316pp

Pb: 978-0-815-38463-2 : **£37.99**

Hb: 978-0-815-38462-5 : **£135**

eBook: 978-1-351-20391-3

* For full contents and more information, visit: www.routledge.com/9780815384632

6TH EDITION

Engineering Surveying



W Schofield Formerly Kingston University, UK, **Mark Breach** Nottingham Trent University, UK

Engineering surveying is a critical part of any engineering project, because without an accurate understanding of the size, shape and nature of the site the project risks expensive and time-consuming errors or even catastrophic failure. Working from basic principles and practice right through to the most modern technologies, Wilf Schofield and Mark Breach bring both expertise and clarity to a complex subject. With many worked examples and illustrations of tools and techniques Engineering Surveying is essential reading for student and professional alike.

CRC Press

February 2007 : 638pp

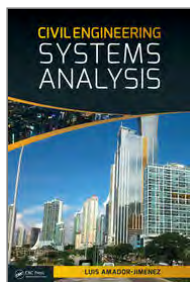
Pb: 978-0-750-66949-8 : **£64.99**

Hb: 978-1-138-37316-7 : **£135**

eBook: 978-1-315-14704-8

* For full contents and more information, visit: www.routledge.com/9780750669498

Civil Engineering Systems Analysis



Luis Amador-Jimenez Concordia University, Canada

This textbook covers tools and a selection of applications in civil engineering systems. It begins by reviewing the mathematical and statistical background for the adequate formulation of civil engineering problems. Then it reviews a series of economic theory topics required to understand current and future demand for infrastructure (i.e. housing, facilities and transportation networks) and its maintenance, improvement and expansion. The book covers problem definition, model formulation and decision making systems, including optimization, estimation and prediction.

CRC Press

August 2016 : 272pp

Pb: 978-1-482-26079-3 : **£58.99**

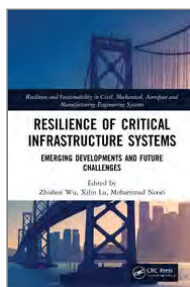
Hb: 978-1-138-47020-0 : **£180**

eBook: 978-1-315-38142-8

* For full contents and more information, visit: www.routledge.com/9781482260793

Resilience of Critical Infrastructure Systems

Emerging Developments and Future Challenges



Edited by **Zhishen Wu , Xilin Lu , Mohammad Noori**
California Polytechnic State University San Luis Obispo,
USA

Series: Resilience and Sustainability in Civil, Mechanical, Aerospace and Manufacturing Engineering Systems

This book provides a comprehensive overview of resilience of infrastructure, new developments in this emerging field and its scopes, including ecology and sustainability, and the challenges involved in building a more resilient civil infrastructure systems of future. Moreover, it introduces a strategic road map for effective and efficient methods that are needed for modeling, designing, and assessing infrastructure system resilience.

CRC Press

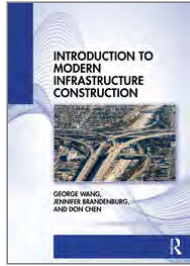
May 2020 : 244pp

Hb: 978-0-367-47738-7 : **£105**

eBook: 978-0-367-47739-4

* For full contents and more information, visit: www.routledge.com/9780367477387

Introduction to Modern Infrastructure Construction



George Wang , Don Chen , Jennifer Brandenburg

Introducing the basics of infrastructure design and construction—from a construction manager's point of view—this textbook offers an all-in-one primer on heavy civil construction. From the initial bid to a megaproject's final stages, this accessible, jargon-free guide to the construction manager's role on a heavy civil construction jobsite is suitable for graduate and advanced undergraduate students as well as emerging professionals in the field. An ideal resource for a single semester class or a longer course of study, *Introduction to Modern Infrastructure Construction* readies construction students for success on a megaproject jobsite.

Routledge

December 2024 : 360pp

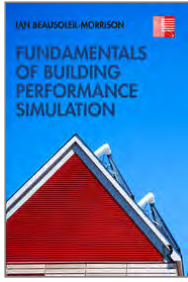
Pb: 978-1-032-05159-8 : **£59.95**

Hb: 978-1-032-05488-9 : **£105**

eBook: 978-1-003-19776-8

* For full contents and more information, visit: www.routledge.com/9781032051598

Fundamentals of Building Performance Simulation



Ian Beausoleil-Morrison Carleton University Ottawa, Ontario, Canada

Fundamentals of Building Performance Simulation pares the theory and practice of a multi-disciplinary field to the essentials for classroom learning and real-world applications. Authored by a veteran educator and researcher, this textbook equips graduate students and emerging and established professionals in architecture and engineering to predict and optimize buildings' energy use. Each subject is introduced without reference to particular modelling tools while problems at the end of each chapter provide hands-on experience with the tools of the reader's choice.

Routledge

August 2020 : 410pp

Pb: 978-0-367-51806-6 : **£64.99**

Hb: 978-0-367-51805-9 : **£115**

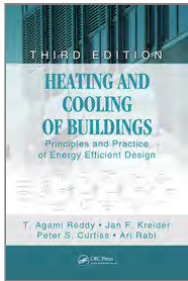
eBook: 978-1-003-05527-3

* For full contents and more information, visit: www.routledge.com/9780367518066

3RD EDITION

Heating and Cooling of Buildings

Principles and Practice of Energy Efficient Design, Third Edition



T. Reddy Arizona State University, USA, **Jan F. Kreider**, **Peter S. Curtiss** Curtiss Engineering, Inc., Boulder, Colorado, USA, **Ari Rabl** Ecole des Mines, Paris, France

Series: Mechanical and Aerospace Engineering Series

Structured to provide a rigorous and comprehensive introduction to the design of mechanical systems in buildings, the new revision of this successful text provides up to date coverage based around the latest advances in energy efficiency and green design. Along with numerous new and revised examples, design case studies, and homework problems, the third edition offers an updated version of the HCB software and website, which contains a wealth of data to support design analysis and planning. Based around current codes and standards, this third edition explores the latest technologies that are central to design and operation of today's buildings.

CRC Press

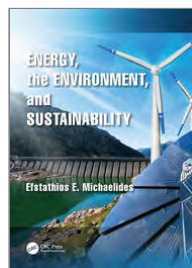
July 2016 : 900pp

Hb: 978-1-439-89989-2 : **£175**

eBook: 978-1-315-37456-7

* For full contents and more information, visit: www.routledge.com/9781439899892

Energy, the Environment, and Sustainability



Efstathios E. Michaelides Texas Christian University, USA

Series: Mechanical and Aerospace Engineering Series

Energy and the Environment explains in simple terms what the energy demand is at the present, what the environmental effects of energy use are, and what can be accomplished to alleviate the environmental effects of energy use and ensure adequate energy supply. Though technical in approach, the text uses simple explanations of engineering processes and systems and algebra-based math to be comprehensible to students in a range of disciplines. Schematic diagrams, quantitative examples, and numerous problems will help students make quantitative calculations. This will assist them in comprehending the complexity of the energy-environment balance, and to analyze and evaluate proposed solutions.

CRC Press

April 2018 : 483pp

Pb: 978-1-138-03844-8 : **£135**

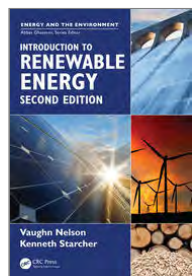
Hb: 978-1-138-48917-2 : **£150**

eBook: 978-1-315-17735-9

* For full contents and more information, visit: www.routledge.com/9781138038448

2ND EDITION

Introduction to Renewable Energy



Vaughn C. Nelson West Texas A&M University, Canyon, USA, **Kenneth L. Starcher** West Texas A&M University, Canyon, USA

Series: Energy and the Environment

This book integrates economic, social, environmental, policy, and engineering issues related to renewable energy. It covers fundamentals, including the transfer of energy, as well as the limitations of natural resources. Starting with solar energy, the text illustrates how energy from the sun is transferred and stored; used for heating, cooling, and lighting; collected and concentrated and converted into electricity. This new edition has been updated throughout and adds new information on bioenergy, energy balance (energetics), biodiesel, applications, and climate change.

CRC Press

November 2015 : 459pp

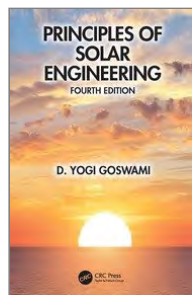
Hb: 978-1-498-70193-8 : **£120**

eBook: 978-0-429-15670-0

* For full contents and more information, visit: www.routledge.com/9781498701938

4TH EDITION

Principles of Solar Engineering



D. Yogi Goswami University of South Florida, USA

Principles of Solar Engineering, Fourth Edition addresses the need for solar resource assessment and highlights improvements and advancements involving photovoltaics and solar thermal technologies, grid power, and energy storage. With updates made to every chapter, the book discusses new technologies in photovoltaics, such as organic, dye-sensitized and perovskite solar cells, and the design of solar systems and power plants. It features battery energy storage for distributed and bulk storage and electrical integration with the main solar systems. The book is intended for senior undergraduate and graduate engineering students in Energy Engineering and Solar Energy courses.

CRC Press

September 2022 : 656pp

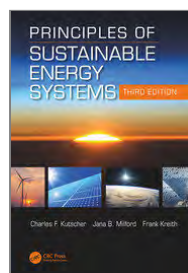
Hb: 978-1-032-15500-5 : **£135**

eBook: 978-1-003-24438-7

* For full contents and more information, visit: www.routledge.com/9781032155005

3RD EDITION

Principles of Sustainable Energy Systems, Third Edition



Frank Kreith, **Charles F. Kutscher** National Renewable Energy Laboratory, Golden, Colorado, USA, **Jana B. Milford** University of Colorado Boulder, USA

Series: Mechanical and Aerospace Engineering Series

Principles of Sustainable Energy Systems, 3rd Edition surveys the range of sustainable energy sources and the tools that engineers, scientists, and policy makers use to analyze energy generation, usage, and future trends. The text provides complete and up-to-date coverage of all renewable technologies, including solar and wind power, biofuels, hydroelectric, nuclear, ocean power, and geothermal energy. The economics of energy are introduced, with the SAM software package integrated so students can explore the dynamics of energy usage and prediction. Climate and environmental factors in energy use are integrated to give a complete picture of sustainable energy analysis and planning.

CRC Press

September 2018 : 654pp

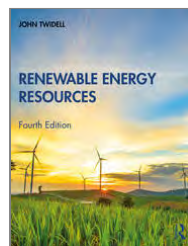
Hb: 978-1-498-78892-2 : **£185**

eBook: 978-0-429-48558-9

* For full contents and more information, visit: www.routledge.com/9781498788922

4TH EDITION

Renewable Energy Resources



John Twidell AMSET Centre, UK

This is a numerate and quantitative text. It covers the many renewables technologies implemented worldwide by harnessing sustainable resources, mitigating pollution and climate change, and providing cost effective services. This 4th edition is extensively updated by John Twidell with global developments as underpinned by fundamental analysis and illustrated by case studies and worked examples. Renewable Energy Resources supports multi-disciplinary master's degrees in science and engineering, and specialist modules at undergraduate level. Practicing scientists and engineers will find it a useful introductory text and reference book.

Routledge

November 2021 : 774pp

Pb: 978-0-415-63358-1 : **£54.99**

Hb: 978-1-138-32226-4 : **£150**

eBook: 978-0-429-45216-1

* For full contents and more information, visit: www.routledge.com/9780415633581

3RD EDITION

Wind and Solar Power Systems

Design, Analysis, and Operation



Mukund R. Patel U.S. Merchant Marine Academy, USA, **Omid Beik** Enercis Inc., Canada

This book provides technological and socio-economic coverage of renewable energy. It discusses wind power technologies, solar photovoltaic technologies, large-scale energy storage technologies, and ancillary power systems. In this new edition, the book addresses advancements that have been made in renewable energy: solar systems have seen great transformation, the power electronics converters, their control and operation, have been improved, and multi-stage, multi-phase systems have been proposed and put into installation. The text has been revised to include up-to-date material, statistics, and current technology trends.

CRC Press

March 2025 : 408pp

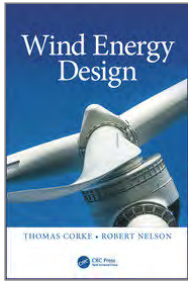
Pb: 978-0-367-1620-2 : **£52.99**

Hb: 978-0-367-47693-9 : **£120**

eBook: 978-1-003-04295-2

* For full contents and more information, visit: www.routledge.com/978036716202

Wind Energy Design



Thomas Corke University of Notre Dame, USA, **Robert Nelson** University of Notre Dame, USA

Wind Energy Systems is designed for undergraduate engineering courses, with a focus on multidisciplinary design of a wind energy system. The text covers basic wind power concepts and components - wind characteristics and modeling, rotor aerodynamics, lightweight flexible structures, wind farms, aerodynamics, wind turbine control, acoustics, energy storage, and economics. These topics are applied to produce a new conceptual wind energy design, showing the interplay of various design aspects in a complete system. An ongoing case study demonstrates the integration of various component topics, and MATLAB examples are included to show computerized design analysis procedures and techniques.

CRC Press

April 2018 : 352pp

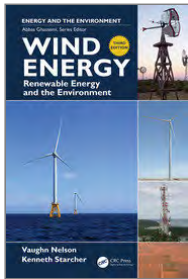
Hb: 978-1-138-09602-8 : £135

eBook: 978-1-315-10546-8

* For full contents and more information, visit: www.routledge.com/9781138096028

3RD EDITION

Wind Energy: Renewable Energy and the Environment



Vaughn C. Nelson West Texas A&M University, Canyon, USA, **Kenneth L. Starcher** West Texas A&M University, Canyon, USA

Series: Energy and the Environment

This book explores the wind industry from its inception in the 1970s to today; presents the design, aerodynamics, operation, control, applications, and different types of wind turbines; and provides ample reasons to shift from fossil fuels to renewable energy. It also discusses the political and economic factors regarding the adoption of wind as an energy source. It covers the characteristics of wind, such as shear, power potential, and turbulence, and discusses the measurement and siting of individual wind turbines and wind farms. This new edition is fully updated throughout, and adds new material on wind forecasting, offshore wind, decommissioning and repowering wind farms, and more.

CRC Press

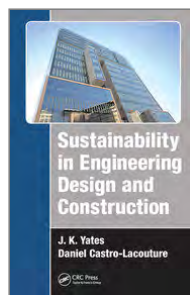
November 2018 : 326pp

Hb: 978-1-138-61534-2 : £120

eBook: 978-0-429-46315-0

* For full contents and more information, visit: www.routledge.com/9781138615342

Sustainability in Engineering Design and Construction



J. K. Yates San Jose State University, California, and Consultant, Ramah, New Mexico, USA, **Daniel Castro-Lacouture** Georgia Institute of Technology, Atlanta, USA

This book introduces sustainable development practices and provides insight into the requirements for designing and constructing sustainable structures for all segments of the industry. It addresses sustainability from the perspective of buildings, but it also covers sustainability practices during engineering design and construction for all types of projects, such as heavy and highway construction, industrial construction, the mining and minerals industry, the power industry, and the manufacturing industry, with a focus on addressing sustainability issues during engineering design and construction operations.

CRC Press

September 2015 : 452pp

Hb: 978-1-498-73391-5 : £150

eBook: 978-1-315-36866-5

* For full contents and more information, visit: www.routledge.com/9781498733915

2ND EDITION

Sustainable Buildings and Infrastructure

Paths to the Future



Annie R. Pearce Virginia Tech, USA, **Yong Han Ahn** Hanyang University, South Korea, **HanmiGlobal Co, Ltd**

The second edition of Sustainable Buildings and Infrastructure continues to provide students with an introduction to the principles and practices of sustainability as they apply to the construction sector, including both buildings and infrastructure systems. As a textbook, it is aimed at students taking courses in construction management and the built environment, but it is also designed to be a useful reference for practitioners involved in implementing sustainability in their projects or firms. Case studies, best practices, and highlights of cutting edge research are included throughout, making the book both a core reference and a practical guide.

Routledge

December 2017 : 648pp

Pb: 978-1-138-67225-3 : £61.99

Hb: 978-1-138-67223-9 : £135

eBook: 978-1-315-56264-3

* For full contents and more information, visit: www.routledge.com/9781138672253

2ND EDITION

Sustainable Construction



Sandy Halliday Gaia Group, UK

This 2nd edition provides a masterclass on the principles and techniques involved in the design and delivery of practical, affordable, high quality sustainable buildings and places. It presents precedents, theory, concepts and principles alongside 120 wide ranging case studies that highlight current best practice and encourage implementation. Topics in the book include: the history of ideas in the field, policy, sustainable materials, cost, appraisal techniques, environmental design, energy, water, lifecycle issues, construction process issues, and urban ecology. An ideal primer to courses in Architecture, Construction, Engineering, Project Management, Landscape, Urbanism and Development.

Routledge

December 2018 : 478pp

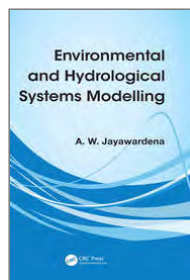
Pb: 978-1-138-20028-9 : £47.99

Hb: 978-1-138-20025-8 : £165

eBook: 978-1-315-51481-9

* For full contents and more information, visit: www.routledge.com/9781138200289

Environmental and Hydrological Systems Modelling



Amithirigala Widhanelage Jayawardena The
University of Hong Kong

Providing the tools students and professionals need, this book details different approaches to modelling the water environment over a range of spatial and temporal scales. Their applications are shown with a series of case studies, taken mainly from the Asia-Pacific Region. Topics include linear systems, conceptual models, data driven models, process-based models, risk-management models, model parameter estimation as well as model calibration, validation, and testing.

CRC Press

January 2014: 536pp

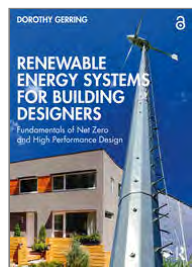
Pb: 978-0-415-46532-8 : **£71.99**

eBook: 978-1-315-27244-3

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Renewable Energy Systems for Building Designers

Fundamentals of Net Zero and High Performance Design



Dorothy Gerring

Renewable Energy Systems for Building Designers presents a comprehensive introduction to the latest resources and technologies used in high performance and net zero energy buildings, with a practical focus on the design and integration of these systems. This textbook and convenient reference offers a single-source guide to renewable technologies, balancing broad knowledge with the details of implementation crucial for successful sustainable design. It equips students and professionals with foundations and critical information needed to confidently plan for and meet the highest standards of energy-efficiency in new construction and retrofitted buildings.

Routledge

September 2022 : 336pp

Pb: 978-1-032-28647-1 : **£91.99**

Hb: 978-1-032-28648-8 : **£185**

eBook: 978-1-003-29781-9

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Air Pollution Control Engineering for Environmental Engineers



Edited by **Jeff Kuo**

Series: Fundamentals of Environmental Engineering

Air pollution control and air quality engineering are some of the key subjects in any environmental engineering curriculum. This book will cover topics that are fundamental to pollution control engineers and professionals, including air pollution and its management through regulatory approaches, calculating and estimating emissions, and applying control technologies for different forms of pollutants and emission characteristics for several key industries. In addition, it will include topics that address issues such as fugitive component leak detection and repair, odor containment and control, greenhouse gas emissions, and indoor air pollution, which are often not found in other similar books.

CRC Press

December 2018 : 378pp

Hb: 978-1-138-03204-0 : £110

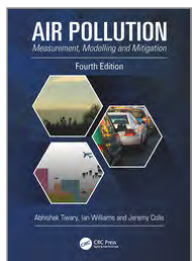
eBook: 978-0-429-18579-3

* For full contents and more information, visit: www.routledge.com/9781138032040

4TH EDITION

Air Pollution

Measurement, Modelling and Mitigation, Fourth Edition



Abhishek Tiwary Northumbria University, UK, **Ian Williams** University of Southampton, UK

This established textbook offers comprehensive coverage of air pollution, a rapidly developing field. The fourth edition, broadly updated and developed throughout, brings a heavily reworked introduction plus new and overhauled chapters on source mitigation, noise and light pollution, and air quality experiments. It adds extra materials geared to the students—case studies, laboratory experiments that can be performed as class practical experiments or as project work, and self-study exercises, plus some more challenging questions at the end of each chapter.

CRC Press

June 2018 : 722pp

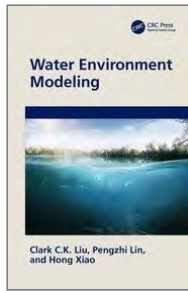
Pb: 978-1-498-71945-2 : £64.99

Hb: 978-1-138-50366-3 : £135

eBook: 978-0-429-46998-5

* For full contents and more information, visit: www.routledge.com/9781498719452

Water Environment Modeling



Clark C.K. Liu University of Hawaii, USA, **Pengzhi Lin** Sichuan University, China, **Hong Xiao** State Key Laboratory of Hydraulics, Sichuan University

Pollutant and waste loading of the water environment – rivers, lakes, estuaries, aquifers, and coastal waters – need to be modelled and simulated effectively for the selection and application of efficient remedial measures. This textbook covers the formulation and application of mathematical models of water flow and mass transport, both simple analytical models and comprehensive numerical models. It provides many examples and exercises that are derived from actual case studies. It suits advanced undergraduates and graduate students in civil and environmental engineering and related academic fields, and serves as a reference book for practicing engineers and scientists.

CRC Press

November 2021 : 334pp

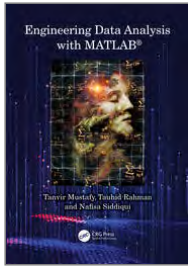
Pb: 978-0-367-44243-9 : **£45.99**

Hb: 978-0-367-44244-6 : **£84.99**

eBook: 978-1-003-00849-1

* For full contents and more information, visit: www.routledge.com/9780367442439

Engineering Data Analysis with MATLAB®



Tanvir Mustafy Military Inst. of Science and Tech, BD,
Tauhid Rahman Military Inst. of Science and Tech, BD,
Nafisa Siddiqui Military Inst. of Science and Tech, BD

This book provides a concise overview of a variety of techniques for analyzing statistical, scientific, and financial data, using MATLAB® to integrate several approaches to data analysis and statistics. Chapters offer a broad review of computational data analysis, illustrated with many examples and applications. Each chapter combines theoretical concepts with practical MATLAB® applications and includes practice exercises, ensuring a comprehensive understanding of the material. With coverage of both basic and more complex ideas in applied statistics, the book has broad appeal for undergraduate students up to practicing engineers.

CRC Press

December 2024 : 902pp

Pb: 978-1-032-50771-2 : **£71.99**

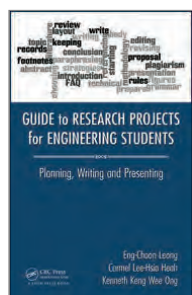
Hb: 978-1-032-50658-6 : **£145**

eBook: 978-1-003-39958-2

* For full contents and more information, visit: www.routledge.com/9781032507712

Guide to Research Projects for Engineering Students

Planning, Writing and Presenting



Eng Choon Leong Nanyang Technological University, Singapore, **Carmel Lee-Hsia Heah** Nanyang Technological University, Singapore, **Kenneth Keng Wee Ong** Nanyang Technological University, Singapore

For students embarking on their first research project, sifting through the vast amount of information on the Internet can be a daunting and time consuming task. Research projects require not just understanding of the research methodology, but also complementary skills including information search, technical writing, oral presentation, and software knowledge. This book is written especially for students who need a quick and concise handbook to support them in conducting research so that they can devote most of their time to their research.

CRC Press

July 2015 : 253pp

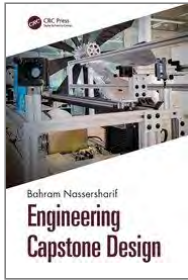
Pb: 978-1-482-23877-8: £37.99

Hb: 978-1-138-42428-9: £180

eBook: 978-0-429-15768-4

* For full contents and more information, visit: www.routledge.com/9781482238778

Engineering Capstone Design



Bahram Nassersharif University of Rhode Island,
Kingston, USA

Structured with a practical approach, the book guides engineering students in capstone design projects. The book addresses the challenge of open-ended design projects, often in a team-based format, discussing team member roles, communication, and cooperation. The book will also interest industry professionals, who are engaged in product development or design problem solving. It incorporates accreditation requirements and provides a modern framework for working with industry, reinforced by case studies. The book covers essential topics and steps in a capstone design sequence, including defining, conceiving, presenting, prototyping, building, testing, and redesigning.

CRC Press

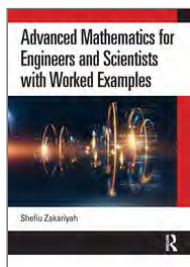
June 2022 : 214pp

Hb: 978-0-367-62159-9 : **£96.99**

eBook: 978-1-003-10821-4

* For full contents and more information, visit: www.routledge.com/9780367621599

Advanced Mathematics for Engineers and Scientists with Worked Examples



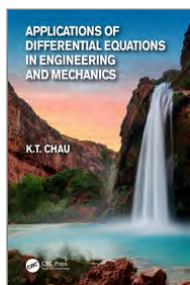
Shefiu Zakariyah University of Derby, UK

This covers core to advanced topics in mathematics, providing a comprehensive, step-by-step presentation of concepts to engineers, scientists and general readers. It moves from simple to challenging areas, with carefully tailored worked examples also of different degrees of challenge. Mathematical concepts are linked with engineering applications. It is written primarily for students at levels 3 and 4 (typically in the early stages of a degree in engineering or a related discipline) or for those undertaking foundation, access, Higher National Certificate (HND), International Foundation Year (IFY), and International Year One (IYO) courses with math modules.

Routledge
November 2024 : 844pp
Pb: 978-1-032-66327-2 : **£45.99**
Hb: 978-1-032-66510-8 : **£105**
eBook: 978-1-032-66512-2

* For full contents and more information, visit: www.routledge.com/9781032663272

Applications of Differential Equations in Engineering and Mechanics



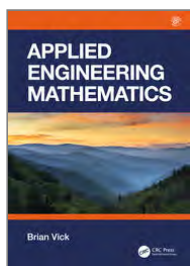
Kam-tim Chau Hong Kong Polytechnic University

This volume gives comprehensive coverage of the essential differential equations students are likely to encounter in solving engineering and mechanics problems - alongside a preliminary companion text on theory. This covers a very broad range of problems, including beams and columns, plates, shells, structural dynamics, catenary and cable suspension bridge, nonlinear buckling, transports and waves in fluids, geophysical fluid flows, nonlinear waves and solitons, Maxwell equations, Schrodinger equations, celestial mechanics and fracture mechanics and dynamics. The focus is on the mathematical technique for solving the differential equations involved.

CRC Press
December 2018 : 830pp
Pb: 978-0-367-02643-1 : **£84.99**
Hb: 978-1-498-76697-5 : **£170**
eBook: 978-0-429-47064-6

* For full contents and more information, visit: www.routledge.com/9780367026431

Applied Engineering Mathematics



Brian Vick Virginia Tech, USA

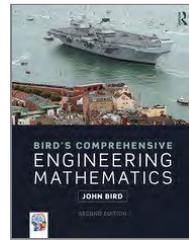
Undergraduate engineering students need good mathematics skills, and this textbook supports this with a strong emphasis on visualization and the methods and tools needed across the whole of engineering. The visual approach is emphasised, and excessive proofs and derivations are avoided. The visual images explain and teach the mathematical methods. The book's website provides dynamic and interactive codes in Mathematica to accompany the examples for the reader to explore on their own.

CRC Press
May 2020 : 246pp
Pb: 978-0-367-43276-8 : **£54.99**
Hb: 978-0-367-43277-5 : **£110**
eBook: 978-1-003-00226-0

* For full contents and more information, visit: www.routledge.com/9780367432768

2ND EDITION

Bird's Comprehensive Engineering Mathematics



John Bird

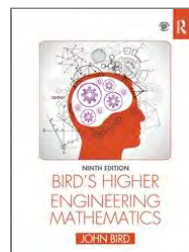
This comprehensive textbook covers the key mathematical principles for real-life engineering problems. Along with its companion website it provides simple explanations, supported by 1600 worked problems and over 3200 further problems contained within 384 exercises throughout the text. With 34 Revision tests together with 9 Multiple-choice tests -- and detailed solutions to 3200 further problems.

Routledge
June 2018 : 1226pp
Pb: 978-0-815-37814-3 : **£53.99**
Hb: 978-0-815-37815-0 : **£150**
eBook: 978-1-351-23287-6

* For full contents and more information, visit: www.routledge.com/9780815378143

9TH EDITION

Bird's Higher Engineering Mathematics



John Bird Defence College of Technical Training, UK

Higher Engineering Mathematics has helped thousands of students to succeed in their exams by developing problem-solving skills. It is supported by over 600 practical engineering examples and applications which relate theory to practice. The extensive and thorough topic coverage makes this a solid text for undergraduate and upper-level vocational courses. Its companion website provides resources for both students and lecturers, including lists of essential formulae, and full solutions to all 2,000 further questions contained in the 277 practice exercises; and illustrations and answers to revision tests for adopting course instructors.

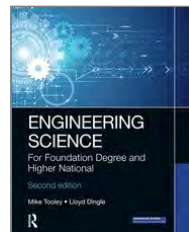
Routledge
March 2021 : 934pp
Pb: 978-0-367-64373-7 : **£47.99**
Hb: 978-0-367-64375-1 : **£110**
eBook: 978-1-003-12422-1

* For full contents and more information, visit: www.routledge.com/9780367643737

2ND EDITION

Engineering Science

For Foundation Degree and Higher National



Mike Tooley Brooklands College, UK, **Lloyd Dingle**

Engineering Science will help you understand the scientific principles involved in engineering. Focusing primarily upon core mechanical and electrical science topics, students enrolled on an Engineering Foundation degree and Higher National Engineering qualification will find this book an invaluable aid to their learning. The second edition features new chapters on 'Materials, Properties, Testing and Failure' and 'AC Network Analysis' complete with 54 totally new drawings.

Routledge
September 2020 : 528pp
Pb: 978-0-367-43272-0 : **£47.99**
Hb: 978-0-367-43273-7 : **£135**
eBook: 978-1-003-00224-6

* For full contents and more information, visit: www.routledge.com/9780367432720

7TH EDITION

Engineering Science



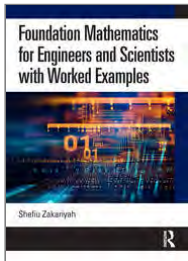
William Bolton

Engineering Science is a comprehensive textbook for all vocational and pre-degree courses at Level 2 and beginning Level 3. It goes beyond the core science to include applications in the real world and the mechanical and electrical principles needed for the majority of courses. It is well supported by numerous worked examples and problems, with answers. Main changes in this edition are arithmetic, algebraic and graphical methods in engineering (for sections A and B of the BTEC Level 2 unit), and a new chapter introducing the basics of calculus.

Routledge
November 2020 : 598pp
Pb: 978-0-367-55445-3 : **£45.99**
Hb: 978-0-367-55443-9 : **£110**
eBook: 978-1-003-09359-6

* For full contents and more information, visit: www.routledge.com/9780367554453

Foundation Mathematics for Engineers and Scientists with Worked Examples



Shefiu Zakariyah University of Derby, UK

This provides a comprehensive, step-by-step presentation of fundamental mathematical concepts for engineers, scientists, and general readers. It moves from simple to challenging areas, with tailored worked examples. Mathematical concepts are linked with appropriate engineering applications and are aligned with topics taught in major UK and overseas curriculums. It is written primarily for students at levels 3 and 4 (typically in the early stages of a degree in engineering or a related discipline) or for those undertaking foundation, access, Higher National Certificate (HND), International Foundation Year (IFY), and International Year One (IYO) courses with math modules.

Routledge
October 2024 : 610pp
Pb: 978-0-367-46289-5 : **£45.99**
Hb: 978-0-367-46290-1 : **£105**
eBook: 978-1-003-02792-8

* For full contents and more information, visit: www.routledge.com/9780367462895

A Mathematics Boot Camp for Science and Engineering Students



Ying Ma

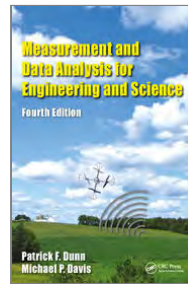
Many students have difficulty applying mathematical techniques to solve problems in science and engineering, even after completing Calculus I and II. Students who are beginning core coursework in their field of study often need additional guidance on practicing, learning, and improving their problem-solving skills for application. This book offers a solution to this issue and is specifically designed to address common errors in mathematical problem-solving for undergraduate science and engineering students. This concise and practical text offers "basic training" in mathematical problem-solving skills for undergraduate students in science and engineering disciplines.

CRC Press
March 2025 : 323pp
Pb: 978-1-032-44294-5 : **£53.99**
Hb: 978-1-032-44295-2 : **£120**

* For full contents and more information, visit: www.routledge.com/9781032442945

4TH EDITION

Measurement and Data Analysis for Engineering and Science



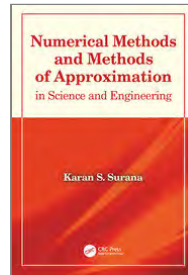
Patrick F. Dunn, Michael P. Davis

Measurement and Data Analysis for Engineering and Science, Fourth Edition, provides up-to-date coverage of experimentation methods in science and engineering. This edition adds five new "concept chapters" to introduce major areas of experimentation generally before the topics are treated in detail, to make the text more accessible for undergraduate students. These feature Measurement System Components, Assessing Measurement System Performance, Setting Signal Sampling Conditions, Analyzing Experimental Results, and Reporting Experimental Results. More practical examples, case studies, and a variety of homework problems have been added; and MATLAB and Simulink resources have been updated.

CRC Press
December 2017 : 588pp
Hb: 978-1-138-05086-0 : **£155**
eBook: 978-1-315-16858-6

* For full contents and more information, visit: www.routledge.com/9781138050860

Numerical Methods and Methods of Approximation in Science and Engineering



Karan S. Surana University of Kansas, USA

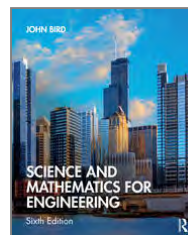
Numerical Methods and Methods of Approximation in Science and Engineering prepares students and other readers for advanced studies involving applied numerical and computational analysis. Focused on building a sound theoretical foundation, it uses a clear and simple approach backed by numerous worked examples to facilitate understanding of numerical methods and their application. Readers will learn to structure a sequence of operations into a program, using the programming language of their choice; this approach leads to a deeper understanding of the methods and their limitations. The text features highlighted examples, numerous problems, and a complete Solutions Manual for instructors.

CRC Press
November 2018 : 498pp
Hb: 978-0-367-13672-7 : **£145**
eBook: 978-0-429-02828-1

* For full contents and more information, visit: www.routledge.com/9780367136727

6TH EDITION

Science and Mathematics for Engineering



John Bird

Science and Mathematics for Engineering is an introductory textbook that assumes no prior background in engineering. This 6th edition covers the fundamental scientific knowledge that all trainee engineers must acquire in order to pass their examinations and has been brought fully in line with the compulsory science and mathematics units in the new engineering course specifications. A new chapter covers ways of generating electricity – the present and the future, an important topic in the subject going forward. This book includes over 580 worked examples, 1300 further problems and 425 multiple choice questions and is supported by a companion website.

Routledge
October 2019 : 576pp
Pb: 978-0-367-20474-7 : **£49.99**
Hb: 978-0-367-20475-4 : **£96.99**
eBook: 978-0-429-26170-1

* For full contents and more information, visit: www.routledge.com/9780367204747

Theory of Differential Equations in Engineering and Mechanics



Kam-tim Chau Hong Kong Polytechnic University

This volume gives comprehensive coverage of the essential differential equations students are likely to encounter in solving engineering and mechanics problems-- with its advanced companion text on applications. This covers a very broad range of theories related to solving differential equations, mathematical preliminaries, ODE (n-th order and system of 1st order ODE in matrix form), PDE (1st order, 2nd, and higher order including wave, diffusion, potential, biharmonic equations and more)--plus rarer material such as Green's function, integrodifferential equations, asymptotic expansion and perturbation, calculus of variations, variational principles, finite difference method.

CRC Press

September 2017 : 1000pp

Pb: 978-1-138-74813-2 : **£86.99**

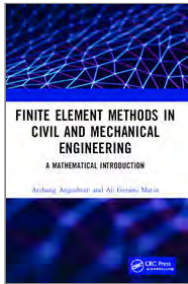
Hb: 978-1-498-76778-1 : **£155**

eBook: 978-1-315-16493-9

* For full contents and more information, visit: www.routledge.com/9781138748132

Finite Element Methods in Civil and Mechanical Engineering

A Mathematical Introduction



Arzhang Angoshtari George Washington University, USA, **Ali Gerami Matin** George Washington University, USA

The finite element method is widely employed for numerical simulations in engineering and science due to its efficiency. This concise introduction to the mathematical theory of the finite element method presents a selection of applications in civil and mechanical engineering such as beams and frames, Poisson's equation, heat transfer, advection-diffusion, linear elasticity, and incompressible fluids. Simple MATLAB codes and /or FENICS scripts of these examples can be downloaded from the book's companion website.

CRC Press

December 2020 : 176pp

Pb: 978-1-138-33517-2 : £45.99

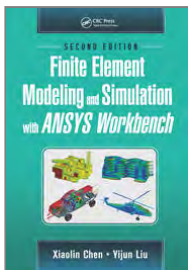
Hb: 978-1-138-33516-5 : £96.99

eBook: 978-0-429-44250-6

* For full contents and more information, visit: www.routledge.com/9781138335172

2ND EDITION

Finite Element Modeling and Simulation with ANSYS Workbench, Second Edition



Xiaolin Chen Washington State University, Vancouver, USA, **Yijun Liu** University of Cincinnati, Ohio, USA

Finite Element Modeling and Simulation with ANSYS Workbench 18, Second Edition, combines finite element theory with real-world practice. Providing an introduction to finite element modeling and analysis for those with no prior experience, and written by authors with a combined experience of 30 years teaching the subject, this text presents FEM formulations integrated with relevant hands-on instructions for using ANSYS Workbench 18. Incorporating the basic theories of FEA, simulation case studies, and the use of ANSYS Workbench in the modeling of engineering problems, the book also establishes the finite element method as a powerful numerical tool in engineering design and analysis.

CRC Press

September 2018 : 472pp

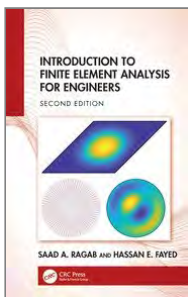
Hb: 978-1-138-48629-4 : £135

eBook: 978-1-351-04587-2

* For full contents and more information, visit: www.routledge.com/9781138486294

2ND EDITION

Introduction to Finite Element Analysis for Engineers



Saad A. Ragab Virginia Tech, USA, **Hassan E. Fayed** Virginia Tech, USA

The book includes MATLAB codes and aims to build a comprehensive understanding of FEA and its applications in modern engineering. New chapters include topics such as a system of partial differential equations in two or more independent variables, while chapter ten presents the finite element method for a nonlinear Mindlin-Reissner plate. The book demonstrates the power and versatility of FEA as a tool, with many examples of practical engineering problems. These problems range from those which can be solved without a computer, to those requiring MATLAB or Python. With applications in Civil, Mechanical, Aerospace and Biomedical Engineering, the textbook is ideal for graduate students.

CRC Press

August 2024 : 772pp

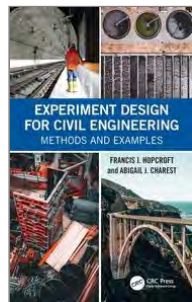
Hb: 978-1-032-34629-8 : £165

eBook: 978-1-003-32315-0

* For full contents and more information, visit: www.routledge.com/9781032346298

Experiment Design for Civil Engineering

Methods and Examples



Francis J. Hopcroft , Abigail Charest Wentworth
Institute of Technology, MA, USA

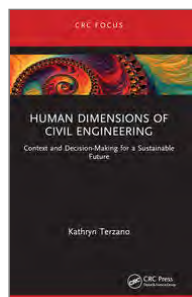
This textbook provides guidance to students and practicing civil engineers on how to design a civil engineering experiment that will produce useful and unassailable results. It includes a long list of complete experiment designs that students can perform in the laboratory at most universities and that many consulting engineers can do in corporate laboratories. These experiments also provide a way to evaluate a new design against an existing experiment to determine what information is most appropriate in each section and how to format the data for the most effective outcome.

CRC Press
March 2023 : 422pp
Hb: 978-1-032-38200-5 : **£91.99**
eBook: 978-1-003-34668-5

* For full contents and more information, visit: www.routledge.com/9781032382005

Human Dimensions of Civil Engineering

Context and Decision-Making for a Sustainable Future



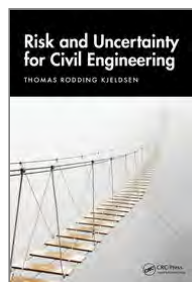
Kathryn Terzano University of Bristol, UK

Besides technical knowledge, civil engineers need to understand the socio-cultural contexts to be effective in their profession and to recognise their work has a direct impact on how sustainably we are able to live, which derives from our larger social, cultural, economic, historical, and political environment. With case studies, takeaway messages, and questions for further thought, this outlines the breadth of the factors, with an understanding of the contextual factors themselves, and insight into how they influence values. Each is explicitly linked to the UN's Sustainable Development Goals, showing how context matters for making engineering decisions for a sustainable future.

CRC Press
December 2024 : 102pp
Pb: 978-1-032-49114-1 : **£19.99**
Hb: 978-1-032-49070-0 : **£54.99**
eBook: 978-1-003-39219-4

* For full contents and more information, visit: www.routledge.com/9781032491141

Risk and Uncertainty for Civil Engineering



Thomas Rodding Kjeldsen

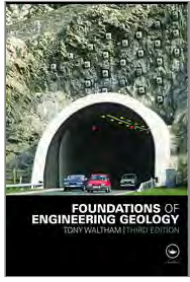
This textbook introduces the fundamental concepts of probability, risk and uncertainty, and shows their relevance in civil engineering projects. With an emphasis on applied probability and statistics, the book aids students in developing an intuitive understanding of the methods to apply in practice. Examples are provided of how spreadsheet tools such as Microsoft Excel can be used to solve problems involving probability, and practical approaches such as Monte Carlo simulations and decision trees are explained in a clear, accessible manner. The book serves as an introductory textbook for undergraduate students in civil engineering, as well as a useful primer for postgraduate students.

CRC Press
January 2025 : 220pp
Pb: 978-1-032-67940-2 : **£49.99**
Hb: 978-1-032-70032-8 : **£120**
eBook: 978-1-032-70037-3

* For full contents and more information, visit: www.routledge.com/9781032679402

3RD EDITION

Foundations of Engineering Geology



A.C. Waltham, Tony Waltham Retired from Nottingham Trent University, UK

"A useful source for a quick insight into the subject or a reminder for the practising engineer when difficult ground is encountered." Ground Engineering Now in full colour, the third edition of this well established textbook provides a readable and highly illustrated overview of the aspects of geology that are most significant to civil engineers. Each topic is presented as a double page spread with a mix of text and diagrams.

CRC Press

April 2009 : 104pp

Pb: 978-0-415-46960-9 : **£27.99**

eBook: 978-1-315-27348-8

* For full contents and more information, visit: www.routledge.com/9780415469609

5TH EDITION

Rock Slope Engineering

Civil Applications, Fifth Edition



Duncan C. Wyllie Wyllie & Norrish Rock Engineers Ltd., Vancouver, Canada

Rock Slope Engineering covers the investigation, design, excavation and remediation of man-made rock cuts and natural slopes, primarily for civil engineering. It presents design information on structural geology, shear strength of rock and ground water, including weathered rock; slope design methods for planar, wedge, circular and toppling failures, including seismic design and numerical analysis; and blasting, slope stabilization, movement monitoring and engineering applications. Heavily updated and now covering weathered rock, remote sensing, seismic design, and numerical analysis using FLAC and UDEC – the standard reference for practitioners and students in geological engineering.

CRC Press

September 2017 : 620pp

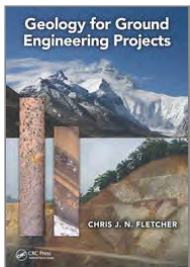
Pb: 978-1-498-78627-0 : **£79.99**

Hb: 978-1-138-05784-5 : **£195**

eBook: 978-1-315-15403-9

* For full contents and more information, visit: www.routledge.com/9781498786270

Geology for Ground Engineering Projects



Chris J. N. Fletcher Geological Consultant, United Kingdom

This book provides a presentation of geological phenomena found all over the world, focusing on aspects which are critical in engineering projects. It describes rocks in relation to the environment of their formation, highlighting the variation in composition, distribution and geotechnical properties that can be expected within a variety of rock associations. It includes case studies, is well-illustrated, and reference is given to satellite images as found on GoogleEarth.

CRC Press

May 2016 : 312pp

Pb: 978-1-466-58549-2 : **£71.99**

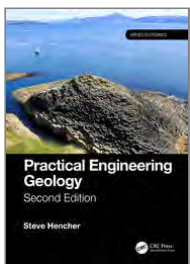
Hb: 978-1-138-46576-3 : **£185**

eBook: 978-1-315-38046-9

* For full contents and more information, visit: www.routledge.com/9781466585492

2ND EDITION

Practical Engineering Geology



Steve Hencher Hencher Associates, UK

Series: Applied Geotechnics

This book provides an introduction to the way projects are managed, designed, and constructed, and how the engineering geologist can contribute to cost-effective and safe project achievement. The need for a holistic view of geological materials, from soil to rock, and of geological history is emphasised. This second edition includes a new chapter on environmental issues covering hydrogeology, considerations of climate change, earthquakes, and more. The book will support practising engineering geologists and geotechnical engineers, as well as MSc level students of engineering geology and other geotechnical subjects.

CRC Press

April 2024 : 566pp

Pb: 978-1-032-39224-0 : **£81.99**

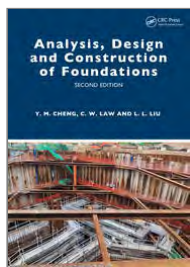
Hb: 978-1-032-39225-7 : **£200**

eBook: 978-1-003-34889-4

* For full contents and more information, visit: www.routledge.com/9781032392240

2ND EDITION

Analysis, Design and Construction of Foundations



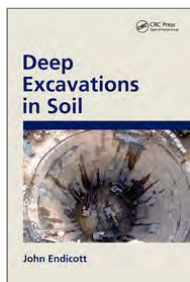
Yung Ming Cheng Hong Kong Polytechnic University, Hong Kong, **Chi Wai Law** Hong Kong, **Leilei Liu** Central South University, China

This book covers the key concepts in the analysis and design of foundation systems, balancing theory with engineering practice. This second edition is extensively revised and developed to include a new chapter on numerical methods in geotechnical engineering, as well as a large number of new construction drawings, project photos, and construction method statements from existing projects. It is ideal for senior undergraduates and graduate students, academics, and consulting geotechnical engineers.

CRC Press
May 2024 : 712pp
Hb: 978-1-032-65056-2 : £165
eBook: 978-1-032-65058-6

* For full contents and more information, visit: www.routledge.com/9781032650562

Deep Excavations in Soil



John Endicott AECOM, Hong Kong

The book describes the theory and current practices for design of earth lateral support for deep excavations in soil. It brings together the principles of soil mechanics, design methods, numerical methods, and more sophisticated computer modelling, along with a strong emphasis on construction practice with monitoring, safety and temporary works. It is heavily illustrated with practical applications and case histories and is written for practising geotechnical, civil and structural engineers, and especially for senior and MSc students.

CRC Press
April 2022 : 258pp
Pb: 978-0-367-50738-1 : £42.99
Hb: 978-0-367-31360-9 : £100
eBook: 978-0-429-31655-5

* For full contents and more information, visit: www.routledge.com/9780367507381

Fundamentals of Deep Excavations



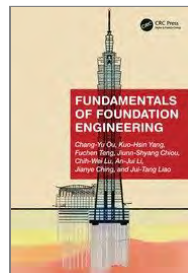
Chang-Yu Ou National Taiwan University of Science and Technology, Taipei, Taiwan

This book is aimed at both theoretical explication and practical application. From basic to advanced, this book attempts to achieve theoretical rigorous and consistency. Each chapter is followed by a problem set so that the book can be readily taught at senior undergraduate and graduate levels. The solution to the problems at the end of the chapters can be found on the author's website. This book is suitable for teachers who teach foundation engineering and/or deep excavation courses and engineers who are engaged in excavation analysis and design.

CRC Press
October 2021 : 486pp
Pb: 978-0-367-42608-8 : £68.99
Hb: 978-0-367-42601-9 : £175
eBook: 978-0-367-85385-3

* For full contents and more information, visit: www.routledge.com/9780367426088

Fundamentals of Foundation Engineering



Chang-Yu Ou National Taiwan University of Science and Technology, Taiwan, **Kuo-Hsin Yang** National Taiwan University (NTU), Taiwan, **Fuchen Teng** National Taiwan University of Science and Technology, Taiwan, **Jiunn-Shyang Chiou** National Taiwan University, Taiwan, **Chih-Wei Lu** National Taiwan University of Science and Technology, Taiwan, **An-Jui Li** National Taiwan University of Science and Technology, Taiwan, **Jianye Ching** National Taiwan University, Taiwan, **Jui-Tang Liao** National Taiwan University of Science and Technology, Taiwan

Fundamentals of Foundation Engineering is a basic course book for civil engineering students. This book introduces the basic design of building foundation, including site investigation, design for various types of building foundation, retaining wall, etc. The book will provide basic knowledge of foundation engineering. The book is simple but understandable for students of foundation engineering. If students fully understand the contents, they should be capable of doing basic design of foundation. The book's primary audience will be undergraduate students, but it will also be of interest to practicing engineers.

CRC Press
September 2023 : 436pp
Pb: 978-1-032-39497-8 : £49.99
Hb: 978-1-032-39498-5 : £130
eBook: 978-1-003-35001-9

* For full contents and more information, visit: www.routledge.com/9781032394978

Tall Building Foundation Design



Harry G. Poulos Coffey Geotechnics, Sydney, Australia

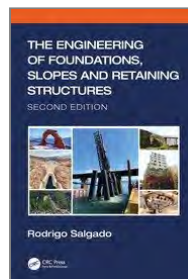
This comprehensive guide to the design of foundations for tall buildings outlines various foundation options followed by the general principles of foundation design applied to tall buildings. It differentiates the preliminary, detailed and final design stages. Methods of assessment of the geotechnical design parameters are emphasised throughout. Detailed treatment is given to foundation design for various conditions, including ultimate stability, serviceability, ground movements, dynamic loadings and seismic loadings; and to basement wall design. The last part of the book deals with pile load testing and foundation performance measurement, and provides a number of case histories.

CRC Press
July 2017 : 560pp
Pb: 978-1-138-74803-3 : £58.99
Hb: 978-1-498-79607-1 : £165
eBook: 978-1-315-15607-1

* For full contents and more information, visit: www.routledge.com/9781138748033

2ND EDITION

The Engineering of Foundations, Slopes and Retaining Structures



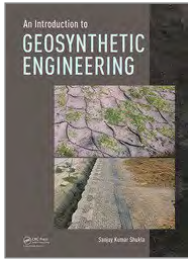
Rodrigo Salgado Purdue University, USA

This new edition covers the construction, analysis, and design of shallow and deep foundations, as well as retaining structures and slopes. It includes complete coverage of soil mechanics and site investigations. It contains illustrations, applications, and hands-on examples that continue across chapters. The new edition is overhauled: basic soil mechanics, the LRFD approach to foundations, slopes and retaining structures, bearing capacity of shallow foundations and settlement calculation, new methods for axially and laterally loaded piles, and computational stability calculations. For advanced undergraduate and graduate students, and beyond.

CRC Press
June 2022 : 994pp
Pb: 978-1-138-19764-0 : £61.99
Hb: 978-1-138-19763-3 : £150
eBook: 978-1-315-21336-1

* For full contents and more information, visit: www.routledge.com/9781138197640

An Introduction to Geosynthetic Engineering



Sanjay Kumar Shukla Edith Cowan University, Western Australia

Civil engineers are growing increasingly interested in geosynthetics and in understanding their correct use. Significant advances have now been made in the use of geosynthetics in civil engineering applications as well as in the areas of aquaculture, agriculture and mining engineering. This concise introductory textbook on geosynthetics deals with the basic concepts of the subject, especially for meeting the requirements of senior undergraduate/graduate students as well as of practising engineers who have not been exposed to geosynthetics thus far. It includes recently developed fundamental concepts and new applications covering the use of polymer and other fibres in soil improvement.

CRC Press

June 2016 : 472pp

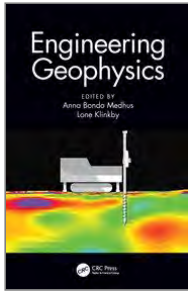
Pb: 978-1-138-02774-9 : **£71.99**

Hb: 978-1-138-43021-1 : **£180**

eBook: 978-0-429-25540-3

* For full contents and more information, visit: www.routledge.com/9781138027749

Engineering Geophysics



Edited by **Anna Bondo Medhus** Energinet, Denmark,
Lone Klinkby COWI, Denmark

The book is intended mainly for geotechnical engineers and geologists, but also for geophysicists or managers in need of an overview or brush up on geophysical methods and their practical applications. In addition, it can be used by educational institutions in courses both for geotechnical engineers and geologists.

CRC Press

November 2022 : 324pp

Hb: 978-1-032-02688-6 : **£150**

eBook: 978-1-003-18467-6

* For full contents and more information, visit: www.routledge.com/9781032026886

Geotechnical Problems and Solutions

A Practical Perspective



Buddhima Indraratna University of Wollongong,
Australia, **Ana Heitor**, **Jayan Vinod**

This book covers problems and solutions of a wide range of geotechnical topics. It presents a unique collection of step by step solutions from basic to more complex problems in various topics of geotechnical engineering, including fundamental topics such as effective stress, permeability, elastic deformation, shear strength and critical state together with more applied topics such as retaining structures and dams, excavation and tunnels, pavement infrastructure, unsaturated soil mechanics, marine works, ground monitoring. This book aims to provide students (undergraduates and postgraduates) and practitioners alike a reference guide on how to solve typical geotechnical problems.

CRC Press

September 2021 : 254pp

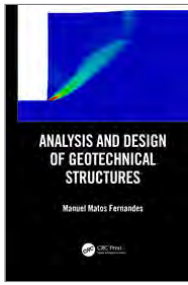
Pb: 978-0-367-54605-2 : **£29.99**

Hb: 978-1-138-48944-8 : **£84.99**

eBook: 978-1-351-03734-1

* For full contents and more information, visit: www.routledge.com/9780367546052

Analysis and Design of Geotechnical Structures



Manuel Matos Fernandes University of Porto, Portugal

Analysis and Design of Geotechnical Structures bridges the gap between basic soil mechanics and geotechnical engineering practice to particularly suit Masters students. It presents the theory and methods underpinning geotechnical design and also serves as a manual for practitioners. With solutions manual. Basic principles and analysis are given with design practice to Eurocode 7, with a series of topics including: overall stability of soil masses, earth pressure, spread foundations, consolidation theory and delayed settlements in clayey soils, earth-retaining walls, natural slopes, and compacted fill and earthworks. Along with geotechnical characterization, with a focus on field tests.

CRC Press
August 2020 : 754pp
Pb: 978-0-367-02663-9 : **£54.99**
Hb: 978-0-367-02662-2 : **£150**
eBook: 978-0-429-39845-2

* For full contents and more information, visit: www.routledge.com/9780367026639

Fundamentals of Ground Engineering



John Atkinson City University, United Kingdom

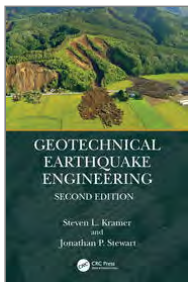
This book contains brief summaries of the key principles, theories, definitions, and analyses of geotechnics. It sets out the basic principles and theories of soil mechanics and the common analyses for slopes, foundations, and walls and includes sections on ground modeling and selection of design parameters. It does not go into detailed explanations and justifications and it does not derive formulae and analyses but it gives extensive references to the longer standard texts which readers can consult for detailed explanations.

CRC Press
May 2014 : 242pp
Pb: 978-1-482-20617-3 : **£29.99**
Hb: 978-1-138-43022-8 : **£185**
eBook: 978-0-429-17095-9

* For full contents and more information, visit: www.routledge.com/9781482206173

2ND EDITION

Geotechnical Earthquake Engineering



Steven L. Kramer University of Washington, USA,
Jonathan P. Stewart University of California Los Angeles, USA

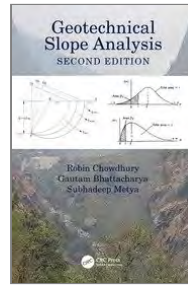
This fully-updated new edition provides an introduction to geotechnical earthquake engineering to first-time readers (typically first-year graduate students) with a level of detail that will be useful to more advanced students, as well as researchers and practitioners. It covers the topic of geotechnical earthquake engineering beginning with an introduction to seismology and earthquake ground motions. It also includes hazard analysis and performance-based earthquake engineering design and dynamic soil properties. These topics are followed by site response and its analysis and soil-structure interaction.

CRC Press
November 2024 : 1060pp
Hb: 978-1-032-84274-5 : **£105**
eBook: 978-1-003-51201-1

* For full contents and more information, visit: www.routledge.com/9781032842745

2ND EDITION

Geotechnical Slope Analysis



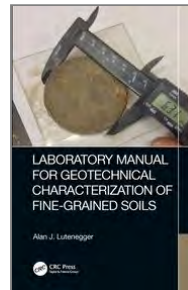
Robin Chowdhury University of Wollongong, Australia,
Gautam Bhattacharya Indian Institute of Engineering Science and Technology, Shibpur, India, **Subhadeep Metya** National Institute of Technology, Jamshedpur, India

This SECOND EDITION OF GEOTECHNICAL SLOPE ANALYSIS is an updated version of the original scholarly book. In this Edition concepts and applications have been thoroughly revised. In particular, the 'Initial Stress Approach' has been extended to 2D problems in a more rigorous manner. Additional solved numerical examples have been added in several chapters. More importantly, the meaning of the results is explored through interpretation.

CRC Press
November 2023 : 822pp
Hb: 978-1-138-00011-7 : **£130**
eBook: 978-0-203-38627-9

* For full contents and more information, visit: www.routledge.com/9781138000117

Laboratory Manual for Geotechnical Characterization of Fine-Grained Soils



Alan J. Lutenecker University of Massachusetts, Amherst, USA

Most laboratory testing of fine-grained soils involves evaluation of basic soil behaviour. Generally little attention is given to characterizing the soil in more detail, by identifying subtle changes in conditions and vertical variations in the soil and which help explain unusual behaviour. This manual covers characterization tests such as determination of carbonate content, specific surface area, cation exchange capacity, and pore fluid salinity which determine soil composition, and behaviour tests such as the Atterberg Limits tests that demonstrate how the fines fraction of a soil reacts when mixed with water or the Linear Shrinkage test.

CRC Press
December 2024 : 330pp
Pb: 978-1-032-20346-1 : **£49.99**
Hb: 978-1-032-20345-4 : **£81.99**
eBook: 978-1-003-26328-9

* For full contents and more information, visit: www.routledge.com/9781032203461

Offshore Geotechnical Engineering



Mark Randolph University of Western Australia, Perth, Australia
Susan Gourvenec University of Western Australia, Perth, Australia

A guide to the unique aspects of geotechnical engineering in an offshore environment. Serves as a framework for undergraduate and postgraduate courses, and will appeal to professional engineers specialising in the offshore industry. selected contents: 1.Introduction 2.The Offshore Environment 3.Offshore Site Investigation 4.Soil Behaviour 5.Piled Foundations 6. Shallow Foundations 7.Anchoring Systems 8.Mobile Drilling Rigs 9.Pipeline and Riser Geotechnics 10.Geohazards 11.Design and Reliability

CRC Press
April 2017 : 560pp
Pb: 978-1-138-07472-9 : **£71.99**
Hb: 978-0-415-47744-4 : **£210**
eBook: 978-1-315-27247-4

* For full contents and more information, visit: www.routledge.com/9781138074729

Geotechnical Modelling



David Muir Wood University of Bristol, UK

Series: Applied Geotechnics

This book enables practising engineers to make informed decisions concerning soil model boundary conditions and the choice of elements in Finite Element models. Ideal for MSc and MEng students and for use on CPD courses.

CRC Press

July 2004 : 504pp

Pb: 978-0-419-23730-3 : **£61.99**

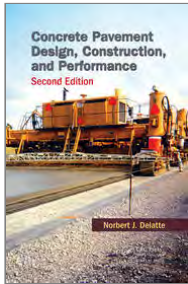
Hb: 978-0-415-34304-6 : **£220**

eBook: 978-1-315-27355-6

* For full contents and more information, visit: www.routledge.com/9780419237303

2ND EDITION

Concrete Pavement Design, Construction, and Performance



Norbert J. Delatte Cleveland State University, Ohio, USA

This book addresses the design, construction, and performance of concrete pavements. It sets out best practices for the construction of economical, long-life concrete pavement by engineers in the public and private sectors. It also outlines first alternatives for concrete pavement solutions, and identifies their performance and behavior parameters. The text addresses materials selection and mix design as well as pavement construction. It emphasizes the coherence of these three elements: materials, design, and construction, and covers highways, airport, industrial, and light-duty pavements.

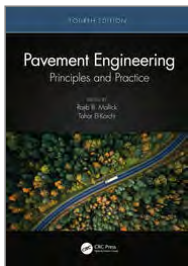
CRC Press
March 2017 : 448pp
Pb: 978-1-138-07354-8 : **£58.99**
Hb: 978-1-466-57510-3 : **£155**
eBook: 978-0-429-10178-6

* For full contents and more information, visit: www.routledge.com/9781138073548

4TH EDITION

Pavement Engineering

Principles and Practice



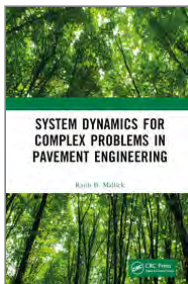
Edited by **Rajib B. Mallick** University of Texas at El Paso, USA, **Tahar El-Korchi** Worcester Polytechnic Institute, Massachusetts, USA

Pavement Engineering: Principles and Practice examines a wide range of topics in asphalt and concrete pavements, from soil preparation and structural design to life cycle costing and economic analysis. This updated Fourth Edition covers all concepts and practices of pavement engineering in terms of materials, design, and construction methods for both flexible and rigid pavements, and includes the latest developments in recycling, sustainable pavement materials, and resilient infrastructure.

CRC Press
December 2022 : 818pp
Hb: 978-0-367-75807-3 : **£125**
eBook: 978-1-003-35349-2

* For full contents and more information, visit: www.routledge.com/9780367758073

System Dynamics for Complex Problems in Pavement Engineering



Rajib Mallick University of Texas El Paso, United States

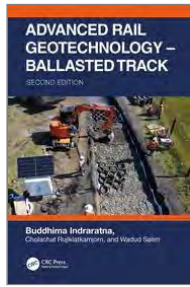
Most, if not all, civil engineering problems are those involving interdependency, and hence segmented approaches of learning one individual topic at a time makes it difficult for students to learn, understand, and apply rational concepts for the design, construction, and maintenance of larger infrastructure components. System Dynamics for Complex Problems in Pavement Engineering presents an introduction to a systems approach to help readers evolve and develop their capabilities of learning, communicating, and researching through system dynamics modeling and experimentation.

CRC Press
March 2023 : 156pp
Hb: 978-1-032-38290-6 : **£76.99**
eBook: 978-1-003-34559-6

* For full contents and more information, visit: www.routledge.com/9781032382906

2ND EDITION

Advanced Rail Geotechnology – Ballasted Track



Buddhima Indraratna University of Technology Sydney, Australia, **Chalachat Rujikiatkamjorn**, **Wadud Salim** University of Wollongong, Australia

In this book, the authors present the detailed information on the strength, deformation, and degradation aspects of fresh and recycled ballast under monotonic, cyclic and impact loading using innovative geotechnical testing devices. A constitutive model for ballast incorporating particle breakage is presented representing a more realistic stress-strain response. Revised ballast gradation is described to provide greater track resiliency and extended longevity. The book also provides detailed description of geosynthetics for substructure improvement considering track deterioration caused by particle degradation, fouling and impeded drainage.

CRC Press

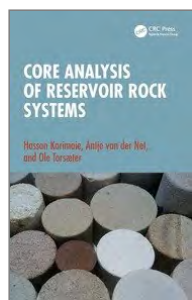
August 2023 : 466pp

Hb: 978-1-032-24491-4 : £205

eBook: 978-1-003-27897-9

* For full contents and more information, visit: www.routledge.com/9781032244914

Core Analysis of Reservoir Rock Systems



Hassan Karimaie, Antje van der Net, Ole Torsæter

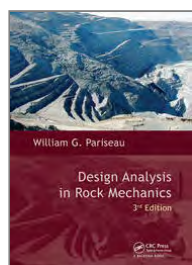
Core analysis is an important source for quantitative data on reservoir properties. While there are several books on core analysis for practitioners in these fields, this book fills a gap for students and introduces the basic laboratory equipment and procedures used in core analysis and the theoretical aspects of the parameters. It offers detailed instructions on experimental execution for core analysis for persons with limited to no experience starting in the laboratory. This concise and practical workbook is written for advanced students and early career practitioners in petroleum, chemical, and geotechnical engineering.

CRC Press
December 2024 : 408pp
Hb: 978-1-032-46618-7 : **£59.99**
eBook: 978-1-003-38258-4

* For full contents and more information, visit: www.routledge.com/9781032466187

3RD EDITION

Design Analysis in Rock Mechanics



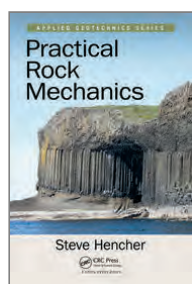
William G. Pariseau University of Utah, Salt Lake City, USA

This third edition of Design Analysis in Rock Mechanics, a textbook for courses in applied rock mechanics, treats the basics of rock mechanics design as used in surface and underground excavations. Exercises and examples familiarize the reader with solving practical problems in rock mechanics through various design analysis techniques and their applications. Appendices provide supplementary information about rock, joint, and composite properties, rock mass classification schemes, useful formulas, and an extensive literature list. The new edition will contain an entirely new chapter on foundations and bearing capacity of jointed rock, and will be fully updated throughout.

CRC Press
September 2023 : 730pp
Pb: 978-1-032-65239-9 : **£49.99**
Hb: 978-1-138-02958-3 : **£91.99**
eBook: 978-1-315-20615-8

* For full contents and more information, visit: www.routledge.com/9781032652399

Practical Rock Mechanics



Steve Hencher

Series: Applied Geotechnics

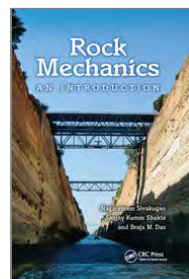
This text provides an introduction for graduate students, as well as engineering geologists and geotechnical engineers. It is also relevant to those working in nuclear waste disposal and oil and gas production. The early chapters deal with fundamental mechanics and physics as they apply to rock masses. It provides an introduction to the geological processes that give rise to the nature of rock masses and control their mechanical behavior. It discusses stresses in the earth's crust and explains methods of measurement and prediction.

CRC Press
September 2015 : 378pp
Pb: 978-1-482-21726-1 : **£71.99**
Hb: 978-1-138-43039-6 : **£185**
eBook: 978-0-429-06831-7

* For full contents and more information, visit: www.routledge.com/9781482217261

Rock Mechanics

An Introduction



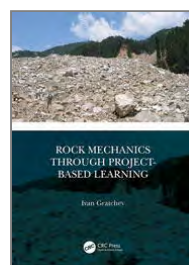
Nagaratnam Sivakugan, Sanjay Kumar Shukla, Braja M. Das

An understanding of rock mechanics is fundamental to a number of civil engineering applications, including tunneling, foundation engineering, slope stabilization, and mining. Covering the principles of rock mechanics in a simple, accessible manner for those with little or no background, this book is the ideal introduction to the subject. Outlining the basis of rock mechanics and the relevant aspects of engineering geology, this text is an excellent starting point for advanced undergraduates and graduate students focusing on geotechnical, geological, and civil engineering.

CRC Press
December 2019 : 256pp
Pb: 978-0-367-86675-4 : **£45.99**
Hb: 978-0-415-80923-8 : **£84.99**
eBook: 978-0-429-21719-7

* For full contents and more information, visit: www.routledge.com/9780367866754

Rock Mechanics Through Project-Based Learning



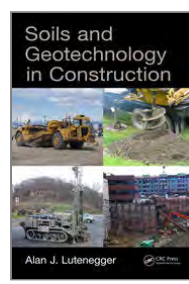
Ivan Gratchev Griffith University, Southport, Australia

Traditional textbooks on rock mechanics often fail to engage students in the learning process as such books are packed with theory that students are unlikely to use in their future employment. In contrast, this book delivers the fundamentals of rock mechanics using a more practical and engaging project-based approach which simulates what practitioners do in their real-life practice. This book will be of great help to those who would like to learn practical aspects of rock mechanics and better understand how to apply theory to solve real engineering problems.

CRC Press
November 2019 : 162pp
Pb: 978-0-367-23219-1 : **£58.99**
Hb: 978-0-367-23203-0 : **£150**
eBook: 978-0-429-27883-9

* For full contents and more information, visit: www.routledge.com/9780367232191

Soils and Geotechnical Engineering in Construction



Alan J. Lutenecker University of Massachusetts, Amherst, USA

This book covers the field of applied geotechnical engineering related to all aspects of construction in ground, including compacted fill, excavations, ground improvement, foundations, earth retaining systems and geotechnical site characterization. It suits the first year of a graduate course on ground improvement and geoconstruction and will suit practicing engineers, both consultants and contractors. It covers the identification of problematic soils and appropriate mitigation measures, and the inspection of ground construction work. It combines the technical and the practical in applied geotechnical engineering.

CRC Press
April 2019 : 505pp
Pb: 978-1-498-74101-9 : **£105**
Hb: 978-1-138-55110-7 : **£175**
eBook: 978-1-315-38064-3

* For full contents and more information, visit: www.routledge.com/9781498741019

5TH EDITION

Advanced Soil Mechanics, Fifth Edition



Braja M. Das

The fifth edition of this established textbook offers a well-tailored resource for graduate students in geotechnical engineering. It bridges the gap between undergraduate basics and leading-edge work at graduate level. New material is included on consolidation, shear strength of soils, and both elastic and consolidation settlements of shallow foundations to accommodate modern developments. This text can be followed by advanced courses dedicated to mechanical and chemical stabilization of soils, geo-environmental engineering, critical state soil mechanics, geosynthetics, rock mechanics, and earthquake engineering. It can also be used as a refer

CRC Press

December 2020 : 734pp

Pb: 978-0-367-73010-9 : **£44.99**

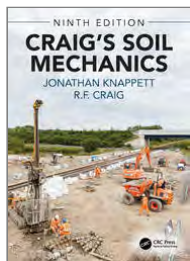
Hb: 978-0-815-37913-3 : **£130**

eBook: 978-1-351-21518-3

* For full contents and more information, visit: www.routledge.com/9780367730109

9TH EDITION

Craig's Soil Mechanics



Jonathan Knappett University of Dundee, UK, **R.F. Craig** University of Dundee, UK

Craig's Soil Mechanics continues to evolve and remain the definitive text for civil engineering students worldwide. It covers fundamental soil mechanics and its application in applied geotechnical engineering from A to Z and at the right depth for an undergraduate civil engineer, with sufficient extension material for supporting MSc level courses, and with practical examples and digital tools to make it a useful reference work for practising engineers. This new edition now includes restructured chapters and new material, as well as additional worked examples and end-of-chapter problems.

CRC Press

October 2019 : 654pp

Pb: 978-1-138-07006-6 : **£39.99**

Hb: 978-1-138-07005-9 : **£120**

eBook: 978-1-351-05274-0

* For full contents and more information, visit: www.routledge.com/9781138070066

Design of Shallow and Deep Foundations



Roger Frank, Fahd Cuira, Sébastien Burlon

This practical guide to foundations design introduces the concept of limit state calculations, before focusing on shallow and deep foundations. It also presents various elements of ground-structure interaction that are common to all types of foundations, such as allowable displacements of structures, and ground-structure couplings. It is particularly for practising engineers in design offices and contractors, as well as students. Though its focus is generally on French practice, it is more widely applicable to design based on or generally in line with Eurocode7 and with references to BS ENs.

CRC Press

August 2021 : 232pp

Pb: 978-1-032-01688-7 : **£45.99**

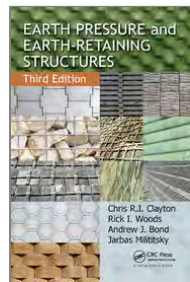
Hb: 978-1-032-01687-0 : **£86.99**

eBook: 978-1-003-17959-7

* For full contents and more information, visit: www.routledge.com/9781032016887

3RD EDITION

Earth Pressure and Earth-Retaining Structures



Chris R.I. Clayton University of Southampton, UK, **Rick I. Woods** University of Surrey, UK, **Andrew J. Bond** Geocentrix Ltd, UK, **Jarbas Milititsky** Engineering Consultant, Brazil

This classic work book has long been recognized as a comprehensive introduction to the mechanisms of earth pressure, and a thorough guide to the design requirements for retaining structures. It has now been entirely restructured and revised, providing significantly more support to help non-specialists understand the geotechnical issues and giving background to uncertainty of parameters and partial factor issues that underpin recent codes such as Eurocode 7. It comprehensively covers the principles of the geotechnical design of gravity walls, embedded walls, and composite structures.

CRC Press

May 2014 : 608pp

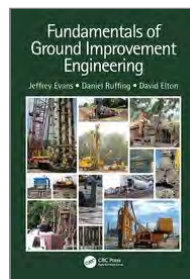
Pb: 978-1-466-55211-1 : **£58.99**

Hb: 978-1-138-42729-7 : **£180**

eBook: 978-0-429-13090-8

* For full contents and more information, visit: www.routledge.com/9781466552111

Fundamentals of Ground Improvement Engineering



Jeffrey Evans Bucknell University, USA, **Daniel Ruffing**, **David Elton**

Fundamentals of Ground Improvement Engineering addresses the most effective and latest cutting-edge techniques for ground improvement. Key ground improvement methods are introduced that provide readers with a thorough understanding of the theory, design principles, and construction approaches that underpin each method. Major topics are compaction, permeation grouting, vibratory methods, soil mixing, stabilization and solidification, cutoff walls, dewatering, consolidation, geosynthetics, jet grouting, ground freezing, compaction grouting, and earth retention.

CRC Press

September 2021 : 430pp

Pb: 978-0-415-69515-2 : **£49.99**

Hb: 978-0-367-41960-8 : **£145**

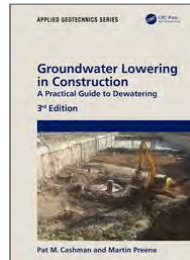
eBook: 978-0-367-81699-5

* For full contents and more information, visit: www.routledge.com/9780415695152

3RD EDITION

Groundwater Lowering in Construction

A Practical Guide to Dewatering



Pat Cashman, Martin Preene Golder Associates, United Kingdom

Series: Applied Geotechnics

This book covers the design, construction and environmental management of groundwater control and dewatering works for construction projects. It gives broad-based dewatering advice and guidance for practising engineers, geologists and hydrogeologists, and Masters level students. The new edition covers the principles of groundwater flow in more detail, and presents a greater range of design methods and issues. Dewatering methods and practical issues are covered in some depth, including new chapters on monitoring, maintenance and decommissioning of dewatering systems. A new chapter of case studies is also added.

CRC Press

March 2022 : 956pp

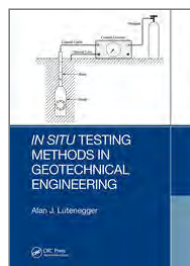
Pb: 978-0-367-50475-5 : **£76.99**

Hb: 978-0-367-50474-8 : **£155**

eBook: 978-1-003-05002-5

* For full contents and more information, visit: www.routledge.com/9780367504755

In Situ Testing Methods in Geotechnical Engineering



Alan J. Lutenecker University of Massachusetts, USA

In situ testing methods are commonly used by geotechnical engineers to determine subsurface stratigraphy and soil characteristics for design. This book presents the latest technology on the correct methods for performing a variety of in situ tests and the correct methods of interpreting the results obtained from the tests. Uniquely, it covers both common/routine tests and also describes several tests that are not covered in other available books. It also covers application of in situ tests for design of shallow and deep foundations.

CRC Press
December 2022 : 370pp
Pb: 978-0-367-75874-5 : **£49.99**
Hb: 978-0-367-43241-6 : **£135**
eBook: 978-1-003-00201-7

* For full contents and more information, visit: www.routledge.com/9780367758745

Laboratory Tests for Unsaturated Soils



Eng-Choon Leong Nanyang Technological University, Singapore, **Martin Wijaya** Parahyangan Catholic University, Indonesia

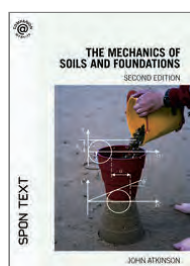
Testing of unsaturated soils is particularly difficult and time-consuming, and guidance for engineers is minimal. This is the first book to systematically collate the various laboratory tests. It covers general background and theory along with test procedures and the interpretation of test results. Test procedures are broken down into simple stages, and the pitfalls are described. Test data and calculation methods are provided along with several numerical examples. It serves for students and researchers who are new to the field as well as for established professionals.

CRC Press
February 2023 : 436pp
Pb: 978-0-367-86058-5 : **£72.99**
Hb: 978-1-138-09382-9 : **£130**
eBook: 978-1-315-10514-7

* For full contents and more information, visit: www.routledge.com/9780367860585

2ND EDITION

The Mechanics of Soils and Foundations



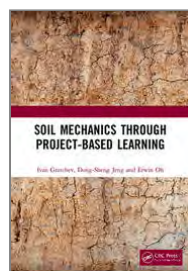
John Atkinson City University, London, UK

John Atkinson's established textbook is ideal for undergraduates of geotechnical engineering for civil engineers. It sets out the basic theories of soil mechanics in a clear and straightforward way which combines both classical and critical state theories, and delivers a good grounding which will last right through into a career as a geotechnical engineer. The subject is broken down into discrete topics which are presented in a series of short, focused chapters with clear and accessible text that develops from the purely theoretical to practical applications. Soil behaviour is described by relatively simple equations with clear parameters while a number of worked examples and simple experimental demonstrations illustrate the principles involved and aid reader understanding.

CRC Press
May 2007 : 474pp
Pb: 978-0-415-36256-6 : **£47.99**
Hb: 978-0-415-36255-9 : **£175**
eBook: 978-1-315-27354-9

* For full contents and more information, visit: www.routledge.com/9780415362566

Soil Mechanics Through Project-Based Learning



Ivan Gratchev Griffith University, Southport, Australia, **Dong-Sheng Jeng** Griffith University, Southport, Australia, **Erwin Oh** Griffith School of Engineering Gold Coast Campus, Griffith University, Southport, Australia

This book covers all significant topics in soil mechanics and slope stability analysis. Each section is followed by several review questions and the reader will be offered to undertake a project-based assignment to scaffold their learning. These consist of real field and laboratory data including boreholes and test results so that the reader can experience what geotechnical engineering practice is like, identify with it personally, and integrate it into their own knowledge base.

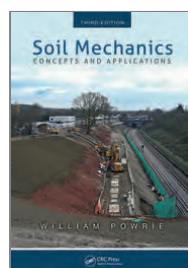
CRC Press
November 2018 : 176pp
Pb: 978-1-138-50007-5 : **£54.99**
Hb: 978-1-138-60573-2 : **£145**
eBook: 978-0-429-50778-6

* For full contents and more information, visit: www.routledge.com/9781138500075

3RD EDITION

Soil Mechanics

Concepts and Applications, Third Edition



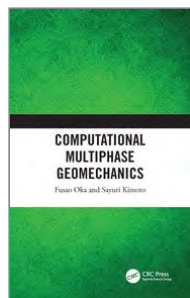
William Powrie University of Southampton, United Kingdom

This is a rigorous and up-to-date textbook covering the soil mechanics and geotechnical engineering topics typically included in a university course. It encourages students to develop an understanding of the fundamentals of soil mechanics, by building a robust and adaptable framework of ideas to support and accommodate the analytical tools needed to solve the more complex problems that confront the practicing geotechnical engineer.

CRC Press
December 2013 : 682pp
Pb: 978-1-466-55209-8 : **£61.99**
eBook: 978-1-315-27528-4

* For full contents and more information, visit: www.routledge.com/9781466552098

Computational Multiphase Geomechanics



Fusao Oka LIQCA liquefaction Geo Research Institute, Japan, **Sayuri Kimoto** Kyoto University, Japan

Numerical methods underpin computational geotechnics, and especially multi-phase geomaterials. This book covers basic concepts of the air-water-soil mixture, cyclic constitutive models, anisotropic models, noncoaxial models, gradient models, compaction bands (a form of volumetric strain localization and strain localization under dynamic conditions), and instability of unsaturated soils. It also includes applications of computational modeling to large-scale excavation of ground, liquefaction analysis of levees during earthquakes, methane hydrate development, and the shielding of contamination using bentonite. The erosion of embankments due to the seepage flow is also presented.

CRC Press

January 2024 : 354pp

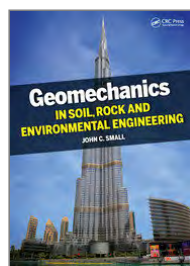
Pb: 978-1-032-05957-0 : **£77.99**

Hb: 978-1-032-05955-6 : **£135**

eBook: 978-1-003-20003-1

* For full contents and more information, visit: www.routledge.com/9781032059570

Geomechanics in Soil, Rock, and Environmental Engineering



John Small The University of Sydney, New South Wales, Australia

Modern practice in geomechanics involves the use of numerical modelling and the internet. These numerical techniques can be applied not only to soil mechanics, but also to rock mechanics and environmental engineering. This textbook covers modern analysis of shallow foundations, deep foundations, retaining structures and excavation and tunneling; and additionally municipal and mining waste and solutions for the disposal and containment of waste. Many fresh solutions to problems are presented to enable more accurate and advanced design to be carried out.

CRC Press

March 2016 : 563pp

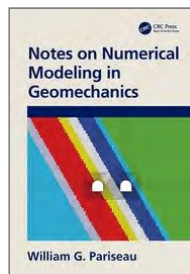
Pb: 978-1-498-73929-0 : **£86.99**

Hb: 978-1-138-43020-4 : **£180**

eBook: 978-1-315-38227-2

* For full contents and more information, visit: www.routledge.com/9781498739290

Notes on Numerical Modeling in Geomechanics



William G. Pariseau

This book is an introduction to numerical analysis in geomechanics and is intended for advanced undergraduate and beginning graduate study of the mechanics of porous, jointed rocks and soils. Although familiarity with the concepts of stress, strain and so on is assumed, a review of the fundamentals of solid mechanics including concepts of physical laws, kinematics and material laws is presented in an appendix. Emphasis is on the popular finite element method but brief explanations of the boundary element method, the distinct element method (also known as the discrete element method) and discontinuous deformation analysis are included.

CRC Press

March 2022 : 292pp

Pb: 978-0-367-76287-2 : **£68.99**

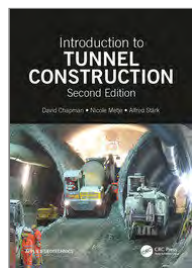
Hb: 978-0-367-76283-4 : **£175**

eBook: 978-1-003-16628-3

* For full contents and more information, visit: www.routledge.com/9780367762872

2ND EDITION

Introduction to Tunnel Construction



David N. Chapman University of Birmingham, United Kingdom, **Nicole Metje**, **Alfred Stark**

Series: Applied Geotechnics

This is a text for undergraduate and MSc students and a guide for young professionals, covering the full principles with case studies of real projects. This new edition includes case studies from Crossrail, focusing on the preparation work to receive a TBM into a station box, and updating the Utilisation Method for assessing the remaining structural capacity of sprayed concrete lining. It also provides further information on recent developments in TBMs, including multimode machines. With some focus on clay soil, the book covers the main tunnelling techniques along with site investigation, parameter selection and design, ground stability, lining techniques, H&S, monitoring, and TBMs.

CRC Press

December 2017 : 455pp

Pb: 978-1-498-76624-1 : **£64.99**

Hb: 978-1-498-76639-5 : **£145**

eBook: 978-1-315-12016-4

* For full contents and more information, visit: www.routledge.com/9781498766241

Soft Ground Tunnel Design



Benoit Jones Inbye Engineering, UK

This book is essentially a manual for the design of tunnels and other underground spaces in soft ground – soil in contrast to rock. It focuses on stability, prediction of ground movements, and structural design of the lining. It shows that the choice of excavation and support methods depends on ground stability, limitation of damage to the existing built environment and health, safety and environmental considerations. It builds on the basic principles of soil-structure interaction, the three-dimensional effects of construction sequence and the effects of construction on other surface or subsurface structures in steps of gradually increasing complexity.

CRC Press

November 2021 : 582pp

Pb: 978-1-482-25467-9 : **£68.99**

Hb: 978-0-367-41959-2 : **£175**

eBook: 978-0-429-47038-7

* For full contents and more information, visit: www.routledge.com/9781482254679

Tunnel Design Methods



Antonio Bobet Purdue University, USA, **Herbert H. Einstein** Massachusetts Institute of Technology, USA

This book covers analytical, numerical and empirical methods for the design of tunnels in soil and in rock. It gives detailed analytical and numerical methods for design engineers, suits graduate students, and guides specialists in ground-support interaction under static and seismic loading. It presents fundamental concepts in ground and support behavior and in ground-excavation-support interaction along with detailed information on methods used for the design of tunnels, with applications, and on the latest developments in empirical methods.

CRC Press

September 2023 : 626pp

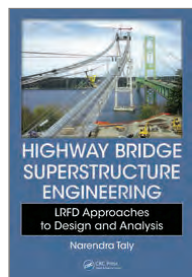
Hb: 978-1-032-35844-4 : **£125**

eBook: 978-1-003-32894-0

* For full contents and more information, visit: www.routledge.com/9781032358444

Highway Bridge Superstructure Engineering

LRFD Approaches to Design and Analysis



Narendra Taly California State University, Los Angeles, USA

This book has been designed to serve as a stand-alone text for a first course in design of highway bridge superstructures as well as a handy reference for educators and practicing engineers. This book is essentially a "how-to" book and has a code-connected design focus. Because of simplicity in style and format, this book can be used as a tool for teaching highway bridge design courses to both undergraduate- and graduate-level classes.

CRC Press

November 2014 : 964pp

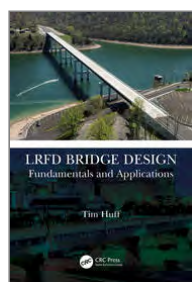
Hb: 978-1-466-55218-0 : **£195**

eBook: 978-0-429-09657-0

* For full contents and more information, visit: www.routledge.com/9781466552180

LRFD Bridge Design

Fundamentals and Applications



Tim Huff

This book examines and explains material from the 9th edition of the AASHTO LRFD Bridge Design Specifications, including deck and parapet design, load calculations, limit states and load combinations, concrete and steel I-girder design, bearing design, and more. With increased focus on earthquake resiliency, two separate chapters— one on conventional seismic design and the other on seismic isolation applied to bridges— will fully address this vital topic. The primary focus is on steel and concrete I-girder bridges, with regard to both superstructure and substructure design.

CRC Press

August 2024 : 386pp

Pb: 978-1-032-20837-4 : **£45.99**

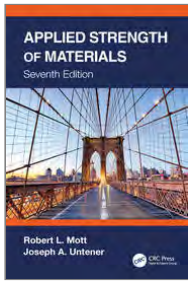
Hb: 978-1-032-20836-7 : **£84.99**

eBook: 978-1-003-26546-7

* For full contents and more information, visit: www.routledge.com/9781032208374

7TH EDITION

Applied Strength of Materials



Robert L. Mott University of Dayton, USA, **Joseph A. Untener** University of Dayton, USA

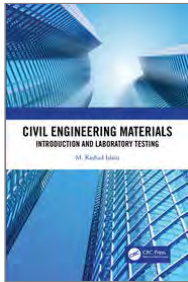
Introducing the theoretical background of the subject, with a strong visual component, the book equips the reader with problem-solving techniques. The updated seventh edition incorporates new technologies, with a pedagogical approach. It emphasizes realistic engineering applications for the analysis and design of structural members. A "Big Picture" section starts each chapter to help students grasp the overall objectives and their application in industrial applications. Step-by-step problem-solving approaches are included throughout the book. While calculus is used sparingly, detailed developments of important design-related formulas are provided.

CRC Press
July 2021 : 1172pp
Pb: 978-1-032-00222-4 : **£61.99**
Hb: 978-0-367-82078-7 : **£155**
eBook: 978-1-003-17320-5

* For full contents and more information, visit: www.routledge.com/9781032002224

Civil Engineering Materials

Introduction and Laboratory Testing



M. Rashad Islam

Civil Engineering Materials: Introduction and Laboratory Testing discusses the properties, characterization procedures, and analysis techniques of primary civil engineering materials. It presents the latest design considerations and uses of engineering materials as well as theories for fully understanding them through numerous worked mathematical examples. The book also includes important laboratory tests which are clearly described in a step-by-step manner and further illustrated by high-quality figures.

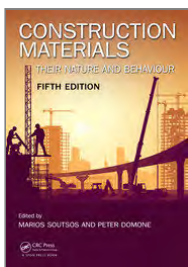
CRC Press
April 2020 : 490pp
Hb: 978-0-367-22482-0 : **£105**
eBook: 978-0-429-27511-1

* For full contents and more information, visit: www.routledge.com/9780367224820

5TH EDITION

Construction Materials

Their Nature and Behaviour, Fifth Edition



Edited by **Marios Soutsos**, **Peter Domone**

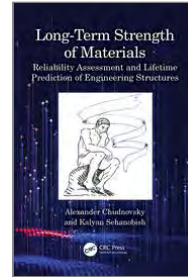
This classic textbook covers the fundamentals, chemical and physical structure, and behaviour of the main construction materials: metals, concrete, bricks and masonry, polymers, fibre composites, bituminous materials, timber, and glass. for civil and structural engineering students, and those on courses like architecture, surveying and construction Now with: 1. more questions with answers in the book, and also in an instructors manual, 2. much more on sustainability, 3. an extended and overhauled Masonry section, 4. website links to free reports.

CRC Press
October 2017 : 864pp
Pb: 978-1-498-74110-1 : **£58.99**
Hb: 978-1-138-50056-3 : **£145**
eBook: 978-1-315-16459-5

* For full contents and more information, visit: www.routledge.com/9781498741101

Long-Term Strength of Materials

Reliability Assessment and Lifetime Prediction of Engineering Structures



Alexander Chudnovsky University of Illinois at Chicago, USA, **Kalyan Sehanobish** The Dow Chemical Company, USA

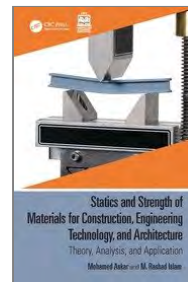
This textbook introduces the thermodynamics of irreversible processes along with entropy to address the time dependency of fracture. Working from observations of structural failure, the book identifies the principal failure types such as brittle damage and ductile failure. It then addresses the life of a structure in a specific environment and load condition, using irreversible thermodynamics and the entropy criterion to address cooperative fracture, and novel statistical fracture mechanics to address solo fracture. The book is ideal for graduate students and design engineers in civil and materials engineering, as well as mechanical and chemical engineering.

CRC Press
August 2023 : 224pp
Pb: 978-1-032-41813-1 : **£49.99**
Hb: 978-1-032-41814-8 : **£135**
eBook: 978-1-003-35984-5

* For full contents and more information, visit: www.routledge.com/9781032418131

Statics and Strength of Materials for Construction, Engineering Technology, and Architecture

Theory, Analysis, and Application



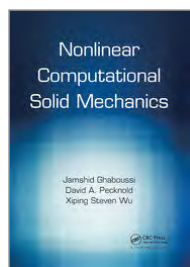
Mohamed Askar Southern Utah University, USA, **M. Rashad Islam**

This book provides students and industry professionals with the necessary statics and strength of materials background for more innovative approaches to particular fields of engineering technology, construction engineering and management, civil engineering, and architectural technology. It presents an introduction to statics, a review of algebra and trigonometry, concepts of vectors, a classification of building structural systems, an overview of related computer software, and the framework of the applications for real-world projects.

CRC Press
April 2024 : 700pp
Hb: 978-1-032-38902-8 : **£120**
eBook: 978-1-003-34737-8

* For full contents and more information, visit: www.routledge.com/9781032389028

Nonlinear Computational Solid Mechanics



Jamshid Ghaboussi , David A. Pecknold , Xiping Steven Wu

This book presents the fundamentals of nonlinear mechanics within a modern computational approach, building on both linear elasticity and the finite element method. It serves as a text book for a second year graduate course and as a reference for practitioners using nonlinear analysis in engineering and design. Both material and geometric nonlinearities are treated. The topics build up from the mechanics of finite deformation of solid bodies through to nonlinear structural behaviour such as buckling, bifurcation and snap-through. The principles are illustrated with a series of solved problems.

CRC Press

December 2019 : 396pp

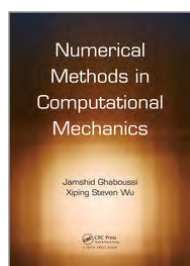
Pb: 978-0-367-87524-4 : **£45.99**

Hb: 978-1-498-74612-0 : **£96.99**

eBook: 978-1-315-16732-9

* For full contents and more information, visit: www.routledge.com/9780367875244

Numerical Methods in Computational Mechanics



Jamshid Ghaboussi University of Illinois at Urbana-Champaign, USA, **Xiping Steven Wu** Shell International Exploration & Production Inc., USA

This book suits a graduate course in mechanics based disciplines, and will help software developers in computational mechanics. It explores the numerical algorithms underpinning finite element software, covering all the major numerical methods used in computational mechanics. It reviews the basic concepts in linear algebra and advanced matrix theory, before covering solutions of systems of equations, symmetric eigenvalue solution methods, and direct integration of discrete dynamic equations of motion, illustrated with numerical examples.

CRC Press

June 2019 : 332pp

Pb: 978-0-367-02802-2 : **£31.99**

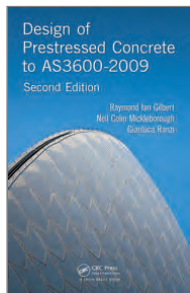
Hb: 978-1-498-74675-5 : **£84.99**

eBook: 978-1-315-36868-9

* For full contents and more information, visit: www.routledge.com/9780367028022

2ND EDITION

Design of Prestressed Concrete to AS3600-2009



Raymond Ian Gilbert University of New South Wales, Sydney, Australia, **Neil Colin Mickleborough** Hong Kong University of Science and Technology, Clear Water Bay, Kowloon, **Gianluca Ranzi** University of Sydney, Australia

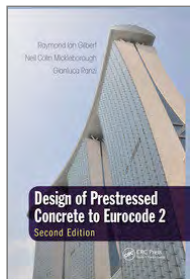
Retaining the clear and concise explanations and the easy-to-read style of the first edition, this book builds on the principles of mechanics and the properties of concrete and steel, with numerous worked examples. The scope of the work ranges from an introduction to the fundamentals of prestressed concrete to in-depth treatments of the more advanced topics in modern prestressed concrete structures. Where the design requirements are code specific, the book refers to the provisions of the Australian Standard for Concrete Structures (AS3600-2009).

CRC Press
September 2015 : 716pp
Pb: 978-1-466-57269-0 : **£76.99**
Hb: 978-1-138-47022-4 : **£180**
eBook: 978-0-429-10202-8

* For full contents and more information, visit: www.routledge.com/9781466572690

2ND EDITION

Design of Prestressed Concrete to Eurocode 2



Raymond Ian Gilbert University of New South Wales, Sydney, Australia, **Neil Colin Mickleborough** Hong Kong University of Science and Technology, Clear Water Bay, Kowloon, **Gianluca Ranzi** University of Sydney, Australia

This second edition retains the clear and concise explanations and the easy-to-read style of the first, but the content has been expanded and updated. The scope of the work ranges from an introduction to the fundamentals of prestressed concrete to the in-depth treatment of more advanced topics in modern prestressed concrete structures. Where code-specific, the book refers to Eurocode 2: Design of Concrete Structures and, where possible, the notation is the same as in Eurocode 2.

CRC Press
January 2019 : 699pp
Pb: 978-0-367-02791-9 : **£36.99**
Hb: 978-1-466-57310-9 : **£86.99**
eBook: 978-1-315-38952-3

* For full contents and more information, visit: www.routledge.com/9780367027919

FRP Composite Structures

Theory, Fundamentals, and Design



Hota V.S. GangaRao West Virginia University, USA, **Woraphot Prachasaree**

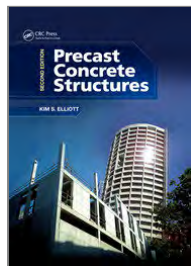
The focus of this textbook is to develop simplified mathematical models representing the behavior of beams and plates under static loads, after introducing generalized Hooke's Law for materials with different properties, i.e., anisotropic, orthotropic, transversely isotropic, and isotropic properties. Subsequently, the simplified models coupled with design methods including FRP composite material degradation factors are introduced by solving a wide range of practical design problems. This book is aimed at advanced undergraduate and graduate students and industry professionals focused on the analysis and design of FRP composite structural members.

CRC Press
October 2024 : 534pp
Pb: 978-1-032-05252-6 : **£45.99**
Hb: 978-1-032-05251-9 : **£110**
eBook: 978-1-003-19675-4

* For full contents and more information, visit: www.routledge.com/9781032052526

2ND EDITION

Precast Concrete Structures



Kim S. Elliott University of Nottingham, UK

This highly illustrated second edition of Precast Concrete Structures introduces the conceptual design ideas for the prefabrication of concrete structures and presents a number of worked examples that translate designs from BS 8110 to Eurocode EC2, before going into the detail of the design, manufacture, and construction of precast concrete multi-storey buildings. It provides complete specifications for the design, manufacture, and construction of precast frames according to Eurocodes, along with the author's guidance on best practice.

CRC Press
June 2019 : 732pp
Pb: 978-0-367-02803-9 : **£31.99**
Hb: 978-1-498-72399-2 : **£96.99**
eBook: 978-0-367-81488-5

* For full contents and more information, visit: www.routledge.com/9780367028039

Precast Prestressed Concrete for Building Structures



Kim S. Elliott University of Nottingham, UK, **Mark Magill** Creagh Concrete, UK

This guide to precast prestressed concrete (PSC) introduces and applies principles for the design of PSC slabs, thermal slabs, beam and block flooring and main beams, including cantilevers, and composite and continuous construction. It provides worked examples for a range of PSC elements and covers the innovative use of PSC on several projects in the UK over the past ten years, drawing on the authors' first-hand experience. The contents are in line with latest revisions of the Eurocodes and European Product Standards. The book is ideal for consulting structural engineers, clients, PSC manufacturers, and advanced undergraduate and graduate students, both as a guide and a textbook.

CRC Press
March 2024 : 638pp
Hb: 978-1-032-33391-5 : **£170**
eBook: 978-1-003-31945-0

* For full contents and more information, visit: www.routledge.com/9781032333915

2ND EDITION

Reinforced and Prestressed Concrete Design to EC2

The Complete Process, Second Edition



Eugene O' Brien University College, Dublin, Ireland, **Andrew Dixon** Consulting Civil and Structural Engineer, Ireland, **Emma Sheils** University College, Dublin, Ireland

Revised to Eurocode 2, the second edition emphasises qualitative understanding of the overall behaviour of concrete structures. Expanded with a new chapter dedicated to case studies, worked examples and exercise examples, it is a comprehensive guide to conceptual design, analysis and detailed design of concrete structures for civil and structural engineering students. Selected Contents Part 1: 1. Fundamentals of Qualitative Design 2. Basic Layout of Concrete 3. Loads and Load Effects Part 2: 4. Fundamentals of Structural Analysis 5. Applications of Structural Analysis to Concrete Structures 6. Preliminary Sizing of Members Part 3: 7. Design of Reinforced Concrete Members for Bending 8. Design of Prestressed Concrete Members for Bending 9. Combined Axial Force and Bending of Reinforced Concrete Members 10. Design for Shear

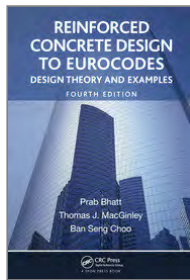
CRC Press
January 2012 : 536pp
Pb: 978-0-415-57195-1 : **£54.99**
Hb: 978-0-415-57194-4 : **£175**
eBook: 978-1-315-27250-4

* For full contents and more information, visit: www.routledge.com/9780415571951

4TH EDITION

Reinforced Concrete Design to Eurocodes

Design Theory and Examples, Fourth Edition



Prab Bhatt University of Glasgow, UK, **T.J. MacGinley**,
Ban Seng Choo

This fourth edition of a bestselling textbook has been extensively rewritten and expanded in line with the current Eurocodes. It presents the principles of the design of concrete elements and of complete structures, with practical illustrations of the theory. It explains the background to the Eurocode rules and goes beyond the core topics to cover the design of foundations, retaining walls, and water retaining structures. The text includes more than sixty worked out design examples and more than six hundred diagrams, plans, and charts. It is suitable for civil engineering courses and is a useful reference for practicing engineers.

CRC Press

February 2014 : 878pp

Pb: 978-1-466-55252-4 : **£64.99**Hb: 978-1-138-41400-6 : **£185**

eBook: 978-0-429-09644-0

* For full contents and more information, visit: www.routledge.com/9781466552524

11TH EDITION

Reinforced Concrete Designer's Handbook



Charles E. Reynolds Late Consulting Engineer, UK,
James C. Steedman Consulting Engineer, UK, **Anthony J. Threlfall** Consulting Engineer, UK

Reynolds's Reinforced Concrete Designer's Handbook is a unique resource providing comprehensive guidance enabling the engineer to analyze and design reinforced concrete buildings, bridges, retaining walls and containment structures.

CRC Press

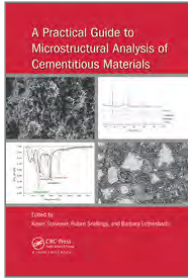
July 2007 : 414pp

Pb: 978-0-419-25830-8 : **£76.99**Hb: 978-0-419-25820-9 : **£210**

eBook: 978-0-203-08775-6

* For full contents and more information, visit: www.routledge.com/9780419258308

A Practical Guide to Microstructural Analysis of Cementitious Materials



Edited by **Karen Scrivener** École Polytechnique Fédérale de Lausanne, Switzerland, **Ruben Snellings** VITO, Mol, Belgium, **Barbara Lothenbach** EMPA, Dübendorf, Switzerland

This edited volume provides the cement science community with a state-of-the-art overview of analytical techniques used in cement chemistry to study the hydration and microstructure of cements. Each chapter focuses on a specific technique, not only describing the basic principles behind the technique, but also providing essential, practical details on its application to the study of cement hydration. Each chapter sets out present best practice, and draws attention to the limitations and potential experimental pitfalls of the technique.

CRC Press

July 2017 : 560pp

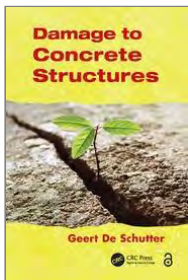
Pb: 978-1-138-74723-4 : **£72.99**

Hb: 978-1-498-73865-1 : **£200**

eBook: 978-1-351-22849-7

* For full contents and more information, visit: www.routledge.com/9781138747234

Damage to Concrete Structures



Geert De Schutter Ghent University, Belgium

This book summarizes the state-of-the-art information on the degradation of concrete structures, and gives a clear and comprehensive overview of what can go wrong. Written as a textbook for undergraduate and graduate students, the knowledge is presented in an easy-to-understand, pedagogical way. The book describes the different causes of damage to concrete, including inappropriate design, errors during execution, mechanisms occurring during hardening of concrete, and actions or degradation mechanisms during service life (hardened concrete). The degradation mechanisms are illustrated with numerous real-world examples and many drawings and photographs taken of actual structures.

CRC Press

September 2012 : 210pp

Pb: 978-0-415-60388-1 : **£61.99**

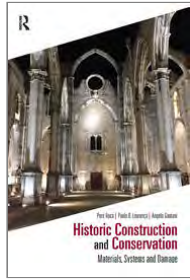
Hb: 978-1-138-41402-0 : **£180**

eBook: 978-0-429-21310-6

* For full contents and more information, visit: www.routledge.com/9780415603881

Historic Construction and Conservation

Materials, Systems and Damage



Pere Roca , Paulo B. Lourenço , Angelo Gaetani

Series: Assessment, Repair and Strengthening for the Conservation of Structures

This book brings together the history of construction, materials and structural elements, with the history of conservation. It explains structural decisions made during the construction process which underlies the damage and collapse mechanisms in masonry for different forms of loading. Excess permanent loading and settlement is differentiated from environmental and anthropogenic actions such as earthquake or incorrect intervention. The team of authors address the history of conservation by exploring materials and structures and the history of construction and damage. It is for civil engineering and architecture, as well as for archaeology and art history.

Routledge

June 2021 : 366pp

Pb: 978-1-032-09023-8 : **£44.99**

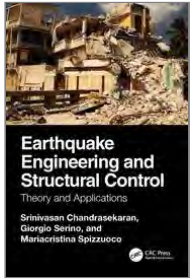
Hb: 978-0-367-14574-3 : **£77.99**

eBook: 978-0-429-05276-7

* For full contents and more information, visit: www.routledge.com/9781032090238

Earthquake Engineering and Structural Control

Theory and Applications



Srinivasan Chandrasekaran Indian Institute of Technology Madras, India, **Giorgio Serino** University of Naples Federico II, Italy, **Mariacristina Spizzuoco**

Earthquake Engineering and Structural Control: Theory and Applications examines the basics of structural dynamics with its application for earthquake engineering and structural control methods. The objective is not to explain earthquake resistant design but rather to present different methods of analysis under earthquake and other environmental loads such as fire and physical impact. While presenting fundamental concepts in a simple manner, the book presents structural systems and offshore structures leading to form-dominant design.

CRC Press

November 2024 : 432pp

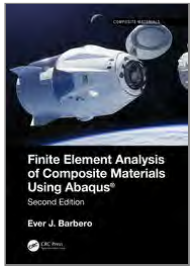
Hb: 978-1-032-78509-7 : £82.99

eBook: 978-1-003-54201-8

* For full contents and more information, visit: www.routledge.com/9781032785097

2ND EDITION

Finite Element Analysis of Composite Materials using Abaqus®



Ever J. Barbero , Ever J. Barbero West Virginia University, Morgantown, USA

Series: Composite Materials

Developed from the author's course on advanced mechanics of composite materials, Finite Element Analysis of Composite Materials with Abaqus™ shows how powerful finite element tools address practical problems in the structural analysis of composites. This Second Edition updates all examples, sample code, and problems to Abaqus 2020. Aimed at advanced students and professional engineers, this text features 60+ fully developed examples, 80+ end-of-chapter exercises, and 50+ pieces of Abaqus pseudo-code that illustrate solutions to example problems. A companion website offers relevant model files for download, enabling readers to easily reproduce the examples and complete the exercises.

CRC Press

May 2023 : 571pp

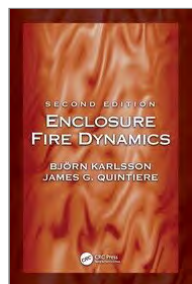
Hb: 978-0-367-62145-2 : £100

eBook: 978-1-003-10815-3

* For full contents and more information, visit: www.routledge.com/9780367621452

2ND EDITION

Enclosure Fire Dynamics, Second Edition



Björn Karlsson, **James G. Quintiere** University of Maryland, College Park, USA

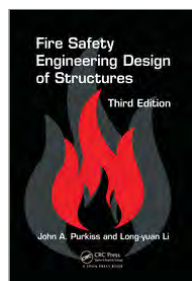
Enclosure Fire Dynamics, Second Edition explores the science of enclosure fires, and how they cause changes in the environment. The authors discuss mechanisms for controlling enclosure fires, and how to develop analytical relationships useful in designing buildings for fire safety. Derivation of equations from first principles is shown, stating assumptions and showing comparisons to experimental data. The text provides readers with the skills needed to solve a range of engineering equations and models. Enclosure Fire Dynamics, Second Edition will enhance the knowledge of fire protection engineers, researchers, and investigators, and help build a strong foundation for engineering students.

CRC Press
June 2022 : 384pp
Hb: 978-1-138-05866-8 : £120
eBook: 978-1-315-16381-9

* For full contents and more information, visit: www.routledge.com/9781138058668

3RD EDITION

Fire Safety Engineering Design of Structures



John A. Purkiss Consulting Engineer, United Kingdom,
Long-Yuan Li University of Plymouth, UK

This third edition covers design concerns and philosophies, touches on regulatory control, the behavior of natural fires through to the properties of various engineering materials at elevated temperatures. Focusing on the fire sections of the Eurocodes, the book provides detailed design advice, together with the background for the main structural materials such as concrete, steel, composite steel-concrete, timber, masonry and aluminium. This third edition has significant updates of materials properties, calculations, and less 'standard' materials such as concrete filled tubes, masonry, plastics and glass.

CRC Press
March 2017 : 454pp
Pb: 978-1-138-07426-2 : £76.99
Hb: 978-1-466-58547-8 : £210
eBook: 978-0-429-10266-0

* For full contents and more information, visit: www.routledge.com/9781138074262

2ND EDITION

Fluid Mechanics Aspects of Fire and Smoke Dynamics in Enclosures



Bart Merci Ghent University, Belgium, **Tarek Beji** Ghent University, Belgium

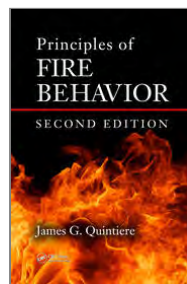
This handbook at undergraduate and starting researcher level provides the essential knowledge for understanding flows in fire and smoke dynamics in enclosures, covering combustion, heat transfer and fire suppression in more detail than other introductory books. It moves from the basic equations for turbulent flows with combustion, through a discussion of the structure of flames, to fire and smoke plumes and their interaction with enclosure boundaries. This is then applied to fire dynamics and smoke and heat control in enclosures.

CRC Press
October 2022 : 354pp
Pb: 978-1-032-06584-7 : £61.99
Hb: 978-1-032-06887-9 : £130
eBook: 978-1-003-20437-4

* For full contents and more information, visit: www.routledge.com/9781032065847

2ND EDITION

Principles of Fire Behavior



James G. Quintiere University of Maryland, College Park, USA

This text covers the four forms of fire: diffusion flames, smoldering, spontaneous combustion, and premixed flames. Using a quantitative approach, the text introduces the scientific principles of fire behavior, with coverage of heat transfer, ignition, flame spread, fire plumes, and heat flux as a damage variable. Cases, examples, problems, selected color illustrations and review of mathematics help students in fire safety and investigation understand fire from a scientific point of view.

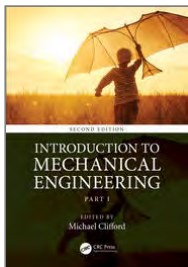
CRC Press
August 2016 : 437pp
Hb: 978-1-498-73562-9 : £125
eBook: 978-1-315-36965-5

* For full contents and more information, visit: www.routledge.com/9781498735629

2ND EDITION

Introduction to Mechanical Engineering

Part 1



Edited by **Michael Clifford** University of Nottingham, UK

An Introduction to Mechanical Engineering: Part 1, Second Edition, provides a grounding in the core subjects of solid mechanics, materials, fluid mechanics, thermodynamics, electronics, and machine design. Printed in color, this updated bestseller has a full range of learning features, and online resources available for both students and instructors.

CRC Press

December 2022 : 732pp

Pb: 978-0-367-33316-4 : **£56.99**Hb: 978-1-032-36232-8 : **£91.99**

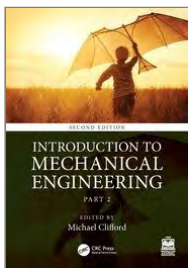
eBook: 978-0-429-31916-7

* For full contents and more information, visit: www.routledge.com/9780367333164

2ND EDITION

Introduction to Mechanical Engineering

Part 2



Edited by **Michael Clifford** University of Nottingham, UK

An Introduction to Mechanical Engineering Part 2, Second Edition is an essential text for all second-year undergraduate students and those studying for foundation degrees and HNDs. Building upon the first-year level topics in Introduction to Mechanical Engineering Part 1, Part 2 provides the next level of coverage for those subject areas.

CRC Press

November 2024 : 631pp

Pb: 978-0-367-33377-5 : **£56.99**Hb: 978-1-032-76021-6 : **£91.99**

eBook: 978-0-429-31949-5

* For full contents and more information, visit: www.routledge.com/9780367333775

4TH EDITION

Mechanical Engineering Principles



John Bird , Carl Ross Professor of Structural Dynamics, University of Portsmouth, UK

A student-friendly introduction to core mechanical engineering topics, focusing on examples and applications. The book contains 400 fully worked problems, 700 further problems with answers, and 300 multiple-choice questions. Two new chapters are included, covering the basic principles of matrix algebra and the matrix displacement method. The latter will also include guidance on software that can be used via SmartPhones, iPads or laptops. The new edition is up to date with the latest BTEC National specifications and can also be used on undergraduate courses in mechanical, civil, structural, aeronautical and marine engineering, and naval architecture.

Routledge

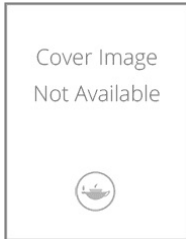
September 2019 : 388pp

Pb: 978-0-367-25324-0 : **£43.99**Hb: 978-0-367-25326-4 : **£175**

eBook: 978-0-429-28720-6

* For full contents and more information, visit: www.routledge.com/9780367253240

Engineering Statics



M. Rashad Islam , M. Abdullah Al Faruque , Bahar Zoghi , Sylvester A. Kalevela

Engineering Statics presents the cutting-edge topics in engineering statics, focusing on practical applications knowledge, with numerous real-world examples, practice problems, and case studies throughout. It covers theory concisely and uses plain language and coverage that can be completed in a one-semester course. It also covers the related concepts required to take the Fundamentals of Engineering (FE) exam.

CRC Press

August 2024 : 308pp

Pb: 978-0-367-56521-3 : **£45.99**

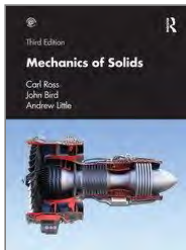
Hb: 978-0-367-56106-2 : **£105**

eBook: 978-1-003-09815-7

* For full contents and more information, visit: www.routledge.com/9780367565213

3RD EDITION

Mechanics of Solids



Carl Ross Professor of Structural Dynamics, University of Portsmouth, UK, **John Bird , Andrew Little**

This introduction to the behaviour of solid materials under loading, focuses on statics and stress analysis. As the primary recommended mechanics of solids text of the Council of Engineering Institutions for undergraduates, it covers practical stress and strain scenarios including simple stress and strain, torsion, bending, elastic failure and buckling, with examples such as thin-walled structures, beams, struts and composite structures. New chapters cover matrix algebra, fracture mechanics, and additional material considerations including creep and fatigue. The companion website offers solutions, and multiple-choice tests; and resources for adopting course instructors.

Routledge

November 2021 : 518pp

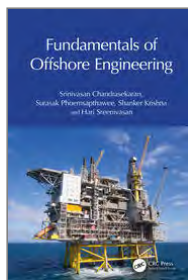
Pb: 978-0-367-65140-4 : **£58.99**

Hb: 978-0-367-65141-1 : **£150**

eBook: 978-1-003-12802-1

* For full contents and more information, visit: www.routledge.com/9780367651404

Fundamentals of Offshore Engineering



Srinivasan Chandrasekaran Indian Institute of Technology Madras, India, **Surasak Phoemsapthawee**, **Shanker Krishna**, **Hari Sreenivasan**

Fundamentals of Offshore Engineering addresses the basics of design for offshore oil and gas production systems, and examines the health, safety, environmental (HSE) aspects in the oil and gas industry with an emphasis towards safety measures in design and operations. It also covers fundamental issues of crude oil and natural gas exploration and extraction and also includes coverage of seismic surveys and green energy systems. Details of offshore platforms, describing the types, historical development, basics of analysis and design, environmental loads, and potential hazards are also provided.

CRC Press

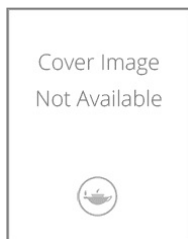
October 2024 : 320pp

Hb: 978-1-032-80606-8 : **£95**

eBook: 978-1-003-49766-0

* For full contents and more information, visit: www.routledge.com/9781032806068

Offshore Semi-Submersible Platform Engineering



Srinivasan Chandrasekaran Indian Institute of Technology Madras, India

Offshore Semi-Submersible Platform Engineering presents a primer to the analysis and design of semi-submersible platforms in particular while also covering general analysis and design guidelines of offshore compliant platforms. It introduces general structural designs and also examines the details of the various environmental impacts that act upon them, such as fatigue, fire, collisions, and water waves.

CRC Press

August 2024 : 250pp

Pb: 978-0-367-67341-3 : **£49.99**

Hb: 978-0-367-67330-7 : **£105**

eBook: 978-1-003-13092-5

* For full contents and more information, visit: www.routledge.com/9780367673413

4TH EDITION

The Behaviour and Design of Steel Structures to EC3



N.S. Trahair University of Sydney, Australia, **M.A. Bradford** University of New South Wales, Australia, **David Nethercot** Imperial College London, UK, **Leroy Gardner**

The fully revised fourth edition of this successful textbook fills a void which will arise when British designers start using the European steel code EC3 instead of the current steel code BS5950. Numerous worked examples illustrate the behaviour of steel structures and exemplify details of the design process. This is a key text for senior undergraduate and graduate students and an essential reference tool for practising structural engineers. 1. Introduction 2. Tension Members 3. Compression Members 4. Local Buckling of Thin Plate Elements 5. In-Plane Bending of Beams 6. Lateral Buckling of Beams 7. Beam-Columns 8. Frames 9. Joints 10. Torsion Members

CRC Press

November 2007 : 512pp

Pb: 978-0-415-41866-9 : **£58.99**Hb: 978-0-415-41865-2 : **£215**

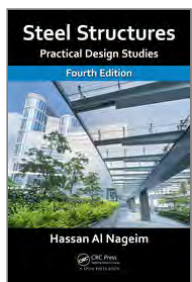
eBook: 978-1-315-27351-8

* For full contents and more information, visit: www.routledge.com/9780415418669

4TH EDITION

Steel Structures

Practical Design Studies, Fourth Edition



Hassan Al Nageim Liverpool John Moores University, UK

The fourth edition of this popular steel structures book contains references to both Eurocodes and British Standards. New and revised examples are included, and sections on the meaning, purpose, and limits of structural design, sustainable steel buildings, and energy savings have been updated. Initial chapters cover the essentials of structural engineering and structural steel design, with the remainder dedicated to a detailed examination of the analysis and design of selected types of structures, presenting complex designs in an understandable way.

CRC Press

December 2016 : 454pp

Pb: 978-1-482-26355-8 : **£64.99**Hb: 978-1-138-38175-9 : **£135**

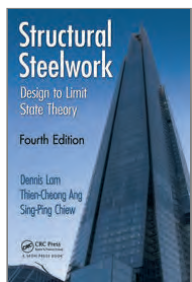
eBook: 978-1-315-38169-5

* For full contents and more information, visit: www.routledge.com/9781482263558

4TH EDITION

Structural Steelwork

Design to Limit State Theory, Fourth Edition



Dennis Lam University of Bradford, UK, **Thien Cheong Ang** Formerly Nanyang Technological University, Singapore, **Sing-Ping Chiew** Nanyang Technological University, Singapore

The fourth edition of a perennial bestseller, this book describes the design theory and code requirements for common structures, connections, elements and frames and contains detailed explanations of the principles underlying steel design for final year undergraduate students reading structural and civil engineering. The chapters have been updated and rearranged to comply with with Eurocode 3. It includes theory for students and practical information for those currently working in the field who require an introduction to the Eurocodes. Every topic is illustrated with fully worked examples, and problems are also provided for practice.

CRC Press

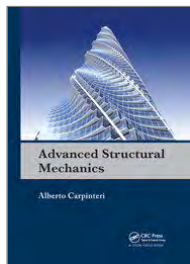
September 2013 : 378pp

Pb: 978-0-415-53191-7 : **£56.99**

eBook: 978-1-315-27529-1

* For full contents and more information, visit: www.routledge.com/9780415531917

Advanced Structural Mechanics



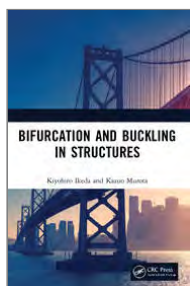
Alberto Carpinteri

Building on the author's Structural Mechanics Fundamentals, this text presents a complete and uniform treatment of the more advanced topics in structural mechanics, ranging from beam frames to shell structures, from dynamics to nonlinear analysis, from fracture mechanics to long-span and high-rise civil structures. Topics include: plane frames, statically indeterminate beam systems: Method of displacements, shells and membranes, finite element method, dynamics of discrete systems, dynamics of continuous systems, instability of elastic equilibrium, theory of plasticity, plane stress and plane strain conditions, mechanics of fracture, long-span structures, and high-rise buildings.

CRC Press
December 2019 : 548pp
Pb: 978-0-367-86473-6 : **£45.99**
Hb: 978-0-415-58037-3 : **£155**
eBook: 978-1-315-37529-8

* For full contents and more information, visit: www.routledge.com/9780367864736

Bifurcation and Buckling in Structures



Kiyohiro Ikeda Tohoku University, Japan, **Kazuo Murota** Tokyo Metropolitan University, Japan

This textbook describes theory and analysis of bifurcation and buckling in structures. Emphasis is placed on a general procedure for solving nonlinear governing equations and an analysis procedure related to finite-element method. It presents fundamentals issues such as the general mathematical framework for bifurcation and buckling, procedures for the buckling load/mode analyses, and numerical analysis procedures to trace the solution curves and switch to bifurcation solutions. It also explores buckling of perfect and imperfect structures. It is ideal for undergraduate and graduate students in engineering and applied mathematics.

CRC Press
December 2021 : 278pp
Pb: 978-0-367-63160-4 : **£79.99**
Hb: 978-0-367-63161-1 : **£185**
eBook: 978-1-003-11236-5

* For full contents and more information, visit: www.routledge.com/9780367631604

Collision Actions on Structures



Arnold C.Y. Yong Research Fellow, Malaysia, **Nelson T.K. Lam** University of Melbourne, Australia, **Scott J. Menegon** Swinburne University of Technology, Australia

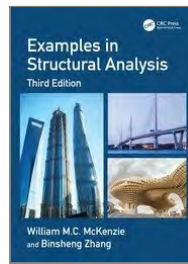
This book is concerned with collision of a moving, fallen or flying object on a rigid barrier or a structural element, and the transmission of the transient action to the rest of a structural system. Engineers typically have little to draw on for analysis and design. Modelling software, such as FEM, is challenging to use effectively, physical experimentation is costly, and there is little or no regulatory documentation. This textbook for graduate students and guide for practitioners sets out solid principles and much of the methodology conveyed in the book has been validated experimentally.

CRC Press
November 2024 : 378pp
Pb: 978-0-367-67830-2 : **£45.99**
Hb: 978-0-367-67817-3 : **£96.99**
eBook: 978-1-003-13303-2

* For full contents and more information, visit: www.routledge.com/9780367678302

3RD EDITION

Examples in Structural Analysis



William M.C. McKenzie Napier University, Edinburgh, **Binsheng Zhang**

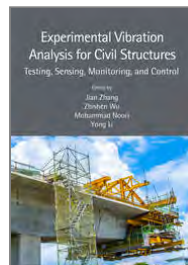
This comprehensive and extensive collection of fully worked and graded examples shows how to analyse different types of structure and the principal analysis techniques in the design process. Its use is illustrated using examples in a step-by-step approach, and where appropriate, detailed mathematical concepts are explained and integrated. The scope is wide, and this new edition includes pin-jointed frames and arches and cables, with more on the direct stiffness method and influence lines for beams. It is for undergraduates from first to final years on civil/structural, building and architecture courses, and it can be used internationally as it is not dependent on design codes.

CRC Press
December 2022 : 970pp
Pb: 978-1-032-04936-6 : **£64.99**
Hb: 978-1-032-04937-3 : **£165**
eBook: 978-1-003-19524-5

* For full contents and more information, visit: www.routledge.com/9781032049366

Experimental Vibration Analysis for Civil Structures

Testing, Sensing, Monitoring, and Control



Edited by **Jian Zhang**, **Zhishen Wu**, **Mohammad Noori**
California Polytechnic State University San Luis Obispo, USA, **Yong Li**

Series: Resilience and Sustainability in Civil, Mechanical, Aerospace and Manufacturing Engineering Systems

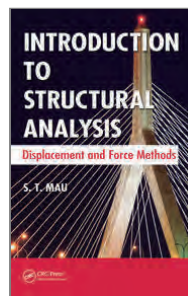
Experimental Vibration Analysis for Civil Structures: Testing, Sensing, Monitoring, and Control covers a wide range of topics in the areas of vibration testing, instrumentation, and analysis of civil engineering and critical infrastructure. It explains how recent research, development, and applications in experimental vibration analysis of civil engineering structures have progressed significantly due to advancements in the fields of sensor and testing technologies, instrumentation, data acquisition systems, computer technology, computational modeling and simulation of large and complex civil infrastructure systems.

CRC Press
August 2024 : 610pp
Pb: 978-0-367-54773-8 : **£45.99**
Hb: 978-0-367-54746-2 : **£110**
eBook: 978-1-003-09056-4

* For full contents and more information, visit: www.routledge.com/9780367547738

Introduction to Structural Analysis

Displacement and Force Methods



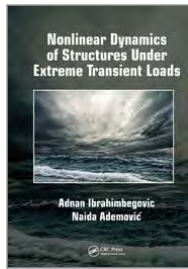
S. T. Mau California State University, Northridge, USA

This indispensable textbook is designed to bridge the gap between engineering practice and education. Acknowledging the fact that virtually all computer structural analysis programs are based on the matrix displacement method of analysis, the author begins with the displacement method and then introduces the force method of analysis. The book also shows how these methods are applied, particularly to trusses and to beams and rigid frames. Other topics covered include influence lines, non-prismatic members, composite structures, secondary stress analysis, and the limits of linear and static structural analysis.

CRC Press
April 2012 : 328pp
Hb: 978-1-466-50416-5 : **£125**
eBook: 978-0-429-09617-4

* For full contents and more information, visit: www.routledge.com/9781466504165

Nonlinear Dynamics of Structures Under Extreme Transient Loads



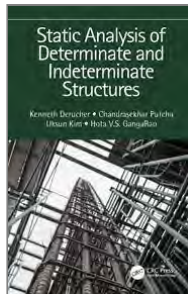
Adnan Ibrahimbegovic, Naida Ademović

The book covers model building for different engineering structures and provides detailed presentations of extreme loading conditions. A number of illustrations are given: quantifying a plane crash or explosion induced impact loading, quantifying the effects of strong earthquake motion, quantifying the impact and long-duration effects of strong stormy winds - along with a relevant framework for using modern computational tools. The book considers the levels of reserve in existing structures, and ways of reducing the negative impact of high-risk situations by employing sounder design procedures.

CRC Press
December 2020 : 252pp
Pb: 978-0-367-72878-6 : **£44.99**
Hb: 978-1-138-03541-6 : **£130**
eBook: 978-1-351-05250-4

* For full contents and more information, visit: www.routledge.com/9780367728786

Static Analysis of Determinate and Indeterminate Structures



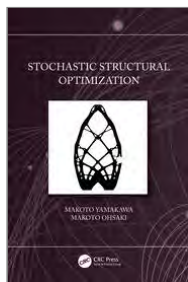
Kenneth Derucher, Chandrasekhar Putcha, Uksun Kim, Hota V.S. GangaRao West Virginia University, USA

This book presents students with the key fundamental elements of structural analysis and covers as much material as is needed for a single-semester course, allowing for a full understanding of indeterminate structural analysis methods without being overwhelming. Authored by four full professors of engineering, this class-tested approach is more practical and focused than what's found in other existing structural analysis titles, and therefore more easily digestible and accessible.

CRC Press
August 2024 : 202pp
Pb: 978-1-032-15990-4 : **£45.99**
Hb: 978-1-032-15982-9 : **£84.99**
eBook: 978-1-003-24663-3

* For full contents and more information, visit: www.routledge.com/9781032159904

Stochastic Structural Optimization



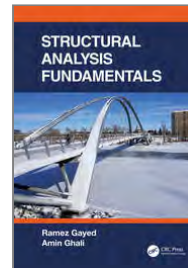
Makoto Yamakawa Tokyo University of Science,
Makoto Ohsaki Kyoto University, Japan

This presents a comprehensive picture of robust design optimization of structures, focused on nonparametric stochastic-based methodologies. Linking structural optimization with both reliability-based design (which usually incorporates assumptions on probability functions which are often unknown), and with robust design (offering simplicity and a lower level of sensitivity) through a unified framework of non-parametric stochastic methodologies provides a rigorous theoretical background and high level of practicality. This text shows how to use this theoretical framework in civil and mechanical engineering practice to design a safe structure which takes account of uncertainty.

CRC Press
August 2023 : 266pp
Hb: 978-0-367-72039-1 : **£92.99**
eBook: 978-1-003-15316-0

* For full contents and more information, visit: www.routledge.com/9780367720391

Structural Analysis Fundamentals



Ramez Gayed Thyssenkrupp Industrial Solutions, Canada
Amin Ghali University of Calgary, Alberta, Canada

This covers all that is taught in graduate and undergraduate courses in the analysis required for structural design, including the calculation of internal forces induced by different loads. Engineers need a broad sense of structural behaviour under different loading and have to be able to make intuitive checks of computing results. It applies linear analysis of structures of all types, including plane and space trusses, plane and space frames, plane and eccentric grids, plates and shells, and assemblage of finite-elements. It also treats plastic and time-dependent responses of structures to static loading and dynamic analysis of structures.

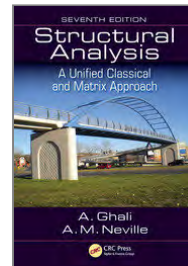
CRC Press
September 2021 : 680pp
Pb: 978-0-367-25261-8 : **£49.99**
Hb: 978-0-367-25262-5 : **£120**
eBook: 978-0-429-28685-8

* For full contents and more information, visit: www.routledge.com/9780367252618

7TH EDITION

Structural Analysis

A Unified Classical and Matrix Approach, Seventh Edition



Amin Ghali University of Calgary, Alberta, Canada, **A.M. NEVILLE**

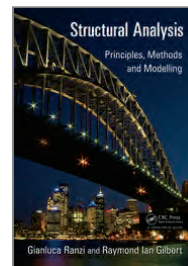
This comprehensive textbook is widely used by civil and structural engineering lecturers and students because of its clear and thorough style and content. Independent of codes of practice, the book is used internationally, regardless of the adopted system of units. This new edition updates and enhances the introductory background material, expands the coverage of structural dynamics, covers modern structural analysis techniques employed in the design of earthquake-resistant structures, and provides new worked examples and problems with answers.

CRC Press
September 2017 : 962pp
Pb: 978-1-498-72506-4 : **£64.99**
Hb: 978-1-138-37374-7 : **£125**
eBook: 978-1-315-26693-0

* For full contents and more information, visit: www.routledge.com/9781498725064

Structural Analysis

Principles, Methods and Modelling



Gianluca Ranzi University of Sydney, Australia,
Raymond Ian Gilbert University of New South Wales, Sydney, Australia

Combining a user-friendly, practical approach along with detailed derivations and mathematical background, this textbook is heavily supported by downloadable MATLAB® files and contains a wealth of resources for lecturers. Many worked examples walk students through the methods and give them insight into creating analytical models. The book also challenges students to consider specific aspects of the material in more detail as well as extend the methods provided to other problems.

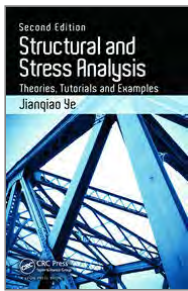
CRC Press
July 2014 : 576pp
Pb: 978-0-415-52644-9 : **£84.99**
eBook: 978-1-315-27518-5

* For full contents and more information, visit: www.routledge.com/9780415526449

2ND EDITION

Structural and Stress Analysis

Theories, Tutorials and Examples, Second Edition

**Jianqiao Ye** Lancaster University, United Kingdom

Structural and stress analysis is a core topic in a range of engineering disciplines. This novel textbook provides and supports a conceptual understanding of the theories and formulae. It also focuses on the basic principles, emphasizing problem solving through a structured series of tutorials and problems, and encourages both numerical and conceptual approaches. This new edition includes basic plates and shells and plastic deformation, dynamics and portal frames and arches.

CRC Press

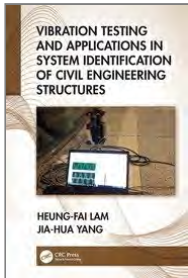
December 2015 : 278pp

Pb: 978-1-482-22033-9 : **£84.99**Hb: 978-1-138-37370-9 : **£135**

eBook: 978-0-429-17008-9

* For full contents and more information, visit: www.routledge.com/9781482220339

Vibration Testing and Applications in System Identification of Civil Engineering Structures

**Heung-Fai Lam** City University of Hong Kong, **Jia-Hua Yang** Tongji University, China

This book covers vibration testing and identification of dynamic structural systems: structural dynamics, methods of modal analysis and model identification, vibration testing with a detailed measurement system, software, practical applications, and case studies of full-scale structures. It gives Masters students the theories of system identification and empowers them to apply this in practice.

CRC Press

December 2024 : 424pp

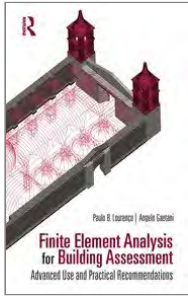
Pb: 978-1-032-29839-9 : **£52.99**Hb: 978-1-138-33288-1 : **£135**

eBook: 978-0-429-44586-6

* For full contents and more information, visit: www.routledge.com/9781032298399

Finite Element Analysis for Building Assessment

Advanced Use and Practical Recommendations



Paulo Lourenco University of Minho, Portugal, **Angelo Gaetani** Sapienza University of Rome, Italy

Series: Assessment, Repair and Strengthening for the Conservation of Structures

Finite element analysis is one of the most powerful tools for modelling a structure, and the interaction of the geometry and morphology of its elements, the material properties, actions, existing alterations and damage, and soil-structure interaction. This presents the Finite Element Method, then nonlinearities are defined from a computational point of view, whether of geometry or materials. It provides advises the material properties to be adopted in the analyses, and is illustrated with cases studies of existing buildings. It suits engineering and architecture students with a solid background in structural engineering, as well as professionals and early-stage researchers.

Routledge

May 2022 : 422pp

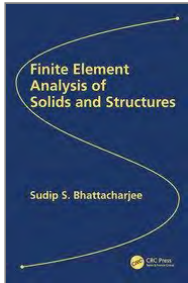
Pb: 978-1-032-22839-6 : **£66.99**

Hb: 978-0-367-35767-2 : **£150**

eBook: 978-0-429-34156-4

* For full contents and more information, visit: www.routledge.com/9781032228396

Finite Element Analysis of Solids and Structures



Sudip S. Bhattacharjee

This textbook combines the theory of elasticity (advanced analytical treatment of stress analysis problems) and finite element methods (numerical details of finite element formulations) into one academic course derived from author's teaching, research, and applied work in automotive product development as well as in civil structural analysis. This work contains 12 discrete chapters that can be covered in a single semester university graduate course on linear elastic finite element analysis methods. The book also serves as a reference for practicing engineers working on design assessment and analysis of solids and structures.

CRC Press

October 2024 : 340pp

Pb: 978-1-032-04158-2 : **£45.99**

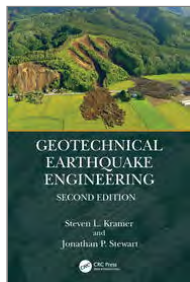
Hb: 978-0-367-43705-3 : **£110**

eBook: 978-1-003-02784-3

* For full contents and more information, visit: www.routledge.com/9781032041582

2ND EDITION

Geotechnical Earthquake Engineering



Steven L. Kramer University of Washington, USA,
Jonathan P. Stewart University of California Los Angeles, USA

This fully-updated new edition provides an introduction to geotechnical earthquake engineering to first-time readers (typically first-year graduate students) with a level of detail that will be useful to more advanced students, as well as researchers and practitioners. It covers the topic of geotechnical earthquake engineering beginning with an introduction to seismology and earthquake ground motions. It also includes hazard analysis and performance-based earthquake engineering design and dynamic soil properties. These topics are followed by site response and its analysis and soil-structure interaction.

CRC Press

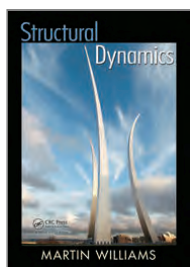
November 2024 : 1060pp

Hb: 978-1-032-84274-5 : **£105**

eBook: 978-1-003-51201-1

* For full contents and more information, visit: www.routledge.com/9781032842745

Structural Dynamics



Martin Williams University of Oxford, UK

A short, accessible introduction to structural dynamics, this book covers linear analysis of single (SDOF) and multi-degree-of-freedom (MDOF) systems, under free vibration and in response to a variety of forcing functions. It touches on hand analysis of continuous systems to illustrate key principles and discusses methods of calculation of non-linear dynamic response. Lastly, it presents the key principles of random vibration analysis – this approach is crucial for wind engineering and is increasingly important for other load cases.

CRC Press

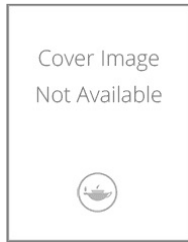
April 2016 : 283pp

Pb: 978-0-415-42732-6 : **£43.99**

eBook: 978-1-315-37531-1

* For full contents and more information, visit: www.routledge.com/9780415427326

A Practical Course in Advanced Structural Design



Tim Huff

This book is written from the perspective of a practicing engineer with over 35 years of experience now working in the academic world to pass on lessons learned over the course of a structural engineering career. It covers the essential topics that will enable beginning structural engineers to gain an advanced understanding prior to entering the workforce, as well as those topics which may receive little, or no, attention in a typical undergraduate curriculum.

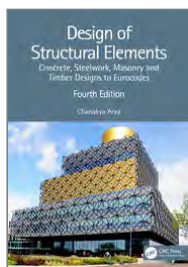
CRC Press
August 2024 : 338pp
Pb: 978-0-367-74668-1 : **£45.99**
Hb: 978-0-367-74666-7 : **£105**
eBook: 978-1-003-15899-8

* For full contents and more information, visit: www.routledge.com/9780367746681

4TH EDITION

Design of Structural Elements

Concrete, Steelwork, Masonry and Timber Designs to Eurocodes



Chanakya Arya University College, London

This is a concise introduction to the design of structural elements in concrete, steel, timber, masonry and composites. It provides design principles and guidance in line with Eurocodes, current as of 2021. Topics include the philosophy of design, sustainable development, basic structural concepts, and material properties. The chapters encompass numerous diagrams and worked examples on design in reinforced concrete, structural steelwork and steel/concrete composites, masonry and timber based on EN 1990-1997. Elements considered cover reinforced concrete and composite floors, isolated foundation, cantilever retaining wall, load-bearing and panel walls, stud wall and connections.

CRC Press
May 2022 : 520pp
Pb: 978-1-032-07631-7 : **£47.99**
Hb: 978-1-032-07632-4 : **£120**
eBook: 978-1-003-20803-7

* For full contents and more information, visit: www.routledge.com/9781032076317

Drift-Driven Design of Buildings

Mete Sozen's Works on Earthquake Engineering



Santiago Pujol, Ayhan Irfanoglu, Aishwarya Puranam

This book summarizes the most essential concepts that every engineer designing a new building or evaluating an existing structure should consider to control the damage caused by drift (deformation) induced by earthquakes. It presents the work on earthquake engineering done by Dr. Mete Sozen and dozens of his collaborators and students over decades of experimentation, analysis, and reconnaissance. Many of the concepts produced through this work are integral part of earthquake engineering today.

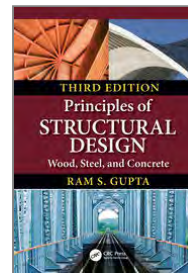
CRC Press
October 2024 : 318pp
Pb: 978-1-032-25178-3 : **£45.99**
Hb: 978-1-032-24657-4 : **£84.99**
eBook: 978-1-003-28193-1

* For full contents and more information, visit: www.routledge.com/9781032251783

3RD EDITION

Principles of Structural Design

Wood, Steel, and Concrete, Third Edition



Ram S. Gupta Roger Williams University, Bristol, Rhode Island, USA

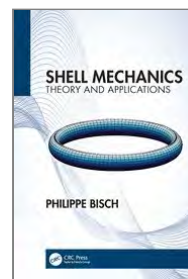
Timber, steel, and concrete are common engineering materials used in structural design. Material choice depends upon the type of structure, availability of material, and the preference of the designer. The design practices the code requirements of each material are very different. In this updated edition, the elemental designs of individual components of each material are presented, together with theory of structures essential for the design. Numerous examples of complete structural designs have been included. A comprehensive database comprising materials properties, section properties, specifications, and design aids, has been included to make this essential reading.

CRC Press
June 2019 : 617pp
Hb: 978-1-138-49353-7 : **£115**
eBook: 978-1-351-02770-0

* For full contents and more information, visit: www.routledge.com/9781138493537

Shell Mechanics

Theory and Applications



Philippe Bisch Ecole des Ponts ParisTech, France

This book is devoted to shells, a natural or human construction, whose modelling as a structure was particularly developed during the 20th century, leading to current numerical models. It highlights the very strong link between the deformation of geometric surfaces and the mechanics of shells. The book is based on the knowledge acquired by the reader in structural mechanics and provides the necessary information on the geometry of surfaces. It is particularly aimed at students in the fields of engineering using mechanics, as well as professionals wishing to deepen their knowledge of shells.

CRC Press
September 2023 : 562pp
Hb: 978-1-138-31059-9 : **£140**
eBook: 978-0-429-44040-3

* For full contents and more information, visit: www.routledge.com/9781138310599

Structural Design Against Deflection



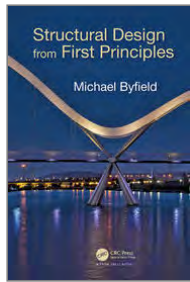
Tianjian Ji The University of Manchester, United Kingdom

This presents qualitative relationships between internal forces and deflection and demonstrates principles and measures for designing structures against deflection in order to achieve more effective, efficient and elegant structures. Hand calculations and other practical examples are given for undergraduates and practising structural engineers and architects.

CRC Press
March 2020 : 210pp
Pb: 978-0-367-89793-2 : **£66.99**
Hb: 978-1-138-61098-9 : **£130**
eBook: 978-0-429-46531-4

* For full contents and more information, visit: www.routledge.com/9780367897932

Structural Design from First Principles



Michael Byfield

This undergraduate civil engineering textbook explains structural design from its mechanical principles rather than design codes. It presents good approximate solutions to complex design problems, such as "Wembley-Arch" type structures, the design of thin-walled structures, and long-span box girder bridges. These relatively simple techniques enable quick, early stage, "ball-park" design solutions, and are also useful for checking finite element analysis solutions to complex problems. It is consistent with the Eurocodes, but with the underlying theory fully explained. Explanation is closely linked to a structured series of worked examples at the end of each section

CRC Press

February 2018 : 335pp

Pb: 978-1-498-74121-7 : **£49.99**

Hb: 978-1-138-50349-6 : **£135**

eBook: 978-1-315-11691-4

* For full contents and more information, visit: www.routledge.com/9781498741217

3RD EDITION

Structural Engineer's Pocket Book: Eurocodes



Fiona Cobb Consulting Engineer, UK

Now in its third edition, this book forms a comprehensive pocket reference guide for professional and student structural engineers, especially those taking the IStructE Part 3 exam. With stripped-down basic material—tables, data, facts, formulae, and rules of thumb—it is directly usable for scheme design by structural engineers in the office, in transit, or on site. It brings together data from many different sources, and delivers a compact source of job-simplifying and time-saving information at an affordable price.

CRC Press

November 2014 : 464pp

Pb: 978-0-080-97121-6 : **£38.99**

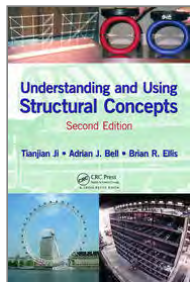
Hb: 978-1-138-47018-7 : **£190**

eBook: 978-0-429-18490-1

* For full contents and more information, visit: www.routledge.com/9780080971216

2ND EDITION

Understanding and Using Structural Concepts



Tianjian Ji The University of Manchester, United Kingdom, **Adrian J. Bell** The University of Manchester, United Kingdom, **Brian R. Ellis** Retired from Building Research Establishment Ltd., UK

This book focuses on the understanding and use of structural concepts, with numerous demonstrations using physical models and practical examples. It connects abstract theory and demonstrates the application of the concepts. This new edition considers the relationships between static and dynamic problems, experimental and theoretical studies, and theory and practice. It suits a range of students in civil and structural engineering, including graduates as well as the more technically-minded architecture students and practicing engineers.

CRC Press

December 2015 : 394pp

Pb: 978-1-498-70729-9 : **£68.99**

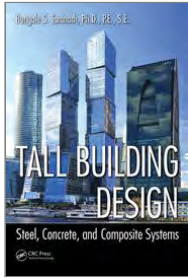
Hb: 978-1-138-47019-4 : **£185**

eBook: 978-0-429-17215-1

* For full contents and more information, visit: www.routledge.com/9781498707299

Tall Building Design

Steel, Concrete, and Composite Systems



Bungale S. Taranath Chino Hills, California, USA

This book examines the behavior of structural members and systems to aid in the structural design of tall buildings in conjunction with the latest building codes. These code provisions are subject to change periodically. Familiarity with current methodologies is essential to designing structures that comply with legally adapted standards in a safe, economic, and efficient manner. However, the first nine chapters explain the fundamental principles of structural engineering in such a manner as to be entirely independent of code regulations.

CRC Press

July 2016 : 872pp

Hb: 978-1-466-55620-1 : **£175**

eBook: 978-1-315-37446-8

* For full contents and more information, visit: www.routledge.com/9781466556201

Fundamentals of Structural Engineering

A Problem-Based Approach



Tanvir Mustafy Military Inst. of Science and Tech, BD

This book provides an introduction to the principles of structural engineering using a problem-based approach. It covers the basic concepts of structural analysis and design, including statics, strength of materials, and mechanics of materials. The text emphasizes the application of these principles to real-world structural engineering problems and includes numerous example problems and case studies to illustrate key concepts. The problem-based approach helps students develop their problem-solving skills, critical thinking abilities, and intuition for structural engineering.

CRC Press

December 2024 : 570pp

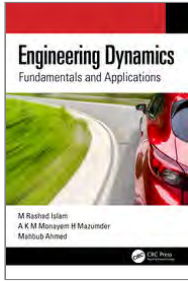
Hb: 978-1-032-63805-8 : £100

eBook: 978-1-032-63807-2

* For full contents and more information, visit: www.routledge.com/9781032638058

Engineering Dynamics

Fundamentals and Applications



M Rashad Islam, A K M Monayem H Mazumder, Mahbub Ahmed

This textbook is intended for the first course of engineering dynamics for undergraduate students. Engineering dynamics is a rigorous topic that typically involves the intensive use of vector mathematics and calculus. This book, however, uses plain language with less vector mathematics and calculus to introduce these topics of mathematics to students with a high school physics background. Numerous practical examples are provided with their step-by-step worked out solutions, as well as case studies to reflect the interests of new engineering and applied engineering students.

CRC Press

November 2024 : 276pp

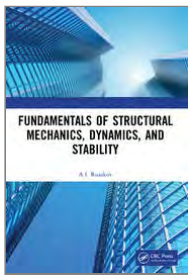
Pb: 978-1-032-25561-3 : **£45.99**

Hb: 978-1-032-25557-6 : **£105**

eBook: 978-1-003-28395-9

* For full contents and more information, visit: www.routledge.com/9781032255613

Fundamentals of Structural Mechanics, Dynamics, and Stability



A.I. Rusakov Rostov State Transport University, Rostov-na-Donu, Russia Federation

Fundamentals of Structural Mechanics, Dynamics, and Stability examines structural mechanics from a foundational point of view and allows students to use logical inference and creative reasoning to solve problems versus rote memorization. It presents underlying theory and emphasizes the relevant mathematical concepts as related to structural mechanics in each chapter. Problems, examples, and case studies are provided throughout, as well as simulations to help further illustrate the content.

CRC Press

September 2023 : 468pp

Pb: 978-0-367-61694-6 : **£63.99**

Hb: 978-1-498-77042-2 : **£165**

eBook: 978-0-429-15529-1

* For full contents and more information, visit: www.routledge.com/9780367616946

Structural Mechanics Fundamentals



Alberto Carpinteri Politecnico di Torino, Italy

Offering a complete and uniform treatment of the most fundamental and essential topics in structural mechanics, this book presents a traditional subject in an updated and modernized way. It merges classical topics with ones that have taken shape more recently, such as duality. The book covers the mechanics of linear elastic solids, the theory of beam systems, and the phenomena of structural failure. A text for senior undergraduate and graduate students in structural engineering and architecture, it is also a valuable reference for practicing engineers and researchers.

CRC Press

September 2013 : 512pp

Pb: 978-0-415-58032-8 : **£58.99**

Hb: 978-1-138-58076-3 : **£155**

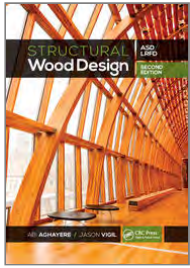
eBook: 978-1-315-27252-8

* For full contents and more information, visit: www.routledge.com/9780415580328

2ND EDITION

Structural Wood Design

ASD/LRFD

**Abi Aghayere , Jason Vigil**

This simple, practical, and concise guide to timber design uses both the Allowable Stress Design and the Load and Resistance Factor Design methods. It equips students to design real-world wood structures, taking a holistic project-based learning approach and using practical example problems. This new edition provides more on the student design project with examples of drawings and specifications used for construction; in-depth coverage of lateral force resisting systems for wood construction; design examples using LRFD for joists, girders and axially load member; framing and framing systems; long span wood members and members used in high-rise construction; and updated floor span charts.

CRC Press

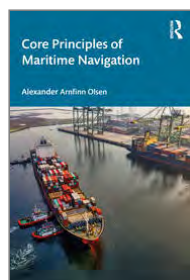
December 2019 : 648pp

Pb: 978-0-367-87562-6 : **£39.99**Hb: 978-1-498-74985-5 : **£81.99**

eBook: 978-1-315-36839-9

* For full contents and more information, visit: www.routledge.com/9780367875626

Core Principles of Maritime Navigation



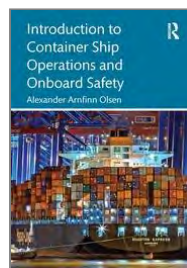
Alexander Arnfinn Olsen RINA Consulting Defence, UK

Core Principles of Maritime Navigation introduces the main navigation concepts required by trainees and professionals involved in maritime operations. The book covers a wide range of subjects from wind, waves and depths to navigational marks and buoys, navigational techniques and equipment, passage planning, duties of the Officer of the Watch, berthing and anchorage. It is not intended to be a technical publication; rather, it aims to introduce core ideas and concepts in an accessible way for general readers, university students, cadets and for the continuous professional development of experienced seafarers.

Routledge
August 2022 : 200pp
Pb: 978-1-032-27138-5 : **£47.99**
Hb: 978-1-032-27139-2 : **£135**
eBook: 978-1-003-29153-4

* For full contents and more information, visit: www.routledge.com/9781032271385

Introduction to Container Ship Operations and Onboard Safety



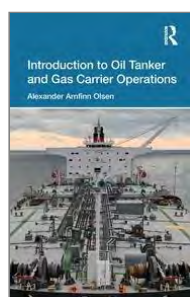
Alexander Arnfinn Olsen RINA Consulting Defence, UK

Introduction to Ship Operations and Onboard Safety is an introduction for students and professionals involved in the maritime industry. It provides an overview of the merchant navy from its beginnings to the present day, entry and training requirements, shipboard hierarchy and roles and responsibilities, shipboard safety organisation, inductions and new crew member familiarisation, safe means of access to enclosed spaces, general housekeeping, risk assessment and risk management. In addition, it examines specific hazardous activities such as cargo loading and unloading, drydocking, drills and actions to take in the event of an emergency.

Routledge
March 2022 : 332pp
Pb: 978-1-032-15542-5 : **£45.99**
Hb: 978-1-032-15543-2 : **£84.99**
eBook: 978-1-003-24461-5

* For full contents and more information, visit: www.routledge.com/9781032155425

Introduction to Oil Tanker and Gas Carrier Operations



Alexander Arnfinn Olsen RINA Consulting Defence, UK

This book introduces the mandatory minimum requirements for training and qualifications for masters, officers, and ratings serving on board liquefied gas tankers. It covers basic safety and pollution-prevention precautions and procedures, layouts of several types of liquefied gas tankers, types of cargo, their hazards, and their handling equipment, as well as general operational sequence and liquefied gas tanker terminology. The book covers the Level 1 training requirements prescribed by Regulation V/1, paragraph 1.2 of the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, STCW-95.

Routledge
December 2024 : 352pp
Hb: 978-1-032-82400-0 : **£110**
eBook: 978-1-032-50504-4

* For full contents and more information, visit: www.routledge.com/9781032824000

Maritime Cargo Operations



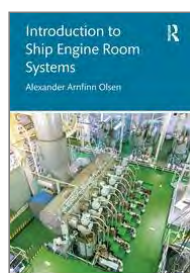
Alexander Arnfinn Olsen RINA Consulting Defence, UK

Maritime Cargo Operations introduces the core concepts of cargo work for marine engineering students and cadets. It provides enough detail to provide a sound basis for a future career, and is built around the essential principles of the maritime profession. Each subject area begins with a learning outcome and ends with self-test questions. It also offers a general overview for deck officers.

Routledge
April 2023 : 314pp
Pb: 978-1-032-40696-1 : **£47.99**
Hb: 978-1-032-40697-8 : **£140**
eBook: 978-1-003-35433-8

* For full contents and more information, visit: www.routledge.com/9781032406961

Introduction to Ship Engine Room Systems



Alexander Arnfinn Olsen RINA Consulting Defence, UK

Introduction to Ship Engine Room Systems outlines the key systems, machinery and equipment found in a ship's engine room. It covers the basics of their function with overall practical guidance for engine room operation and maintenance, recognising emerging environmental challenges. It serves as an introduction for engineering students at HNC, HND and foundation degree level and marine engineering cadets, as well as a useful guide for deck officers and cadets who want a general appreciation of how the engine room functions.

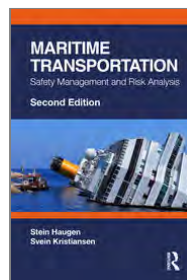
Routledge
April 2023 : 424pp
Pb: 978-1-032-34227-6 : **£65.99**
Hb: 978-1-032-34228-3 : **£160**
eBook: 978-1-003-32109-5

* For full contents and more information, visit: www.routledge.com/9781032342276

2ND EDITION

Maritime Transportation

Safety Management and Risk Analysis



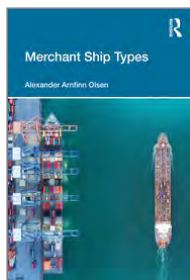
Stein Haugen Norwegian University of Science and Technology, **Svein Kristiansen** Norwegian University of Science and Technology

This overview maritime safety management, covers regulations and guidelines, current practice, and approaches and methods, along with practice from other industries. This extensively revised new edition provides brand new chapters on security and on terminology, and significant new coverage of risk acceptance, safety management systems, human reliability assessment, and formal safety assessment. It addresses the needs of both professionals and students working in the related fields of shipping management, ship design and naval architecture and transport management, as well as fields including safety management, insurance and accident investigation.

Routledge
December 2022 : 672pp
Pb: 978-0-367-51856-1 : **£76.99**
Hb: 978-0-367-51857-8 : **£210**
eBook: 978-1-003-05546-4

* For full contents and more information, visit: www.routledge.com/9780367518561

Merchant Ship Types



Alexander Arnfinn Olsen RINA Consulting Defence, UK

This gives students and cadets a detailed introduction to the classifications and main categories of merchant vessels. It introduces the concept of ship classification – by usage (feeder, general, container, tankers, dry bulk, multi-purpose, reefers, and roll on roll off), by cargo type (dry cargo, wet cargo, specialised), and by size (Handy, Seawaymax, Panamax, NeoPanamax, VLCC). It explains the ports and channels where and why each type is permitted to enter, showing the type of cargoes carried, and specific safety or risk factors, and their main characteristics, along with relevant case studies.

Routledge

January 2023 : 350pp

Pb: 978-1-032-37875-6 : **£51.99**

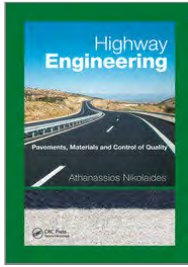
Hb: 978-1-032-37876-3 : **£130**

eBook: 978-1-003-34236-6

* For full contents and more information, visit: www.routledge.com/9781032378756

Highway Engineering

Pavements, Materials and Control of Quality



Athanassios Nikolaides Aristotle University of Thessaloniki, Greece

This comprehensive textbook covers all aspects of pavement engineering. The content takes into account new developments and includes both the recently completed European norms and the revised ASTM and AASHTO American standards, as well as some Australian standards. The book is derived from the authors' experience working as a teacher, researcher, and consultant and technical committee member in Europe and abroad over the last 30 years.

CRC Press

July 2017 : 924pp

Pb: 978-1-138-89376-4 : **£76.99**

Hb: 978-1-466-57996-5 : **£210**

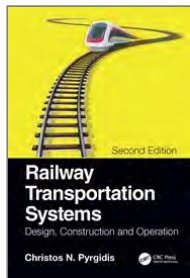
eBook: 978-0-429-10066-6

* For full contents and more information, visit: www.routledge.com/9781138893764

2ND EDITION

Railway Transportation Systems

Design, Construction and Operation



Christos N. Pyrgidis Aristotle University of Thessaloniki, Greece

This comprehensive overview covers the entire range of railway passenger systems, from conventional and high-speed intercity systems to suburban, regional, operating on steep gradients, and urban ones. It also examines in depth freight railway systems transporting conventional loads, heavy loads, and dangerous goods. This new edition brings two new chapters. One concerns pre-feasibility studies of urban rail projects, and the other analyses the operation of railway systems under specific weather conditions and natural phenomena. It is ideal for graduate students, engineers, consultants, manufacturers, and transport company executives who need a reference and guide.

CRC Press

November 2021 : 594pp

Pb: 978-0-367-49423-0 : **£59.99**Hb: 978-0-367-49421-6 : **£155**

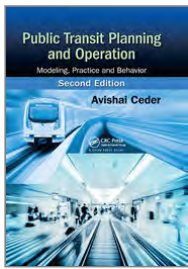
eBook: 978-1-003-04607-3

* For full contents and more information, visit: www.routledge.com/9780367494230

2ND EDITION

Public Transit Planning and Operation

Modeling, Practice and Behavior, Second Edition

**Avishai Ceder**

This book examines the main components affecting the viability of a public-transport service from both the passenger and agency perspectives, and offers solutions to well-known problems in the field. This second edition establishes a bridge between the world of practitioners and the world of research and academia. It presents new material on the design of network of routes, reliability and scheduling, coordination and connectivity, operational strategies and tactics, and new topics such as passenger behavior, multi-vehicle operations, multi-agent transit systems, and transit automation.

CRC Press

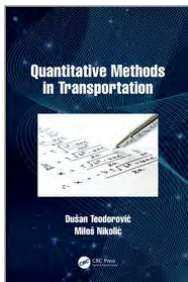
December 2019 : 742pp

Pb: 978-0-367-86760-7 : **£45.99**Hb: 978-1-466-56391-9 : **£84.99**

eBook: 978-0-429-10024-6

* For full contents and more information, visit: www.routledge.com/9780367867607

Quantitative Methods in Transportation

**Dušan Teodorović** University of Belgrade, Serbia, **Miloš Nikolić**

This textbook of quantitative methods in transportation engineering comes with problems and a solutions manual for adopting course instructors. Basic mathematics and calculus are prerequisites. It covers linear programming, integer programming, dynamic programming and multi-objective programming. It moves to more advanced combinatorial techniques which depend on metaheuristic algorithms. Then to probability theory and statistics, and simulation models. And progresses to computational intelligent systems, such as fuzzy logic, artificial neural networks, and genetic algorithms. These are applied to transportation problems such as demand management, network planning and traffic control.

CRC Press

August 2020 : 480pp

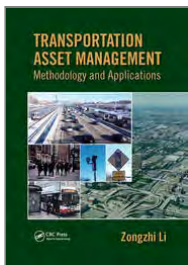
Pb: 978-0-367-25053-9 : **£49.99**Hb: 978-0-367-25054-6 : **£150**

eBook: 978-0-429-28691-9

* For full contents and more information, visit: www.routledge.com/9780367250539

Transportation Asset Management

Methodology and Applications

**Zongzhi Li**

Transportation asset management delivers efficient and cost-effective investment decisions to support transportation infrastructure and system usage performance measured in economic, social, health, and environmental terms. It can be applied at national, state, and local levels. This can be applied to multimodal transportation, taking account of system component interdependency, integration, and risk and uncertainty. It applies as easily to static traffic and time-dependent or dynamic traffic. It is written for transportation planners and engineers, as well as graduate students.

CRC Press

September 2020 : 760pp

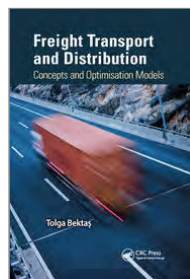
Pb: 978-0-367-65708-6 : **£44.99**Hb: 978-1-482-21052-1 : **£130**

eBook: 978-1-315-11796-6

* For full contents and more information, visit: www.routledge.com/9780367657086

Freight Transport and Distribution

Concepts and Optimisation Models



Tolga Bektas

This book provides a general and broad coverage of concepts, models, and solution methodologies available for freight transportation. It includes preliminaries, such as mathematical modeling and simulation, but does not require prior knowledge of these techniques. Case studies or practical examples are featured in each chapter to illustrate applications of the concepts and models covered and to encourage a hands-on and practical approach. Both authors have taught and published extensively in the field and draw on state-of-the-art scientific research.

CRC Press

December 2019 : 288pp

Pb: 978-0-367-87087-4 : **£45.99**

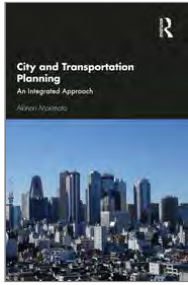
Hb: 978-1-482-25870-7 : **£86.99**

eBook: 978-1-315-17396-2

* For full contents and more information, visit: www.routledge.com/9780367870874

City and Transportation Planning

An Integrated Approach



Akinori Morimoto Waseda University, Japan

Many urban and transportation problems, such as traffic congestion, traffic accidents and environmental burdens, result from poor integration of land use and transportation. This graduate-level textbook outlines strategies for sustainably integrating land use and transportation planning, addressing the impact on land use of advanced transport like light rail transit and autonomous cars, and the emerging focus on cyber space and the role of ICT and big data in city planning.

Routledge

August 2021 : 222pp

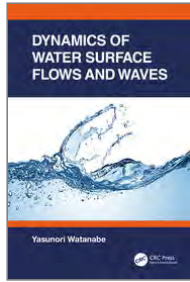
Pb: 978-0-367-63601-2 : **£49.99**

Hb: 978-0-367-63602-9 : **£110**

eBook: 978-1-003-11991-3

* For full contents and more information, visit: www.routledge.com/9780367636012

Dynamics of Water Surface Flows and Waves



Yasunori Watanabe Hokkaido University, Japan

This graduate-level textbook and reference takes a theoretical and analytical approach to theoretical surface and wave dynamics over wide ranging lengths and time-scales. It starts with fundamental fluid dynamics, and the dynamics of free-surfaces and interfaces with vortices, as applied to small amplitude waves, deformations of a thin film, jets, and sloshing waves in containers. The flow theory includes stability of water surfaces and wave-current interactions, and is applied to waves observed in open ocean and shallower coastal regions, exploring the evolution of wave packets, interactions with structures, currents, and bathymetry, and breaking wave dynamics.

CRC Press

January 2025 : 296pp

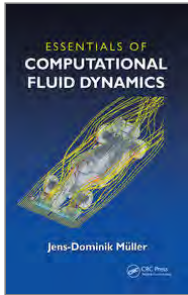
Pb: 978-0-367-69043-4 : **£45.99**

Hb: 978-0-367-69042-7 : **£76.99**

eBook: 978-1-003-14016-0

* For full contents and more information, visit: www.routledge.com/9780367690434

Essentials of Computational Fluid Dynamics



Jens-Dominik Müller Queen Mary University of London, England, UK

Approaching the material from the viewpoint of a user of a commercial flow package, this book initially limits the description of the mathematics to the level that is strictly needed to make the correct choices when setting up a case in a commercial flow solver. It discusses the sources of errors in FD solutions using simple examples with finite differences, and they are demonstrated with mesh convergence studies. It focuses on the understanding of how the flow physics interact with a typical finite-volume discretization.

CRC Press

November 2015 : 238pp

Pb: 978-1-482-22730-7 : **£96.99**

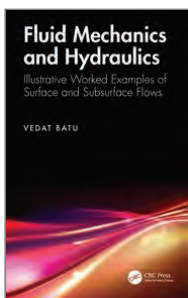
Hb: 978-1-138-40130-3 : **£175**

eBook: 978-0-429-18868-8

* For full contents and more information, visit: www.routledge.com/9781482227307

Fluid Mechanics and Hydraulics

Illustrative Worked Examples of Surface and Subsurface Flows



Vedat Batu

Fluid Mechanics and Hydraulics: Illustrative Worked Examples of Surface and Subsurface Flows presents the basic principles of fluid mechanics through the use of numerous worked examples. It serves as an effective learning source for college students and as a teaching tool for instructors (with an included solutions manual) as well as for practicing professionals in the areas of fluid mechanics and hydraulics.

CRC Press

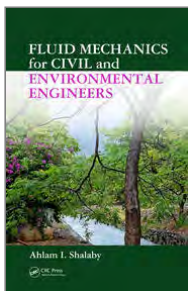
May 2024 : 1268pp

Hb: 978-1-032-60078-9 : **£165**

eBook: 978-1-003-45744-2

* For full contents and more information, visit: www.routledge.com/9781032600789

Fluid Mechanics for Civil and Environmental Engineers



Ahlam I. Shalaby Howard University

An ideal textbook for civil and mechanical engineers taking the required Introduction to Fluid Mechanics course, Engineering Fluid Mechanics: An Introduction offers clear guidance and builds a firm real-world foundation using practical examples and problem sets. Each chapter begins with a statement of objectives and includes practical examples to relate the theory to real-world engineering design challenges. The authors place special emphasis on topics that are included in the Fundamentals of Engineering exam and make the book more accessible by highlighting keywords and important concepts, including MathCAD algorithms, and providing chapter summaries of important concepts and equations.

CRC Press

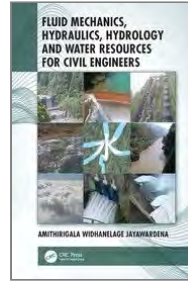
March 2018 : 1684pp

Hb: 978-0-849-33737-6 : **£165**

eBook: 978-1-315-15663-7

* For full contents and more information, visit: www.routledge.com/9780849337376

Fluid Mechanics, Hydraulics, Hydrology and Water Resources for Civil Engineers



Amithirigala Widhanelage Jayawardena The University of Hong Kong

This textbook combines the essentials of water science and engineering needed by civil engineering students and practitioners: fluid mechanics, hydraulics, hydrology and water resources. It also touches on water related disasters and the role of water in sustainability. Traditional textbooks tend to look at these themes discretely, and so miss the natural connections between them, and the commonality of their underlying foundations. Students from junior undergraduate to Masters level should find this a useful text and key reference.

CRC Press

January 2021 : 894pp

Pb: 978-1-138-39081-2 : **£68.99**

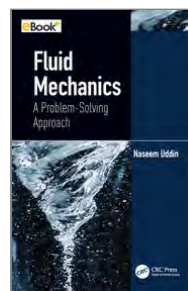
Hb: 978-1-138-39080-5 : **£175**

eBook: 978-0-429-42311-6

* For full contents and more information, visit: www.routledge.com/9781138390812

Fluid Mechanics

A Problem-Solving Approach



Naseem Uddin Universiti Teknologi Brunei

Fluid Mechanics: A Problem-Solving Approach presents problem-solving approaches that are used in fluid mechanics and provides a clear distinction between integral formulation and the different formulation of conservation law. The book is intended for senior undergraduate mechanical and civil engineering students taking courses in Fluid Mechanics. Including a detailed discussion on pipe flow correlations, entrance length correlations, and plotting of Moody diagram, the book works through the comprehensive coverage of fluid mechanics with a gradual introduction of theory in a straightforward, practical approach.

CRC Press

December 2022 : 537pp

Hb: 978-1-032-32453-1 : **£105**

eBook: 978-1-032-32456-2 : **£105**

* For full contents and more information, visit: www.routledge.com/9781032324531

2ND EDITION

Fluid Mechanics

An Intermediate Approach



Bijay K. Sultanian University of Central Florida, FL

Fluid Mechanics: An Intermediate Approach helps readers develop a physics-based understanding of complex flows and mathematically model them with accurate boundary conditions for numerical predictions. The book includes numerous worked examples and end-of-chapter problems for student practice. It also discusses how to numerically model compressible flow over all Mach numbers in a variable-area duct, accounting for friction, heat transfer, rotation, internal choking, and normal shock formation. The book is intended for graduate mechanical and aerospace engineering students taking courses in Fluid Mechanics and Gas Dynamics.

CRC Press

January 2025 : 390pp

Hb: 978-1-032-35079-0 : **£110**

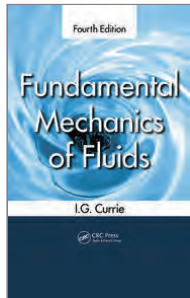
eBook: 978-1-003-32519-2

eBook: 978-1-003-32519-2

* For full contents and more information, visit: www.routledge.com/9781032350790

4TH EDITION

Fundamental Mechanics of Fluids



I.G. Currie University of Toronto, Ontario, Canada

Fully updated and expanded to reflect advances in modern mathematics, this fourth edition boasts 40 new homework problems (nearly 150 in total); new appendix material summarizing vectors, tensors, complex variables, and governing equations in common coordinate systems; and a new chapter on similarity solutions, group invariance solutions, separation of variables solutions, and some Fourier series representations. Illustrating basic equations and strategies to analyze fluid dynamics, mechanisms, and behavior, this new edition also contains reworked line drawings, revised problems, and extended end-of-chapter questions for clarification and expansion of key concepts.

CRC Press

August 2012 : 604pp

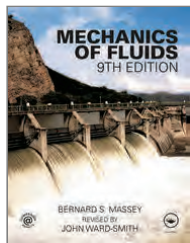
Hb: 978-1-439-87460-8 : **£135**

eBook: 978-0-429-09888-8

* For full contents and more information, visit: www.routledge.com/9781439874608

9TH EDITION

Mechanics of Fluids



John Ward-Smith (Formerly Brunel University, UK)

This ninth edition adds a section examining the modern context of fluid mechanics and associated issues including climate change, new forms of energy generation, and fresh water conservation.

CRC Press

August 2011 : 720pp

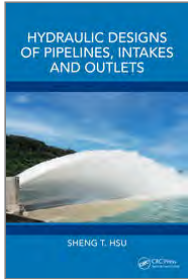
Pb: 978-0-415-60260-0 : **£58.99**

Hb: 978-0-415-60259-4 : **£210**

eBook: 978-1-315-27254-2

* For full contents and more information, visit: www.routledge.com/9780415602600

Hydraulic Designs of Pipelines, Intakes and Outlets



Sheng T. Hsu GT International, Taipei, Taiwan

This book addresses hydraulic design considerations of integrated pipeline systems, including intakes, conduits, and outlets. Based on the author's experience of over 50 years working with hydraulic designs of structures as well as designs, analyses and trouble-shootings of pipeline systems, the book discusses actual design practice and presents a range of real-world examples of projects conducted and participated in by the author. This applied approach gives the book a uniquely practical focus. The book serves as a reference for practitioners as well as a textbook for postgraduate students.

CRC Press

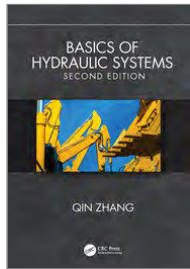
February 2025 : 364pp

Hb: 978-1-032-60651-4 : £140

* For full contents and more information, visit: www.routledge.com/9781032606514

2ND EDITION

Basics of Hydraulic Systems, Second Edition



Qin Zhang Washington State University, Prosser, USA

Basics of Hydraulic Systems, Second Edition provides students and professionals in both engineering and technology management fields a basic book to assist in their study of fluid power systems technology. This edition is expanded to include new chapters on system modeling and hydraulic systems controls. The text covers subjects essential to understanding operating principles, configuration features, functionalities, applications of composing elements, and controls of hydraulic systems. It presents them in a systematic, accessible way, following the course of energy transmission in hydraulic power generation, distribution, deployment, modeling, and control in fluid power systems.

CRC Press

March 2019 : 338pp

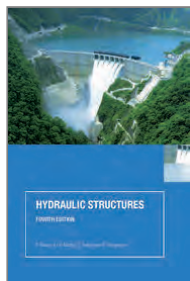
Hb: 978-1-138-48466-5 : **£135**

eBook: 978-0-429-19726-0

* For full contents and more information, visit: www.routledge.com/9781138484665

4TH EDITION

Hydraulic Structures



P. Novak formerly at University of Newcastle-upon-Tyne, UK, **A.I.B. Moffat** formerly at the University of Newcastle upon Tyne, UK, **C. Nalluri** formerly at the University of Newcastle upon Tyne, UK, **R. Narayanan** formerly at University of Manchester, UK

The fourth edition of this volume presents design principles and practical guidance for key hydraulic structures. Fully revised and updated this new edition contains enhanced texts and sections on key topics. Worked numerical examples supplement the main text and extensive lists of references conclude each chapter. Hydraulic Structures provides advanced students with a solid foundation in the subject and is a useful reference source for researchers, designers and other professionals. Selected Contents: Part One: Dam Engineering. 1. Elements of Dam Engineering. 2. Embankment Dam Engineering. 3. Concrete Dam Engineering. 4. Dam Outlet Works. 5. Energy Dissipation. 6. Gates and Valves. 7. Dam Safety. Part Two: Other Hydraulic Structures. 8. River Engineering. 9. Diversion Works. 10. Cross-drainage and Drop Structures. 11. Inland Waterways. 12. Hydr

CRC Press

December 2006 : 728pp

Pb: 978-0-415-38626-5 : **£58.99**

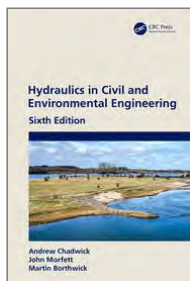
Hb: 978-0-415-38625-8 : **£240**

eBook: 978-1-315-27489-8

* For full contents and more information, visit: www.routledge.com/9780415386265

6TH EDITION

Hydraulics in Civil and Environmental Engineering



Andrew Chadwick former university lecturer, UK, **John Morfett**, **Martin Borthwick** Environment Agency, UK

This classic textbook brings together the basic principles of civil engineering hydraulics with a wide-range of practical, real-world applications. This new edition gives more on hydrostatics, along with new problems for students to practice with. Uncertainty estimation and its application to design is presented in the hydrology, river and coastal engineering chapters. Recommendations for climate change predictions, impacts and adaptation measures have been updated, as has the chapter on computational hydraulics for the application of computational simulation techniques. Spreadsheets and a solutions manual for lecturers are given on www.crcpress.com

CRC Press

June 2021 : 652pp

Pb: 978-0-367-46089-1 : **£61.99**

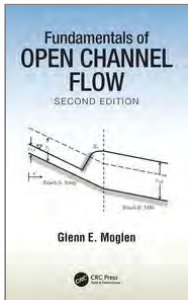
Hb: 978-0-367-46090-7 : **£155**

eBook: 978-1-003-02683-9

* For full contents and more information, visit: www.routledge.com/9780367460891

2ND EDITION

Fundamentals of Open Channel Flow



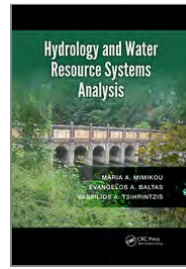
Glenn E. Moglen US Department of Agriculture, USA

This new edition focuses on theory with clear, fully-solved examples, and practical tools such as spreadsheets and software. Now with more on design applications, including culvert design, a wider range of channel shapes, and an update of the US Corps of Engineers' HEC-RAS program. It suits a senior undergraduate or graduate student course, covering energy, momentum, friction, and gradually varied flow, both qualitative and quantitative, with the few simple equations needed. Energy-depth and momentum-depth relationships are looked at graphically and the book's website gives a wealth of interactive tools and animations showing actual flow dynamics of some transient flow problems.

CRC Press
December 2022 : 322pp
Pb: 978-1-032-20455-0 : **£61.99**
Hb: 978-1-032-20456-7 : **£135**
eBook: 978-1-032-38171-8 : **£59.99**

* For full contents and more information, visit: www.routledge.com/9781032204550

Hydrology and Water Resource Systems Analysis



Maria A. Mimikou National Technical University of Athens, Greece, **Evangelos A. Baltas** National Technical University of Athens, Greece, **Vassilios A. Tsihrintzis** National Technical University of Athens, Greece

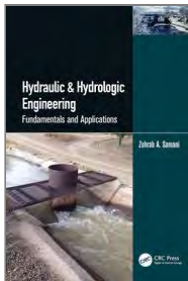
Hydrology and water resources analysis can be looked at together, but this is the only book that presents the relevant material and bridges the gap between scientific processes and applications in one text. It is written for advanced undergraduate and graduate students and for practitioners. It can assist hydrologists and water-related professionals with an unfamiliar term or a new subject area, a formula, the procedure for solving a problem, guidance on the available computer packages, or how to obtain values from a table of data.

CRC Press
November 2018 : 464pp
Pb: 978-0-367-02801-5 : **£25.99**
Hb: 978-1-466-58130-2 : **£81.99**
eBook: 978-1-315-37424-6

* For full contents and more information, visit: www.routledge.com/9780367028015

Hydraulic & Hydrologic Engineering

Fundamentals and Applications



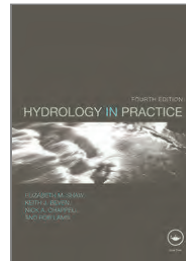
Zohrab A. Samani

This book is the culmination of over 40 years of teaching, research, consulting, and international technology transfer activities. It consists of seven chapters with coverage including pipeline design, design safety, design of pumping systems, deep well turbine and submersible pumps characteristics, open channels, hydrology and design of culverts, and flow measurement devices. Some of the practical examples in this book are derived from field experience with water resource related industries at national and international levels.

CRC Press
November 2024 : 166pp
Pb: 978-1-032-26284-0 : **£45.99**
Hb: 978-1-032-26278-9 : **£84.99**
eBook: 978-1-003-28753-7

* For full contents and more information, visit: www.routledge.com/9781032262840

Hydrology in Practice



Elizabeth M. Shaw, **Keith J. Beven** Lancaster University, UK, **Nick A. Chappell** Lancaster University, UK, **Rob Lamb** JBA Consulting, UK

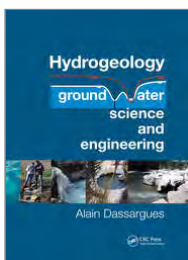
This is an introductory textbook for engineering hydrology students who would go on to be practitioners in consultancies. The 4th edition replaces the material on the Flood Studies Report with an equivalent section on the methods of the Flood Estimation Handbook and its revisions. Other completely revised sections on instrumentation and modelling reflect the many changes that have occurred over recent years. Up to date methods and case studies and a wider range of material on hydrological processes are also included. Selected Contents: Part 1: Hydrological Measurements Part 2: Hydrological Analysis and Modelling Part 3: Applications

CRC Press
July 2010 : 560pp
Pb: 978-0-415-37042-4 : **£54.99**
Hb: 978-0-415-37041-7 : **£185**
eBook: 978-1-315-27490-4

* For full contents and more information, visit: www.routledge.com/9780415370424

Hydrogeology

Groundwater Science and Engineering



Alain Dassargues

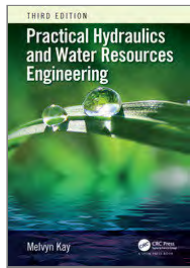
This text combines the science and engineering of hydrogeology. It provides a physical description and characterisation of hydrogeological processes and sets out the corresponding mathematical equations for groundwater flow and solute/heat transport calculations for graduate students and professionals.

CRC Press
September 2020 : 492pp
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3RD EDITION

Practical Hydraulics and Water Resources Engineering



Melvyn Kay Consultant Engineer, United Kingdom

Water engineering involves a range of issues – public water supply, agriculture, irrigation, energy, environment, and sustainable development – which all depend on basic hydraulics. This text suits a non-engineer: it is simple and practical and light on math, and uses 'stories' from the practice of water supply and sanitation, agriculture, energy, river engineering and in sustaining the aquatic environment. This third edition goes beyond hydraulic principles into water resources engineering and water planning and security, and explores pitfalls which can seriously affect future planning.

CRC Press

December 2016 : 375pp

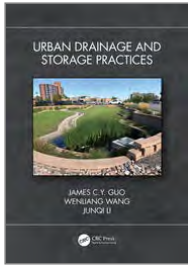
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Urban Drainage and Storage Practices



James C.Y. Guo U of Colorado Denver, USA, **Wenliang Wang** Beijing U of Civil Engr. & Architecture, China, **Junqi Li** Beijing U of Civil Engr. & Architecture, China

This text focuses on the development of urban storm water design methods using drainage and storage approaches for both water quality and quantity control. It covers conventional approaches to flood mitigation and low-impact methods for stormwater quality enhancement. Theory, practice, and modelling methods illustrate how to build a holistic stormwater drainage and storage system using urban open space and parks through multiple land use. Each chapter provides background theory, numerical experiments, illustrations, and Excel spreadsheets for design and calculation. It is ideal for graduate students studying urban hydrology, hydraulic engineering, and water resource management.

CRC Press

November 2024 : 432pp

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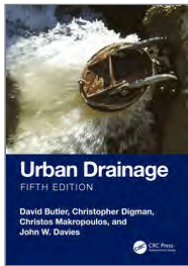
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5TH EDITION

Urban Drainage



David Butler University of Exeter, UK, **Christopher Digman**, **Christos Makropoulos** National Technical University of Athens, Zografou, Greece, **John W. Davies**

This new edition of a well-established textbook covers the health, environmental and engineering aspects of the management of rainwater and wastewater in areas of human development. This fifth edition includes a new chapter on urban drainage planning and coverage of emerging contaminants, wastewater surveillance, AI, digital twins and cyberphysical security. This is an essential text for undergraduates and graduate students, lecturers and researchers in water engineering, environmental engineering, public health engineering, engineering hydrology, and related disciplines. It also serves as a reference for drainage engineers.

CRC Press

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Pb: 978-1-032-51331-7 : **£49.99**

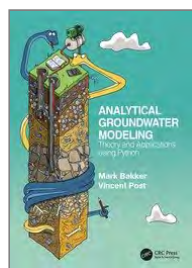
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Analytical Groundwater Modeling

Theory and Applications using Python



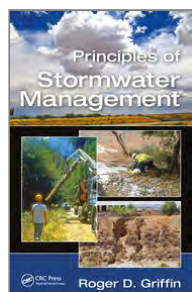
Mark Bakker TU Delft, Faculty of Civil Engineering and Geosciences, Delft, The Netherlands, **Vincent Post** Edinsl Groundwater, The Netherlands

This book covers the theoretical aspects of mathematical groundwater models. It is aimed at advanced (under)graduate university students, as well as practicing hydrogeologists. The focus is on the fundamentals of the quantitative methods used to simulate, understand, and investigate groundwater systems. Uniquely, it provides hands-on exercises based on the popular open-source programming language Python. The book's structure is such that the theoretical treatments of the modeling methods are exemplified by short pieces of computer code that demonstrate the implementation of the theory, making the book highly suitable for university courses on the fundamental aspects of groundwater modeling.

CRC Press
June 2022 : 242pp
Pb: 978-1-138-02939-2 : **£37.99**
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Principles of Stormwater Management



Roger D. Griffin Griffin Environmental International, Irvine, California, USA

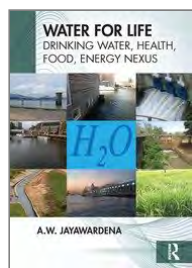
This book presents of all aspects of storm water management: the hydrologic cycle, sources of contaminants, standards applicable to discharges, regulatory issues, atmospheric deposition, best management practices, and health/environmental impacts. It includes technical details of the modern treatment of stormwater, the emerging issues of atmospheric deposition, run-on, and snow melt, the Epidemiologic Model, and field data on discharge concentrations of a variety of contaminants. The principles explained in this book will enable students, contractors, developers, and engineers to grasp the most important field elements which must be included for construction projects impacting stormwater.

CRC Press
February 2018 : 350pp
Hb: 978-1-138-09362-1 : **£120**
eBook: 978-1-351-11375-5

* For full contents and more information, visit: www.routledge.com/9781138093621

Water for Life

Drinking Water, Health, Food, Energy Nexus



A.W. Jayawardena University of Hong Kong, Hong Kong

Although there is plenty of water to meet the demands of the present population and even for a projected population of about 9 billion, it is not always available when and where needed. The water-food-energy nexus is central to sustainable development with water driving the food and energy sectors. This book surveys the multi-faceted uses, values and importance of water for mankind: water resources, chemistry of water, drinking water, and the links between water and health, food, irrigation, soil, energy, transport, industry, recreation, disasters and conflicts. It includes some links with water engineering to help students and practitioners.

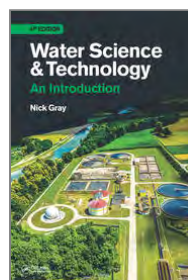
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4TH EDITION

Water Science and Technology

An Introduction



Nicholas Gray

Water and wastewater treatment technologies are constantly evolving, employing chemists, microbiologists, botanists, and zoologists as well as engineers. This broad and introductory textbook explains the fundamentals of hydrobiology, aquatic ecosystems, water treatment and supply, wastewater treatment and integrated catchment management – now with coverage of the effects of climate change, environmental assessment, sustainability and the threat to biodiversity. It serves as a primer for students or practitioners in science and engineering who have an interest in freshwater biology, chemistry, microbiology or environmental engineering or who need to span these areas.

CRC Press
June 2017 : 704pp
Pb: 978-1-498-75345-6 : **£76.99**
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2ND EDITION

Fundamentals of Wastewater Treatment and Engineering



Rumana Riffat George Washington University, USA,
Taqsim Husnain William Jewell College, USA

This new edition introduces readers to the fundamental concepts of wastewater treatment, followed by engineering design of unit processes for sustainable treatment of municipal wastewater and resource recovery. New chapters reflect advances in design, resource recovery practices and research. It covers history, current practices, emerging concerns, future directions and pertinent regulations that have shaped the objectives of this important area of engineering. Ideally suited for undergraduate and graduate students who have some knowledge of environmental chemistry and fluid mechanics, as well as professionals in the wastewater industry.

CRC Press

May 2024 : 430pp

Pb: 978-0-367-68132-6 : **£46.99**

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