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# Civil Engineering Textbook Catalogue Spring 2024



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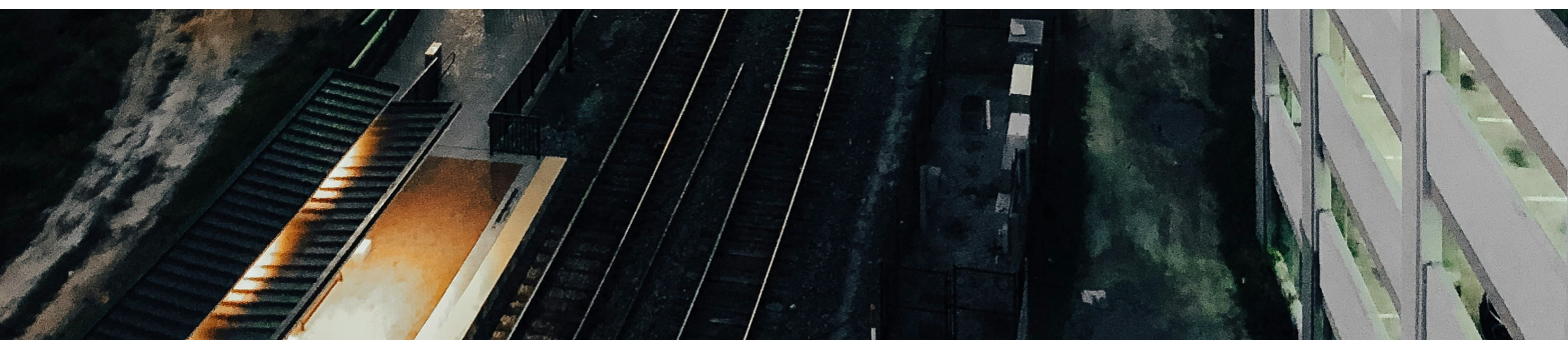


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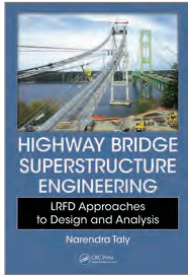


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## Highway Bridge Superstructure Engineering

LRFD Approaches to Design and Analysis



**Narendra Taly**

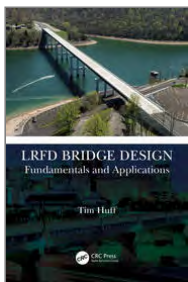
This book has been designed to serve as a stand-alone text for a first course in design of highway bridge superstructures as well as a handy reference for educators and practicing engineers. This book is essentially a "how-to" book and has a code-connected design focus. Because of simplicity in style 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 2014:964  
Hb: 978-1-466-55218-0: £190  
eBook: 978-0-429-09657-0

\* For full contents and more information, visit: [www.routledge.com/9781466552180](http://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  
February 2022:386  
Hb: 978-1-032-20836-7: £84.99  
eBook: 978-1-003-26546-7

\* For full contents and more information, visit: [www.routledge.com/9781032208367](http://www.routledge.com/9781032208367)

## Fundamentals of Building Performance Simulation



**Ian Beausoleil-Morrison**

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 2020:410

Hb: 978-0-367-51805-9: **£115**

Pb: 978-0-367-51806-6: **£64.99**

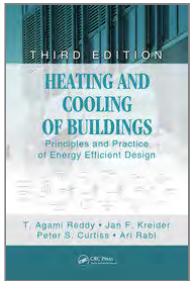
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3RD EDITION

## Heating and Cooling of Buildings

Principles and Practice of Energy Efficient Design, Third Edition



**T. Reddy, Jan F. Kreider, Peter S. Curtiss, Ari Rabi**

*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 2016:900

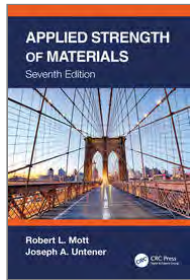
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\* For full contents and more information, visit: [www.routledge.com/9781439899892](http://www.routledge.com/9781439899892)

7TH EDITION

## Applied Strength of Materials



**Robert L. Mott, Joseph A. Untener**

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 2021:1172

Hb: 978-0-367-82078-7: **£155**

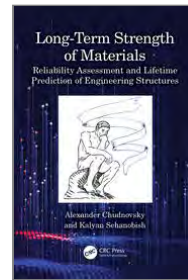
Pb: 978-1-032-00222-4: **£61.99**

eBook: 978-1-003-17320-5

\* For full contents and more information, visit: [www.routledge.com/9781032002224](http://www.routledge.com/9781032002224)

## Long-Term Strength of Materials

Reliability Assessment and Lifetime Prediction of Engineering Structures



**Alexander Chudnovsky, Kalyan Sehanobish**

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 2023:224

Hb: 978-1-032-41814-8: **£120**

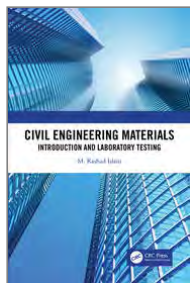
Pb: 978-1-032-41813-1: **£44.99**

eBook: 978-1-003-35984-5

\* For full contents and more information, visit: [www.routledge.com/9781032418131](http://www.routledge.com/9781032418131)

## 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 2020:490

Hb: 978-0-367-22482-0: **£105**

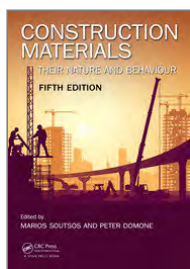
eBook: 978-0-429-27511-1

\* For full contents and more information, visit: [www.routledge.com/9780367224820](http://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 2017:864

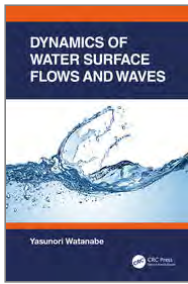
Hb: 978-1-138-50056-3: **£145**

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eBook: 978-1-315-16459-5

\* For full contents and more information, visit: [www.routledge.com/9781498741101](http://www.routledge.com/9781498741101)

## Dynamics of Water Surface Flows and Waves



**Yasunori Watanabe**

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

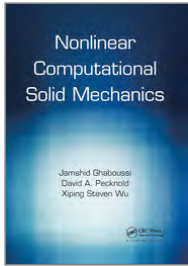
November 2022:296

Hb: 978-0-367-69042-7: **£76.99**

eBook: 978-1-003-14016-0

\* For full contents and more information, visit: [www.routledge.com/9780367690427](http://www.routledge.com/9780367690427)

## 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 2019:396

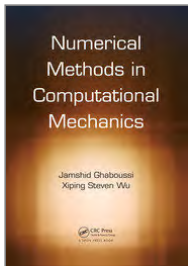
Hb: 978-1-498-74612-0: **£94.99**

Pb: 978-0-367-87524-4: **£44.99**

eBook: 978-1-315-16732-9

\* For full contents and more information, visit: [www.routledge.com/9780367875244](http://www.routledge.com/9780367875244)

## Numerical Methods in Computational Mechanics



**Jamshid Ghaboussi, Xiping Steven Wu**

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 2019:332

Hb: 978-1-498-74675-5: **£82.99**

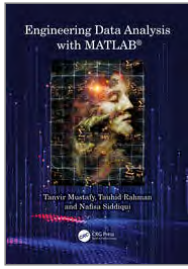
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eBook: 978-1-315-36868-9

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## Engineering Data Analysis with MATLAB®



**Tanvir Mustafy, Tauhid Rahman, Nafisa Siddiqui**

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

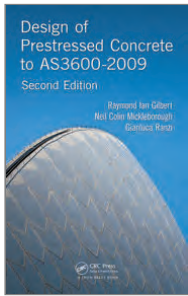
August 2024: 850

Hb: 978-1-032-50658-6: **£140**

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2ND EDITION

**Design of Prestressed Concrete to AS3600-2009**

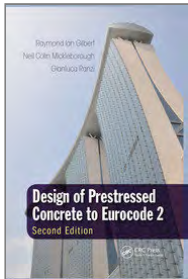
**Raymond Ian Gilbert, Neil Colin Mickleborough, Gianluca Ranzi**

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 2015:716  
Hb: 978-1-138-47022-4: **£175**  
Pb: 978-1-466-57269-0: **£74.99**  
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2ND EDITION

**Design of Prestressed Concrete to Eurocode 2**

**Raymond Ian Gilbert, Neil Colin Mickleborough, Gianluca Ranzi**

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 2019:699  
Hb: 978-1-466-57310-9: **£86.99**  
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**FRP Composite Structures**

Theory, Fundamentals, and Design



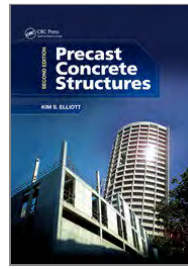
**Hota V.S. GangaRao, Woraphot Prachasaree**

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 2021:534  
Hb: 978-1-032-05251-9: **£105**  
eBook: 978-1-003-19675-4

\* For full contents and more information, visit: [www.routledge.com/9781032052519](http://www.routledge.com/9781032052519)

2ND EDITION

**Precast Concrete Structures**

**Kim S. Elliott**

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 2019:732  
Hb: 978-1-498-72399-2: **£96.99**  
Pb: 978-0-367-02803-9: **£29.99**  
eBook: 978-0-367-81488-5

\* For full contents and more information, visit: [www.routledge.com/9780367028039](http://www.routledge.com/9780367028039)

**Precast Prestressed Concrete for Building Structures**

**Kim S. Elliott, Mark Magill**

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 2024:638  
Hb: 978-1-032-33391-5: **£150**  
eBook: 978-1-003-31945-0

\* For full contents and more information, visit: [www.routledge.com/9781032333915](http://www.routledge.com/9781032333915)

2ND EDITION

**Reinforced and Prestressed Concrete Design to EC2**

The Complete Process, Second Edition



**Eugene Obrien, Andrew Dixon, Emma Sheils**

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

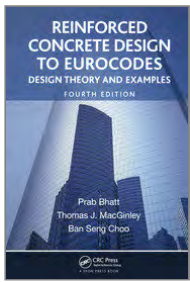
CRC Press  
January 2012:536  
Hb: 978-0-415-57194-4: **£170**  
Pb: 978-0-415-57195-1: **£52.99**  
eBook: 978-1-315-27250-4

\* For full contents and more information, visit: [www.routledge.com/9780415571951](http://www.routledge.com/9780415571951)

4TH EDITION

## Reinforced Concrete Design to Eurocodes

Design Theory and Examples, Fourth Edition



**Prab Bhatt, 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: 878

Hb: 978-1-138-41400-6: £185

Pb: 978-1-466-55252-4: £64.99

eBook: 978-0-429-09644-0

\* For full contents and more information, visit: [www.routledge.com/9781466552524](http://www.routledge.com/9781466552524)

11TH EDITION

## Reinforced Concrete Designer's Handbook



**Charles E. Reynolds, James C. Steedman, Anthony J. Threlfall**

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: 414

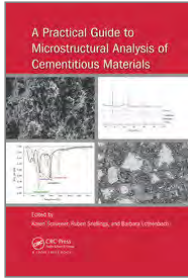
Hb: 978-0-419-25820-9: £210

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\* For full contents and more information, visit: [www.routledge.com/9780419258308](http://www.routledge.com/9780419258308)

## A Practical Guide to Microstructural Analysis of Cementitious Materials



*Edited by* **Karen Scrivener, Ruben Snellings, Barbara Lothenbach**

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 2017:560

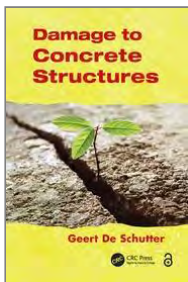
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Pb: 978-1-138-74723-4: **£71.99**

eBook: 978-1-351-22849-7

\* For full contents and more information, visit: [www.routledge.com/9781138747234](http://www.routledge.com/9781138747234)

## Damage to Concrete Structures



**Geert De Schutter**

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 2012:210

Hb: 978-1-138-41402-0: **£175**

Pb: 978-0-415-60388-1: **£59.99**

eBook: 978-0-429-21310-6

\* For full contents and more information, visit: [www.routledge.com/9780415603881](http://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 2021:366

Hb: 978-0-367-14574-3: **£77.99**

Pb: 978-1-032-09023-8: **£44.99**

eBook: 978-0-429-05276-7

\* For full contents and more information, visit: [www.routledge.com/9781032090238](http://www.routledge.com/9781032090238)

5TH EDITION

## Construction Economics

A New Approach



**Danny Myers**

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 2022:368

Hb: 978-1-032-26282-6: **£135**Pb: 978-1-032-26261-1: **£49.99**

eBook: 978-1-003-28751-3

\* For full contents and more information, visit: [www.routledge.com/9781032262611](http://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 2022:130

Hb: 978-0-367-77527-8: **£130**Pb: 978-0-367-76752-5: **£46.99**

eBook: 978-1-003-17180-5

\* For full contents and more information, visit: [www.routledge.com/9780367767525](http://www.routledge.com/9780367767525)

## Cost Accounting and Financial Management for Construction Project Managers



**Len Holm**

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

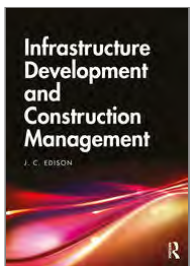
August 2018:300

Hb: 978-1-138-55064-3: **£135**Pb: 978-1-138-55065-0: **£71.99**

eBook: 978-1-315-14730-7

\* For full contents and more information, visit: [www.routledge.com/9781138550650](http://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 2020:318

Hb: 978-0-367-51894-3: **£130**Pb: 978-0-367-51892-9: **£36.99**

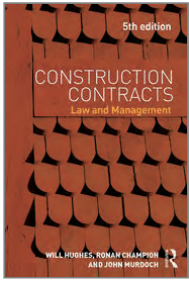
eBook: 978-1-003-05562-4

\* For full contents and more information, visit: [www.routledge.com/9780367518929](http://www.routledge.com/9780367518929)

5TH EDITION

## Construction Contracts

Law and Management

**Will Hughes, Ronan Champion, John Murdoch**

@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: 468

Hb: 978-0-415-65705-1: £195

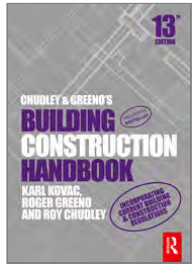
Pb: 978-0-415-65704-4: £54.99

eBook: 978-1-315-69521-1

\* For full contents and more information, visit: [www.routledge.com/9780415657044](http://www.routledge.com/9780415657044)

13TH EDITION

## Chudley and Greeno's Building Construction Handbook



**Roy Chudley, Roger Greeno, Karl Kovac**

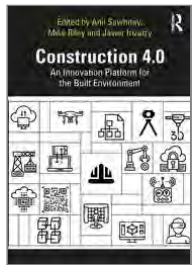
The 13th edition of Chudley and Greeno's Building Construction Handbook remains THE authoritative reference for all construction students and professionals. This new edition has been updated to reflect recent changes to the building regulations, as well as new material on modern methods of construction, 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 2024:728  
Hb: 978-1-032-49290-2: £130  
Pb: 978-1-032-49288-9: £34.99

\* For full contents and more information, visit: [www.routledge.com/9781032492889](http://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 2023:526  
Hb: 978-0-367-02730-8: £160  
Pb: 978-1-032-65360-0: £44.99  
eBook: 978-0-429-39810-0

\* For full contents and more information, visit: [www.routledge.com/9781032653600](http://www.routledge.com/9781032653600)

2ND EDITION

## Construction Equipment Management for Engineers, Estimators, and Owners



**Douglas D. Gransberg, 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 2022:350  
Hb: 978-1-498-78848-9: £150  
Pb: 978-0-367-48884-0: £58.99  
eBook: 978-0-429-18635-6

\* For full contents and more information, visit: [www.routledge.com/9780367488840](http://www.routledge.com/9780367488840)

## International Construction Management

How the Global Industry Reshapes the World



**Igor Martek**

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 2022:300  
Hb: 978-0-367-56361-5: £130  
Pb: 978-0-367-56362-2: £43.99  
eBook: 978-1-003-09740-2

\* For full contents and more information, visit: [www.routledge.com/9780367563622](http://www.routledge.com/9780367563622)

2ND EDITION

## Introduction to Construction Management



**Fred Sherratt**

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

\* For full contents and more information, visit: [www.routledge.com/9781032007441](http://www.routledge.com/9781032007441)

## Leadership, Ethics, and Project Execution

An Evidence-Based Project Success Model



**F.H. (Bud) Griffiths, Frederick B. Plummer, Francis X. DarConte**

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.

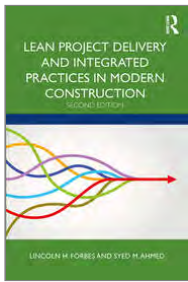
Routledge  
November 2021:374  
Hb: 978-0-367-65530-3: £165  
Pb: 978-0-367-65425-2: £61.99  
eBook: 978-1-003-12994-3

\* For full contents and more information, visit: [www.routledge.com/9780367654252](http://www.routledge.com/9780367654252)



2ND EDITION

## Lean Project Delivery and Integrated Practices in Modern Construction



**Lincoln H. Forbes, Syed M. Ahmed**

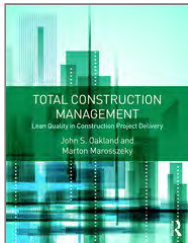
Lean Project Delivery and Integrated Practices in Modern Construction is the new and enhanced edition of Modern Construction by Lincoln H. Forbes and Syed M. Ahmed. This book provides a multi-faceted approach for applying lean methodologies to improve design and construction processes. It builds on the 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 2020:522  
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](http://www.routledge.com/9781138311244)

## Total Construction Management

Lean Quality in Construction Project Delivery



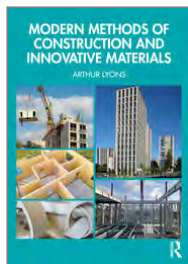
**John S. Oakland, Marton Marosszeky**

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 2017:634  
Hb: 978-1-138-90853-6: **£180**  
Pb: 978-1-138-90854-3: **£66.99**  
eBook: 978-1-315-69435-1

\* For full contents and more information, visit: [www.routledge.com/9781138908543](http://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 2024:254

Hb: 978-1-032-41934-3: **£150**

Pb: 978-1-032-41482-9: **£44.99**

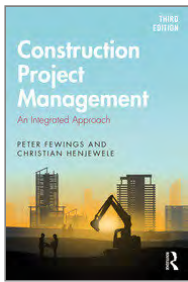
eBook: 978-1-003-36046-9

\* For full contents and more information, visit: [www.routledge.com/9781032414829](http://www.routledge.com/9781032414829)

3RD EDITION

**Construction Project Management**

An Integrated Approach

**Peter Fewings, Peter Fewings, Christian Henjewe**

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

\* For full contents and more information, visit: [www.routledge.com/9780815358657](http://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 2020:243  
Hb: 978-1-138-38933-5: **£105**  
eBook: 978-0-429-42399-4

\* For full contents and more information, visit: [www.routledge.com/9781138389335](http://www.routledge.com/9781138389335)

3RD EDITION

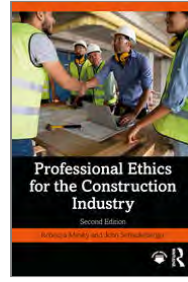
**Planning and Design of Engineering Systems****Graeme Dandy, Trevor Daniell, Robert Warner, Bernadette Foley, Graeme Dandy, David Walker, Trevor Daniell**

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

\* For full contents and more information, visit: [www.routledge.com/9781138031906](http://www.routledge.com/9781138031906)

2ND EDITION

**Professional Ethics for the Construction Industry****Rebecca Mirsky, John Schaufelberger**

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

\* For full contents and more information, visit: [www.routledge.com/9781032268118](http://www.routledge.com/9781032268118)

**Risk and Systems**

With Applications in Infrastructure Project Management

**David G. Carmichael**

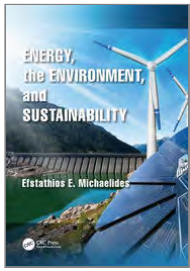
Risk is related to the uncertainty and magnitude of an outcomes. This varies according to a discipline or situation, and depends on a stakeholder's value system. Risk management provides a way of addressing this. This textbook takes a distinctively systems approach, setting out the principles of risk 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 2022:206  
Hb: 978-1-032-38122-0: **£125**  
Pb: 978-1-032-38121-3: **£43.99**  
eBook: 978-1-003-34359-2

\* For full contents and more information, visit: [www.routledge.com/9781032381213](http://www.routledge.com/9781032381213)



## Energy, the Environment, and Sustainability



**Efsthathios E. Michaelides**

*Series: Mechanical and Aerospace Engineering Series*

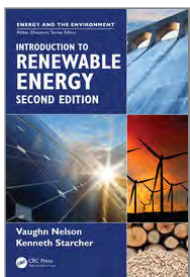
Energy and the Environment explains in simple terms what the energy demand is at the present, what the environmental effects of energy use are, and what can be accomplished to alleviate the environmental effects of energy use and ensure adequate energy supply. Though technical in approach, the text uses 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 2018:483  
Hb: 978-1-138-48917-2: **£145**  
Pb: 978-1-138-03844-8: **£130**  
eBook: 978-1-315-17735-9

\* For full contents and more information, visit: [www.routledge.com/9781138038448](http://www.routledge.com/9781138038448)

2ND EDITION

## Introduction to Renewable Energy



**Vaughn C. Nelson, Kenneth L. Starcher**

*Series: Energy and the Environment*

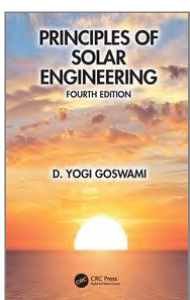
This book integrates economic, social, environmental, policy, and engineering issues related to renewable energy. It covers fundamentals, including the transfer of energy, as well as the limitations of natural resources. Starting with solar energy, the text illustrates how energy from the sun is transferred 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 2015:459  
Hb: 978-1-498-70193-8: **£115**  
eBook: 978-0-429-15670-0

\* For full contents and more information, visit: [www.routledge.com/9781498701938](http://www.routledge.com/9781498701938)

4TH EDITION

## Principles of Solar Engineering



**D. Yogi Goswami**

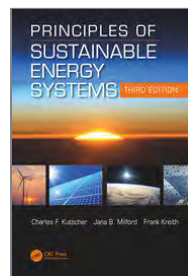
Principles of Solar Engineering, Fourth Edition addresses the need for solar resource assessment and highlights improvements and advancements involving photovoltaics and solar thermal technologies, grid power, and energy storage. With updates made to every chapter, the book discusses new technologies 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 2022:656  
Hb: 978-1-032-15500-5: **£135**  
eBook: 978-1-003-24438-7

\* For full contents and more information, visit: [www.routledge.com/9781032155005](http://www.routledge.com/9781032155005)

3RD EDITION

## Principles of Sustainable Energy Systems, Third Edition



**Charles F. Kutscher, Jana B. Milford**

*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.

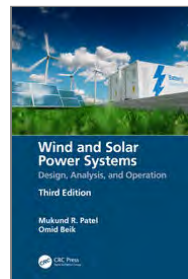
CRC Press  
September 2018:654  
Hb: 978-1-498-78892-2: **£180**  
eBook: 978-0-429-48558-9

\* For full contents and more information, visit: [www.routledge.com/9781498788922](http://www.routledge.com/9781498788922)

3RD EDITION

## Wind and Solar Power Systems

Design, Analysis, and Operation



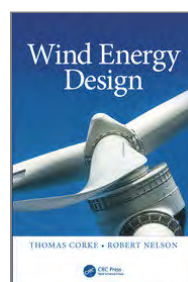
**Mukund R. Patel, Omid Beik**

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 2021:408  
Hb: 978-0-367-47693-9: **£120**  
eBook: 978-1-003-04295-2

\* For full contents and more information, visit: [www.routledge.com/9780367476939](http://www.routledge.com/9780367476939)

## Wind Energy Design



**Thomas Corke, Robert Nelson**

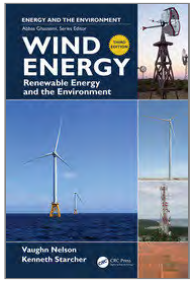
Wind Energy Systems is designed for undergraduate engineering courses, with a focus on multidisciplinary design of a wind energy system. The text covers basic wind power concepts and components - wind characteristics and modeling, rotor aerodynamics, lightweight flexible structures, wind farms, aerodynamics, 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 2018:352  
Hb: 978-1-138-09602-8: **£130**  
eBook: 978-1-315-10546-8

\* For full contents and more information, visit: [www.routledge.com/9781138096028](http://www.routledge.com/9781138096028)

3RD EDITION

## Wind Energy: Renewable Energy and the Environment



**Vaughn C. Nelson, Kenneth L. Starcher**

*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

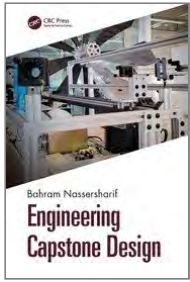
November 2018:326

Hb: 978-1-138-61534-2: **£115**

eBook: 978-0-429-46315-0

\* For full contents and more information, visit: [www.routledge.com/9781138615342](http://www.routledge.com/9781138615342)

## Engineering Capstone Design



**Bahram Nassersharif**

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: 214

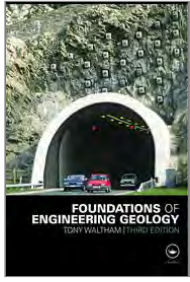
Hb: 978-0-367-62159-9: **£94.99**

eBook: 978-1-003-10821-4

\* For full contents and more information, visit: [www.routledge.com/9780367621599](http://www.routledge.com/9780367621599)

3RD EDITION

## Foundations of Engineering Geology



**A.C. Waltham, Tony Waltham**

"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 2009:104  
Pb: 978-0-415-46960-9: **£27.99**

\* For full contents and more information, visit: [www.routledge.com/9780415469609](http://www.routledge.com/9780415469609)

5TH EDITION

## Rock Slope Engineering

Civil Applications, Fifth Edition



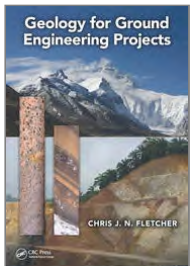
**Duncan C. Wyllie**

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 2017:620  
Hb: 978-1-138-05784-5: **£195**  
Pb: 978-1-498-78627-0: **£79.99**  
eBook: 978-1-315-15403-9

\* For full contents and more information, visit: [www.routledge.com/9781498786270](http://www.routledge.com/9781498786270)

## Geology for Ground Engineering Projects



**Chris J. N. Fletcher**

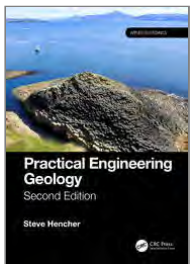
This book provides a presentation of geological phenomena found all over the world, focusing on aspects which are critical in engineering projects. It describes rocks in relation to the environment of their formation, highlighting the variation in composition, distribution and geotechnical properties 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 2016:312  
Hb: 978-1-138-46576-3: **£180**  
Pb: 978-1-466-58549-2: **£68.99**  
eBook: 978-1-315-38046-9

\* For full contents and more information, visit: [www.routledge.com/9781466585492](http://www.routledge.com/9781466585492)

2ND EDITION

## Practical Engineering Geology



**Steve Hencher**

*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.

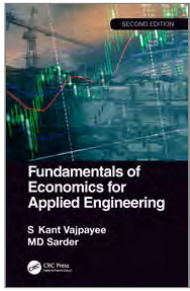
CRC Press  
April 2024:566  
Hb: 978-1-032-39225-7: **£180**  
Pb: 978-1-032-39224-0: **£74.99**  
eBook: 978-1-003-34889-4

\* For full contents and more information, visit: [www.routledge.com/9781032392240](http://www.routledge.com/9781032392240)



2ND EDITION

## Fundamentals of Economics for Applied Engineering



**S. Kant Vajpayee, MD Sarder**

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 2019:470

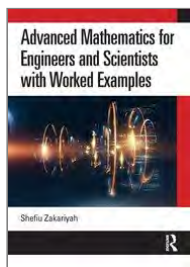
Hb: 978-0-367-18946-4: **£130**

Pb: 978-0-367-18947-1: **£56.99**

eBook: 978-0-429-19945-5

\* For full contents and more information, visit: [www.routledge.com/9780367189471](http://www.routledge.com/9780367189471)

## Advanced Mathematics for Engineers and Scientists with Worked Examples



**Shefiu Zakariyah**

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

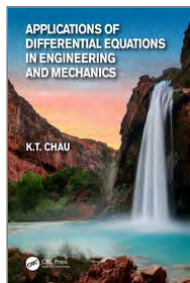
July 2024:760

Hb: 978-1-032-66510-8: **£99.99**

Pb: 978-1-032-66327-2: **£44.99**

\* For full contents and more information, visit: [www.routledge.com/9781032663272](http://www.routledge.com/9781032663272)

## Applications of Differential Equations in Engineering and Mechanics



**Kam Tim Chau**

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 2018:830

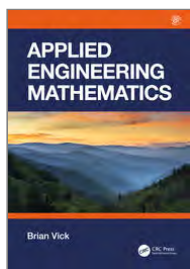
Hb: 978-1-498-76697-5: **£170**

Pb: 978-0-367-02643-1: **£84.99**

eBook: 978-0-429-47064-6

\* For full contents and more information, visit: [www.routledge.com/9780367026431](http://www.routledge.com/9780367026431)

## Applied Engineering Mathematics



**Brian Vick**

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 2020:246

Hb: 978-0-367-43277-5: **£105**

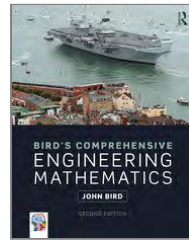
Pb: 978-0-367-43276-8: **£52.99**

eBook: 978-1-003-00226-0

\* For full contents and more information, visit: [www.routledge.com/9780367432768](http://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 2018:1226

Hb: 978-0-815-37815-0: **£150**

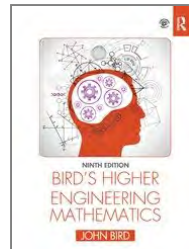
Pb: 978-0-815-37814-3: **£53.99**

eBook: 978-1-351-23287-6

\* For full contents and more information, visit: [www.routledge.com/9780815378143](http://www.routledge.com/9780815378143)

9TH EDITION

## Bird's Higher Engineering Mathematics



**John Bird**

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 2021:934

Hb: 978-0-367-64375-1: **£110**

Pb: 978-0-367-64373-7: **£47.99**

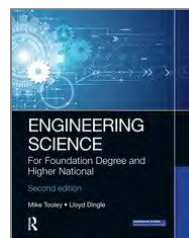
eBook: 978-1-003-12422-1

\* For full contents and more information, visit: [www.routledge.com/9780367643737](http://www.routledge.com/9780367643737)

2ND EDITION

## Engineering Science

For Foundation Degree and Higher National



**Mike Tooley, 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 2020:528

Hb: 978-0-367-43273-7: **£135**

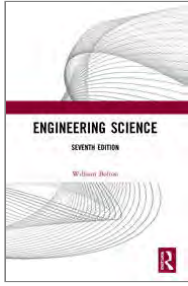
Pb: 978-0-367-43272-0: **£47.99**

eBook: 978-1-003-00224-6

\* For full contents and more information, visit: [www.routledge.com/9780367432720](http://www.routledge.com/9780367432720)

7TH EDITION

## Engineering Science



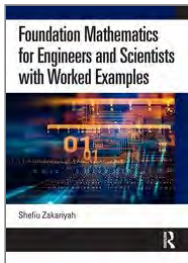
**William Bolton**

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

\* For full contents and more information, visit: [www.routledge.com/9780367554453](http://www.routledge.com/9780367554453)

## Foundation Mathematics for Engineers and Scientists with Worked Examples



**Shefiu Zakariyah**

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 (YO) courses with math modules.

Routledge  
July 2024:640  
Hb: 978-0-367-46290-1: **£99.99**  
Pb: 978-0-367-46289-5: **£44.99**

\* For full contents and more information, visit: [www.routledge.com/9780367462895](http://www.routledge.com/9780367462895)

4TH EDITION

## Measurement and Data Analysis for Engineering and Science



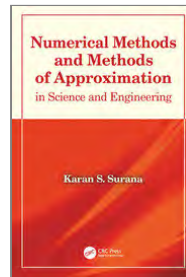
**Patrick F. Dunn, Michael P. Davis**

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 2017:588  
Hb: 978-1-138-05086-0: **£150**  
eBook: 978-1-315-16858-6

\* For full contents and more information, visit: [www.routledge.com/9781138050860](http://www.routledge.com/9781138050860)

## Numerical Methods and Methods of Approximation in Science and Engineering



**Karan S. Surana**

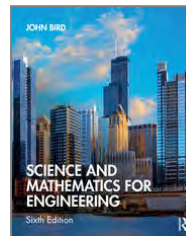
Numerical Methods and Methods of Approximation in Science and Engineering prepares students and other readers for advanced studies involving applied numerical and computational analysis. Focused on building a sound theoretical foundation, it uses a clear and simple approach backed by numerous worked 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 2018:498  
Hb: 978-0-367-13672-7: **£145**  
eBook: 978-0-429-02828-1

\* For full contents and more information, visit: [www.routledge.com/9780367136727](http://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 2019:576  
Hb: 978-0-367-20475-4: **£94.99**  
Pb: 978-0-367-20474-7: **£48.99**  
eBook: 978-0-429-26170-1

\* For full contents and more information, visit: [www.routledge.com/9780367204747](http://www.routledge.com/9780367204747)

## Theory of Differential Equations in Engineering and Mechanics



**Kam Tim Chau**

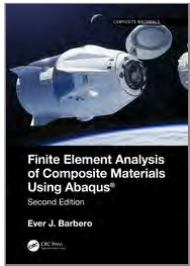
This volume gives comprehensive coverage of the essential differential equations students are likely to encounter in solving engineering and mechanics problems-- with its advanced companion text on applications. This covers a very broad range of theories related to solving differential equations, mathematical 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 2017:1000  
Hb: 978-1-498-76778-1: **£150**  
Pb: 978-1-138-74813-2: **£84.99**  
eBook: 978-1-315-16493-9

\* For full contents and more information, visit: [www.routledge.com/9781138748132](http://www.routledge.com/9781138748132)

2ND EDITION

## Finite Element Analysis of Composite Materials using Abaqus®



**Ever J. Barbero, Ever J. Barbero**

*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 2023:571

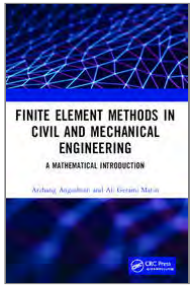
Hb: 978-0-367-62145-2: **£91.99**

eBook: 978-1-003-10815-3

\* For **full contents** and more information, visit: [www.routledge.com/9780367621452](http://www.routledge.com/9780367621452)

## Finite Element Methods in Civil and Mechanical Engineering

A Mathematical Introduction



**Arzhang Angoshtari, Ali Gerami Matin**

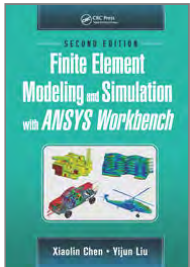
The finite element method is widely employed for numerical simulations in engineering and science due to its efficiency. This concise introduction to the mathematical theory of the finite element method presents a selection of applications in civil and mechanical engineering such as beams and frames, 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 2020:176  
Hb: 978-1-138-33516-5: £94.99  
Pb: 978-1-138-33517-2: £44.99  
eBook: 978-0-429-44250-6

\* For full contents and more information, visit: [www.routledge.com/9781138335172](http://www.routledge.com/9781138335172)

2ND EDITION

## Finite Element Modeling and Simulation with ANSYS Workbench, Second Edition



**Xiaolin Chen, Yijun Liu**

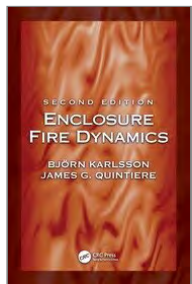
Finite Element Modeling and Simulation with ANSYS Workbench 18, Second Edition, combines finite element theory with real-world practice. Providing an introduction to finite element modeling and analysis for those with no prior experience, and written by authors with a combined experience of 30 years 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 2018:472  
Hb: 978-1-138-48629-4: £135  
eBook: 978-1-351-04587-2

\* For full contents and more information, visit: [www.routledge.com/9781138486294](http://www.routledge.com/9781138486294)

2ND EDITION

## Enclosure Fire Dynamics, Second Edition



**Björn Karlsson, James G. Quintiere**

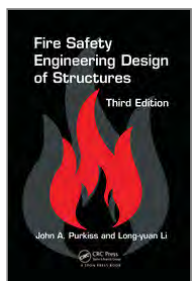
Enclosure Fire Dynamics, Second Edition explores the science of enclosure fires, and how they cause changes in the environment. The authors discuss mechanisms for controlling enclosure fires, and how to develop analytical relationships useful in designing buildings for fire safety. Derivation of equations 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 2022:384  
Hb: 978-1-138-05866-8: £120  
eBook: 978-1-315-16381-9

\* For full contents and more information, visit: [www.routledge.com/9781138058668](http://www.routledge.com/9781138058668)

3RD EDITION

## Fire Safety Engineering Design of Structures



**John A. Purkiss, Long-Yuan Li**

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 2017:454  
Hb: 978-1-466-58547-8: £200  
Pb: 978-1-138-07426-2: £74.99  
eBook: 978-0-429-10266-0

\* For full contents and more information, visit: [www.routledge.com/9781138074262](http://www.routledge.com/9781138074262)

2ND EDITION

## Fluid Mechanics Aspects of Fire and Smoke Dynamics in Enclosures



**Bart Merci, Tarek Beji**

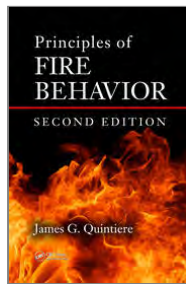
This handbook at undergraduate and starting researcher level provides the essential knowledge for understanding flows in fire and smoke dynamics in enclosures, covering combustion, heat transfer and fire suppression in more detail than other introductory books. It moves from the basic equations for turbulent 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 2022:354  
Hb: 978-1-032-06887-9: £125  
Pb: 978-1-032-06584-7: £59.99  
eBook: 978-1-003-20437-4

\* For full contents and more information, visit: [www.routledge.com/9781032065847](http://www.routledge.com/9781032065847)

2ND EDITION

## Principles of Fire Behavior



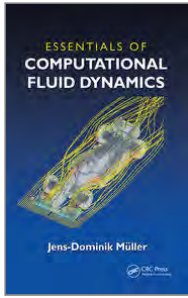
**James G. Quintiere**

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

\* For full contents and more information, visit: [www.routledge.com/9781498735629](http://www.routledge.com/9781498735629)

## Essentials of Computational Fluid Dynamics



**Jens-Dominik Müller**

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 2015:238

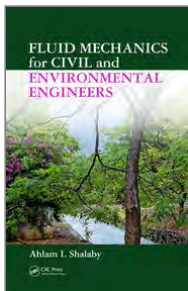
Hb: 978-1-138-40130-3: £170

Pb: 978-1-482-22730-7: £94.99

eBook: 978-0-429-18868-8

\* For full contents and more information, visit: [www.routledge.com/9781482227307](http://www.routledge.com/9781482227307)

## Fluid Mechanics for Civil and Environmental Engineers



**Ahlam I. Shalaby**

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

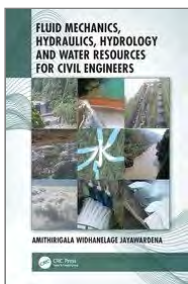
March 2018:1684

Hb: 978-0-849-33737-6: £160

eBook: 978-1-315-15663-7

\* For full contents and more information, visit: [www.routledge.com/9780849337376](http://www.routledge.com/9780849337376)

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



**Amithirigala Widhanelage Jayawardena**

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 2021:894

Hb: 978-1-138-39080-5: £175

Pb: 978-1-138-39081-2: £68.99

eBook: 978-0-429-42311-6

\* For full contents and more information, visit: [www.routledge.com/9781138390812](http://www.routledge.com/9781138390812)

## Fluid Mechanics

A Problem-Solving Approach



**Naseem Uddin**

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

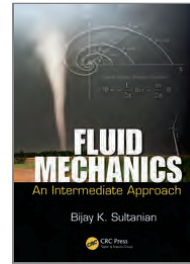
December 2022:537

Hb: 978-1-032-32453-1: £105

\* For full contents and more information, visit: [www.routledge.com/9781032324531](http://www.routledge.com/9781032324531)

## Fluid Mechanics

An Intermediate Approach



**Bijay Sultanian**

This book keeps students grounded in the basic conservation principles and motivates them to understand and solve each flow problem in terms of physical principles, which empowers them with new confidence in the subject. It develops a strong foundation in control volume analyses for the basic conservation laws of mass, momentum, energy, and entropy in inertial and non-inertial reference frames, including an exceptionally intuitive understanding of 1-D compressible flows with area change, friction, heat transfer, and rotation under both continuous and abrupt changes in entropy.

CRC Press

July 2015:580

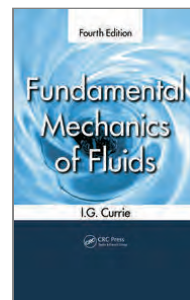
Hb: 978-1-466-59898-0: £160

eBook: 978-0-429-16840-6

\* For full contents and more information, visit: [www.routledge.com/9781466598980](http://www.routledge.com/9781466598980)

4TH EDITION

## Fundamental Mechanics of Fluids



**I.G. Currie**

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 2012:604

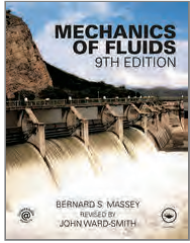
Hb: 978-1-439-87460-8: £135

eBook: 978-0-429-09888-8

\* For full contents and more information, visit: [www.routledge.com/9781439874608](http://www.routledge.com/9781439874608)

9TH EDITION

## Mechanics of Fluids

**John Ward-Smith**

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: 720

Hb: 978-0-415-60259-4: £210

Pb: 978-0-415-60260-0: £58.99

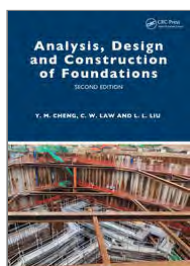
eBook: 978-1-315-27254-2

\* For full contents and more information, visit: [www.routledge.com/9780415602600](http://www.routledge.com/9780415602600)



2ND EDITION

## Analysis, Design and Construction of Foundations



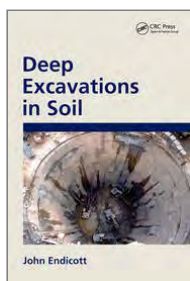
**Yung Ming Cheng, Chi Wai Law, Leilei Liu**

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 2024:712  
Hb: 978-1-032-65056-2: £150

\* For full contents and more information, visit: [www.routledge.com/9781032650562](http://www.routledge.com/9781032650562)

## Deep Excavations in Soil



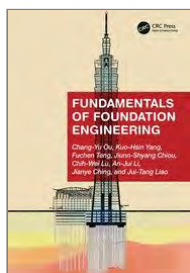
**John Endicott**

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

\* For full contents and more information, visit: [www.routledge.com/9780367507381](http://www.routledge.com/9780367507381)

## Fundamentals of Foundation Engineering



**Chang-Yu Ou, Kuo-Hsin Yang, Fuchen Teng, Jiunn-Shyang Chiou, Chih-Wei Lu, An-Jui Li, Jianye Ching, Jui-Tang Liao**

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 2023:436  
Hb: 978-1-032-39498-5: £120  
Pb: 978-1-032-39497-8: £45.99  
eBook: 978-1-003-35001-9

\* For full contents and more information, visit: [www.routledge.com/9781032394978](http://www.routledge.com/9781032394978)

## Tall Building Foundation Design



**Harry G. Poulos**

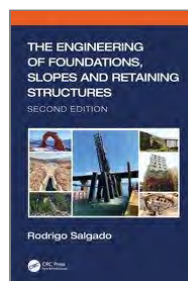
This comprehensive guide to the design of foundations for tall buildings outlines various foundation options followed by the general principles of foundation design applied to tall buildings. It differentiates the preliminary, detailed and final design stages. Methods of assessment of the geotechnical 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 2017:560  
Hb: 978-1-498-79607-1: £165  
Pb: 978-1-138-74803-3: £58.99  
eBook: 978-1-315-15607-1

\* For full contents and more information, visit: [www.routledge.com/9781138748033](http://www.routledge.com/9781138748033)

2ND EDITION

## The Engineering of Foundations, Slopes and Retaining Structures



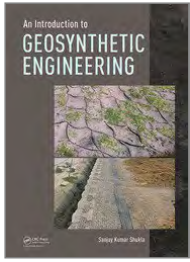
**Rodrigo Salgado**

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

\* For full contents and more information, visit: [www.routledge.com/9781138197640](http://www.routledge.com/9781138197640)

## An Introduction to Geosynthetic Engineering



**Sanjay Kumar Shukla**

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: 472

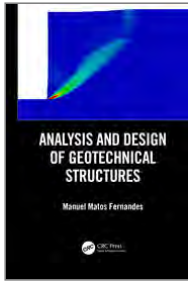
Hb: 978-1-138-43021-1: **£175**

Pb: 978-1-138-02774-9: **£69.99**

eBook: 978-0-429-25540-3

\* For full contents and more information, visit: [www.routledge.com/9781138027749](http://www.routledge.com/9781138027749)

## Analysis and Design of Geotechnical Structures



**Manuel Matos Fernandes**

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 2020:754

Hb: 978-0-367-02662-2: £145

Pb: 978-0-367-02663-9: £52.99

eBook: 978-0-429-39845-2

\* For full contents and more information, visit: [www.routledge.com/9780367026639](http://www.routledge.com/9780367026639)

## Laboratory Manual for Geotechnical Characterization of Fine-Grained Soils



**Alan J. Lutenecker**

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

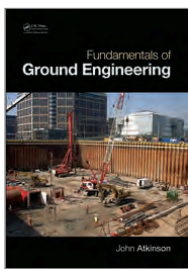
October 2022:330

Hb: 978-1-032-20345-4: £81.99

eBook: 978-1-003-26328-9

\* For full contents and more information, visit: [www.routledge.com/9781032203454](http://www.routledge.com/9781032203454)

## Fundamentals of Ground Engineering



**John Atkinson**

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 2014:242

Hb: 978-1-138-43022-8: £180

Pb: 978-1-482-20617-3: £28.99

eBook: 978-0-429-17095-9

\* For full contents and more information, visit: [www.routledge.com/9781482206173](http://www.routledge.com/9781482206173)

## Offshore Geotechnical Engineering



**Mark Randolph, Susan Gourvenec**

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 2017:560

Hb: 978-0-415-47744-4: £210

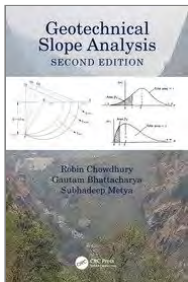
Pb: 978-1-138-07472-9: £71.99

eBook: 978-1-315-27247-4

\* For full contents and more information, visit: [www.routledge.com/9781138074729](http://www.routledge.com/9781138074729)

2ND EDITION

## Geotechnical Slope Analysis



**Robin Chowdhury, Gautam Bhattacharya, Subhadeep Metya**

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 2023:822

Hb: 978-1-138-00011-7: £130

eBook: 978-0-203-38627-9

\* For full contents and more information, visit: [www.routledge.com/9781138000117](http://www.routledge.com/9781138000117)

## Geotechnical Modelling



**David Muir Wood**

*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 2004:504

Hb: 978-0-415-34304-6: **£210**

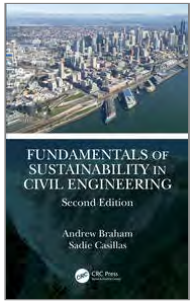
Pb: 978-0-419-23730-3: **£59.99**

eBook: 978-1-315-27355-6

\* For full contents and more information, visit: [www.routledge.com/9780419237303](http://www.routledge.com/9780419237303)

2ND EDITION

## Fundamentals of Sustainability in Civil Engineering



**Andrew Braham, Sadie Casillas**

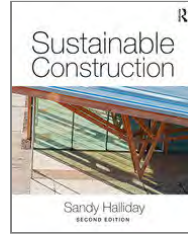
This book provides a foundation to understand the development of sustainability in civil engineering, and tools to address the three pillars of sustainability: economics, environment, and society. It includes case studies in the five major areas of civil engineering: environmental, structural, geotechnical, 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  
December 2020:272  
Hb: 978-0-367-42025-3: **£99.99**  
eBook: 978-0-367-81744-2

\* For full contents and more information, visit: [www.routledge.com/9780367420253](http://www.routledge.com/9780367420253)

2ND EDITION

## Sustainable Construction



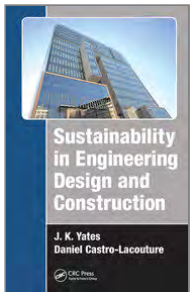
**Sandy Halliday**

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 2018:478  
Hb: 978-1-138-20025-8: **£165**  
Pb: 978-1-138-20028-9: **£47.99**  
eBook: 978-1-315-51481-9

\* For full contents and more information, visit: [www.routledge.com/9781138200289](http://www.routledge.com/9781138200289)

## Sustainability in Engineering Design and Construction



**J. K. Yates, Daniel Castro-Lacouture**

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 2015:452  
Hb: 978-1-498-73391-5: **£145**  
eBook: 978-1-315-36866-5

\* For full contents and more information, visit: [www.routledge.com/9781498733915](http://www.routledge.com/9781498733915)

2ND EDITION

## Sustainable Buildings and Infrastructure

Paths to the Future



**Annie R. Pearce, Yong Han Ahn, HanmiGlobal Co, Ltd**

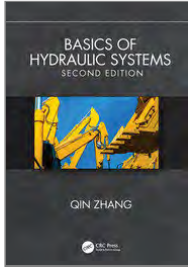
The second edition of Sustainable Buildings and Infrastructure continues to provide students with an introduction to the principles and practices of sustainability as they apply to the construction sector, including both buildings and infrastructure systems. As a textbook, it is aimed at students taking 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 2017:648  
Hb: 978-1-138-67223-9: **£135**  
Pb: 978-1-138-67225-3: **£61.99**  
eBook: 978-1-315-56264-3

\* For full contents and more information, visit: [www.routledge.com/9781138672253](http://www.routledge.com/9781138672253)

2ND EDITION

## Basics of Hydraulic Systems, Second Edition



**Qin Zhang**

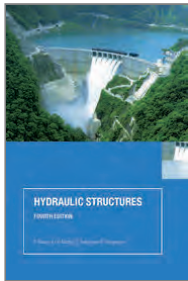
Basics of Hydraulic Systems, Second Edition provides students and professionals in both engineering and technology management fields a basic book to assist in their study of fluid power systems technology. This edition is expanded to include new chapters on system modeling and hydraulic systems controls. 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 2019:338  
Hb: 978-1-138-48466-5: £130  
eBook: 978-0-429-19726-0

\* For full contents and more information, visit: [www.routledge.com/9781138484665](http://www.routledge.com/9781138484665)

4TH EDITION

## Hydraulic Structures



**Pavel Novak, A.I.B. Moffat, C. Nalluri, R. Narayanan**

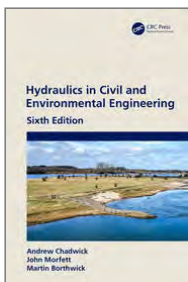
The fourth edition of this volume presents design principles and practical guidance for key hydraulic structures. Fully revised and updated this new edition contains enhanced texts and sections on key topics. Worked numerical examples supplement the main text and extensive lists of references conclude 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 2006:728  
Hb: 978-0-415-38625-8: £230  
Pb: 978-0-415-38626-5: £56.99  
eBook: 978-1-315-27489-8

\* For full contents and more information, visit: [www.routledge.com/9780415386265](http://www.routledge.com/9780415386265)

6TH EDITION

## Hydraulics in Civil and Environmental Engineering



**Andrew Chadwick, John Morfett, Martin Borthwick**

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](http://www.crcpress.com)

CRC Press  
June 2021:652  
Hb: 978-0-367-46090-7: £155  
Pb: 978-0-367-46089-1: £61.99  
eBook: 978-1-003-02683-9

\* For full contents and more information, visit: [www.routledge.com/9780367460891](http://www.routledge.com/9780367460891)

## Hydraulic & Hydrologic Engineering

Fundamentals and Applications



**Zohrab A. Samani**

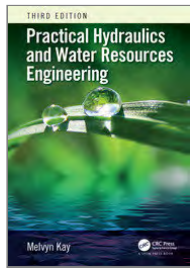
This book is the culmination of over 40 years of teaching, research, consulting, and international technology transfer activities. It consists of seven chapters with coverage including pipeline design, design safety, design of pumping systems, deep well turbine and submersible pumps characteristics, 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  
May 2022:166  
Hb: 978-1-032-26278-9: £82.99  
eBook: 978-1-003-28753-7

\* For full contents and more information, visit: [www.routledge.com/9781032262789](http://www.routledge.com/9781032262789)

3RD EDITION

## Practical Hydraulics and Water Resources Engineering

**Melvyn Kay**

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 2016:375

Hb: 978-1-138-47106-1: £180

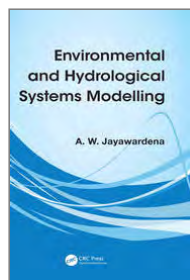
Pb: 978-1-498-76195-6: £56.99

eBook: 978-1-315-38067-4

\* For full contents and more information, visit: [www.routledge.com/9781498761956](http://www.routledge.com/9781498761956)



## Environmental and Hydrological Systems Modelling



**A W Jayawardena**

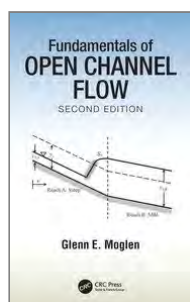
Providing the tools students and professionals need, this book details different approaches to modelling the water environment over a range of spatial and temporal scales. Their applications are shown with a series of case studies, taken mainly from the Asia-Pacific Region. Topics include linear systems, 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 2014:536  
Pb: 978-0-415-46532-8: £69.99  
eBook: 978-1-315-27244-3

\* For full contents and more information, visit: [www.routledge.com/9780415465328](http://www.routledge.com/9780415465328)

2ND EDITION

## Fundamentals of Open Channel Flow



**Glenn E. Moglen**

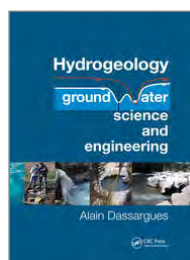
This new edition focuses on theory with clear, fully-solved examples, and practical tools such as spreadsheets and software. Now with more on design applications, including culvert design, a wider range of channel shapes, and an update of the US Corps of Engineers' HEC-RAS program. It suits a senior 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 2022:322  
Hb: 978-1-032-20456-7: £135  
Pb: 978-1-032-20455-0: £61.99

\* For full contents and more information, visit: [www.routledge.com/9781032204550](http://www.routledge.com/9781032204550)

## Hydrogeology

Groundwater Science and Engineering



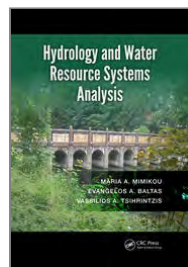
**Alain Dassargues**

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 2020:492  
Hb: 978-1-498-74400-3: £74.99  
Pb: 978-0-367-65714-7: £38.99  
eBook: 978-0-429-47066-0

\* For full contents and more information, visit: [www.routledge.com/9780367657147](http://www.routledge.com/9780367657147)

## Hydrology and Water Resource Systems Analysis



**Maria A. Mimikou, Evangelos A. Baltas, Vassilios A. Tsihrintzis**

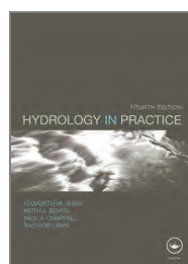
Hydrology and water resources analysis can be looked at together, but this is the only book that presents the relevant material and bridges the gap between scientific processes and applications in one text. It is written for advanced undergraduate and graduate students and for practitioners. It can assist 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 2018:464  
Hb: 978-1-466-58130-2: £79.99  
Pb: 978-0-367-02801-5: £24.99  
eBook: 978-1-315-37424-6

\* For full contents and more information, visit: [www.routledge.com/9780367028015](http://www.routledge.com/9780367028015)

4TH EDITION

## Hydrology in Practice



**Elizabeth M. Shaw, Keith Beven, Nick A. Chappell, Rob Lamb**

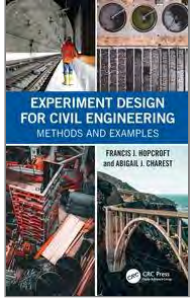
This is an introductory textbook for engineering hydrology students who would go on to be practitioners in consultancies. The 4th edition replaces the material on the Flood Studies Report with an equivalent section on the methods of the Flood Estimation Handbook and its revisions. Other completely revised 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 2010:560  
Hb: 978-0-415-37041-7: £180  
Pb: 978-0-415-37042-4: £52.99  
eBook: 978-1-315-27490-4

\* For full contents and more information, visit: [www.routledge.com/9780415370424](http://www.routledge.com/9780415370424)

## Experiment Design for Civil Engineering

Methods and Examples



**Francis J. Hopcroft, Abigail J. Charest**

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 2023:422

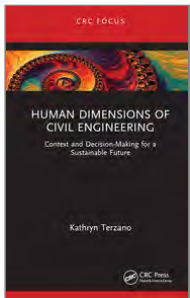
Hb: 978-1-032-38200-5: **£91.99**

eBook: 978-1-003-34668-5

\* For full contents and more information, visit: [www.routledge.com/9781032382005](http://www.routledge.com/9781032382005)

## Human Dimensions of Civil Engineering

Context and Decision-Making for a Sustainable Future



**Kathryn Terzano**

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

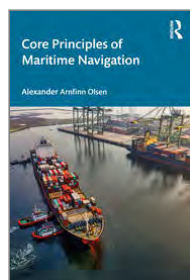
August 2023:102

Hb: 978-1-032-49070-0: **£48.99**

eBook: 978-1-003-39219-4

\* For full contents and more information, visit: [www.routledge.com/9781032490700](http://www.routledge.com/9781032490700)

## Core Principles of Maritime Navigation



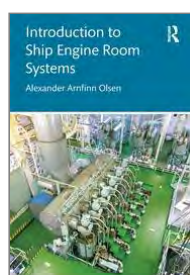
**Alexander Arnfinn Olsen**

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

\* For full contents and more information, visit: [www.routledge.com/9781032271385](http://www.routledge.com/9781032271385)

## Introduction to Ship Engine Room Systems



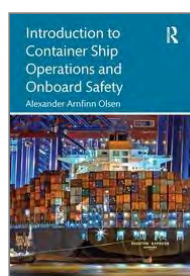
**Alexander Arnfinn Olsen**

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 2023:424  
Hb: 978-1-032-34228-3: **£145**  
Pb: 978-1-032-34227-6: **£61.99**  
eBook: 978-1-003-32109-5

\* For full contents and more information, visit: [www.routledge.com/9781032342276](http://www.routledge.com/9781032342276)

## Introduction to Container Ship Operations and Onboard Safety



**Alexander Arnfinn Olsen**

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 2022:332  
Hb: 978-1-032-15543-2: **£82.99**  
Pb: 978-1-032-15542-5: **£44.99**  
eBook: 978-1-003-24461-5

\* For full contents and more information, visit: [www.routledge.com/9781032155425](http://www.routledge.com/9781032155425)

## Maritime Cargo Operations



**Alexander Arnfinn Olsen**

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.

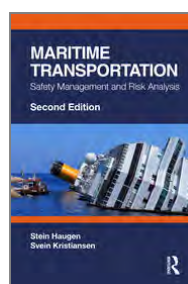
Routledge  
April 2023:314  
Hb: 978-1-032-40697-8: **£130**  
Pb: 978-1-032-40696-1: **£43.99**  
eBook: 978-1-003-35433-8

\* For full contents and more information, visit: [www.routledge.com/9781032406961](http://www.routledge.com/9781032406961)

2ND EDITION

## Maritime Transportation

Safety Management and Risk Analysis



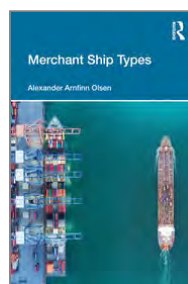
**Stein Haugen, Svein Kristiansen**

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

\* For full contents and more information, visit: [www.routledge.com/9780367518561](http://www.routledge.com/9780367518561)

## Merchant Ship Types



**Alexander Arnfinn Olsen**

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.

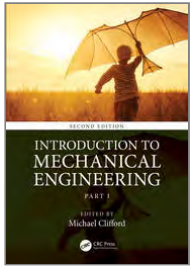
Routledge  
January 2023:350  
Hb: 978-1-032-37876-3: **£130**  
Pb: 978-1-032-37875-6: **£51.99**  
eBook: 978-1-003-34236-6

\* For full contents and more information, visit: [www.routledge.com/9781032378756](http://www.routledge.com/9781032378756)

2ND EDITION

## Introduction to Mechanical Engineering

Part 1



Edited by **Michael Clifford**

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 2022:732

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

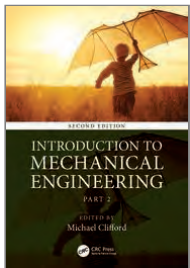
eBook: 978-0-429-31916-7

\* For full contents and more information, visit: [www.routledge.com/9780367333164](http://www.routledge.com/9780367333164)

2ND EDITION

## Introduction to Mechanical Engineering

Part 2



Edited by **Michael Clifford**

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

May 2024:672

Hb: 978-1-032-76021-6: **£89.99**Pb: 978-0-367-33377-5: **£54.99**\* For full contents and more information, visit: [www.routledge.com/9780367333775](http://www.routledge.com/9780367333775)

4TH EDITION

## Mechanical Engineering Principles



**John Bird, Carl Ross**

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

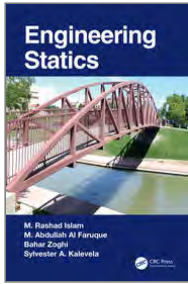
September 2019:388

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

eBook: 978-0-429-28720-6

\* For full contents and more information, visit: [www.routledge.com/9780367253240](http://www.routledge.com/9780367253240)

## Engineering Statics



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

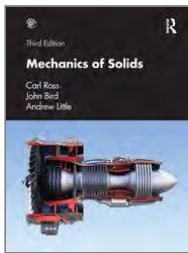
Engineering Statics presents the cutting-edge topics in engineering statics, focusing on practical applications knowledge, with numerous real-world examples, practice problems, and case studies throughout. It covers theory concisely and uses plain language and coverage that can be completed in a one-semester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

CRC Press  
December 2020:308  
Hb: 978-0-367-56106-2: **£99.99**  
eBook: 978-1-003-09815-7

\* For full contents and more information, visit: [www.routledge.com/9780367561062](http://www.routledge.com/9780367561062)

3RD EDITION

## Mechanics of Solids



**Carl Ross, John Bird, Andrew Little**

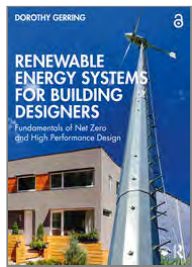
This introduction to the behaviour of solid materials under loading, focuses on statics and stress analysis. As the primary recommended mechanics of solids text of the Council of Engineering Institutions for undergraduates, it covers practical stress and strain scenarios including simple stress and strain, 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 2021:518  
Hb: 978-0-367-65141-1: **£145**  
Pb: 978-0-367-65140-4: **£56.99**  
eBook: 978-1-003-12802-1

\* For full contents and more information, visit: [www.routledge.com/9780367651404](http://www.routledge.com/9780367651404)

## 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 2022:336

Hb: 978-1-032-28648-8: **£185**

Pb: 978-1-032-28647-1: **£91.99**

eBook: 978-1-003-29781-9

\* For full contents and more information, visit: [www.routledge.com/9781032286471](http://www.routledge.com/9781032286471)

## Offshore Semi-Submersible Platform Engineering



**Srinivasan Chandrasekaran**

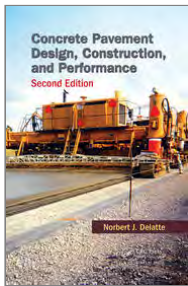
Offshore Semi-Submersible Platform Engineering presents a primer to the analysis and design of semi-submersibles platforms in particular while also covering general analysis and design guidelines of offshore compliant platforms. It introduces general structural designs and also examines the details of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

CRC Press  
December 2020:250  
Hb: 978-0-367-67330-7: **£99.99**  
eBook: 978-1-003-13092-5

\* For full contents and more information, visit: [www.routledge.com/9780367673307](http://www.routledge.com/9780367673307)

2ND EDITION

## Concrete Pavement Design, Construction, and Performance



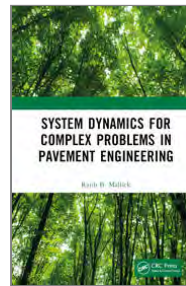
**Norbert J. Delatte**

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 2017:445  
Hb: 978-1-466-57510-3: **£150**  
Pb: 978-1-138-07354-8: **£56.99**  
eBook: 978-0-429-10178-6

\* For full contents and more information, visit: [www.routledge.com/9781138073548](http://www.routledge.com/9781138073548)

## System Dynamics for Complex Problems in Pavement Engineering



**Rajib Mallick**

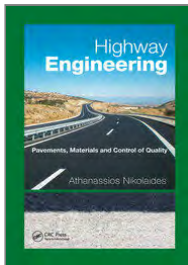
Most, if not all, civil engineering problems are those involving interdependency, and hence segmented approaches of learning one individual topic at a time makes it difficult for students to learn, understand, and apply rational concepts for the design, construction, and maintenance of larger infrastructure 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 2023:156  
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](http://www.routledge.com/9781032382906)

## Highway Engineering

Pavements, Materials and Control of Quality



**Athanassios Nikolaidis**

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.

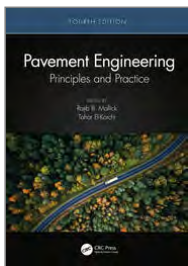
CRC Press  
July 2017:924  
Hb: 978-1-466-57996-5: **£210**  
Pb: 978-1-138-89376-4: **£76.99**  
eBook: 978-0-429-10066-6

\* For full contents and more information, visit: [www.routledge.com/9781138893764](http://www.routledge.com/9781138893764)

4TH EDITION

## Pavement Engineering

Principles and Practice



*Edited by* **Rajib B. Mallick, Tahar El-Korchi**

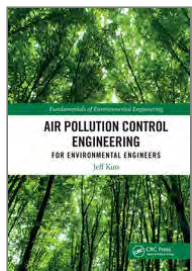
Pavement Engineering: Principles and Practice examines a wide range of topics in asphalt and concrete pavements, from soil preparation and structural design to life cycle costing and economic analysis. This updated Fourth Edition covers all concepts and practices of pavement engineering in terms of materials, 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 2022:818  
Hb: 978-0-367-75807-3: **£125**  
eBook: 978-1-003-35349-2

\* For full contents and more information, visit: [www.routledge.com/9780367758073](http://www.routledge.com/9780367758073)



## 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.

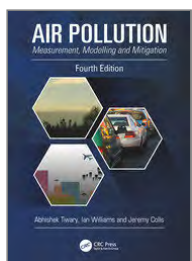
CRC Press  
December 2018:378  
Hb: 978-1-138-03204-0: **£105**  
eBook: 978-0-429-18579-3

\* For full contents and more information, visit: [www.routledge.com/9781138032040](http://www.routledge.com/9781138032040)

4TH EDITION

## Air Pollution

Measurement, Modelling and Mitigation, Fourth Edition



**Abhishek Tiwary, Ian Williams**

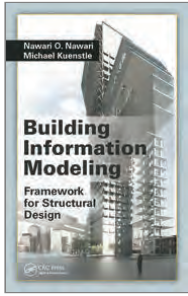
This established textbook offers comprehensive coverage of air pollution, a rapidly developing field. The fourth edition, broadly updated and developed throughout, brings a heavily reworked introduction plus new and overhauled chapters on source mitigation, noise and light pollution, and air quality 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 2018:722  
Hb: 978-1-138-50366-3: **£130**  
Pb: 978-1-498-71945-2: **£62.99**  
eBook: 978-0-429-46998-5

\* For full contents and more information, visit: [www.routledge.com/9781498719452](http://www.routledge.com/9781498719452)

## Building Information Modeling

Framework for Structural Design



**Nawari O. Nawari, Michael Kuenstle**

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

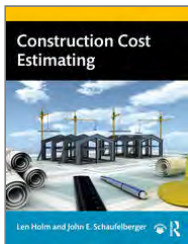
April 2015:284

Hb: 978-1-482-24043-6: **£115**

eBook: 978-0-429-17208-3

\* For full contents and more information, visit: [www.routledge.com/9781482240436](http://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 2021:354

Hb: 978-0-367-90271-1: **£145**

Pb: 978-0-367-90268-1: **£64.99**

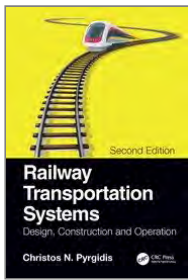
eBook: 978-1-003-02349-4

\* For full contents and more information, visit: [www.routledge.com/9780367902681](http://www.routledge.com/9780367902681)

2ND EDITION

## Railway Transportation Systems

Design, Construction and Operation

**Christos N. Pyrgidis**

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 2021:594

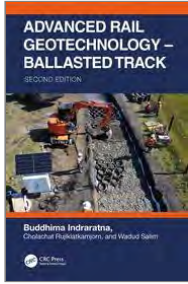
Hb: 978-0-367-49421-6: **£150**Pb: 978-0-367-49423-0: **£58.99**

eBook: 978-1-003-04607-3

\* For full contents and more information, visit: [www.routledge.com/9780367494230](http://www.routledge.com/9780367494230)

2ND EDITION

## Advanced Rail Geotechnology – Ballasted Track



**Buddhima Indraratna, Cholachat Rujikiatkamjorn,  
Wadud Salim**

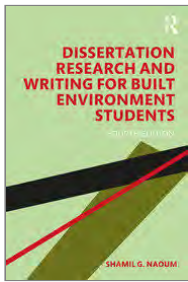
In this book, the authors present the detailed information on the strength, deformation, and degradation aspects of fresh and recycled ballast under monotonic, cyclic and impact loading using innovative geotechnical testing devices. A constitutive model for ballast incorporating particle breakage is 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 2023:466  
Hb: 978-1-032-24491-4: **£185**  
eBook: 978-1-003-27897-9

\* For full contents and more information, visit: [www.routledge.com/9781032244914](http://www.routledge.com/9781032244914)

4TH EDITION

## Dissertation Research and Writing for Built Environment Students

**Shamil G. Naoum**

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: 316

Hb: 978-0-815-38462-5: £135

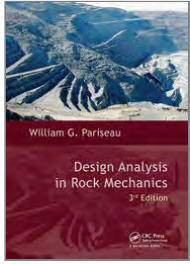
Pb: 978-0-815-38463-2: £37.99

eBook: 978-1-351-20391-3

\* For full contents and more information, visit: [www.routledge.com/9780815384632](http://www.routledge.com/9780815384632)

3RD EDITION

## Design Analysis in Rock Mechanics



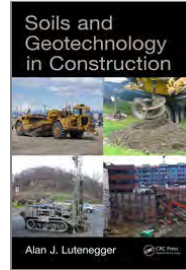
**William G. Pariseau**

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: 378  
Hb: 978-1-138-02958-3: **£89.99**  
Pb: 978-1-032-65239-9: **£44.99**  
eBook: 978-1-315-20615-8

\* For full contents and more information, visit: [www.routledge.com/9781032652399](http://www.routledge.com/9781032652399)

## Soils and Geotechnology in Construction



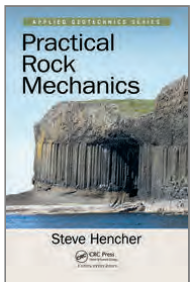
**Alan J. Lutenecker**

This book covers the field of applied geotechnology 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 geotechnology.

CRC Press  
April 2019: 505  
Hb: 978-1-138-55110-7: **£170**  
Pb: 978-1-498-74101-9: **£99.99**  
eBook: 978-1-315-38064-3

\* For full contents and more information, visit: [www.routledge.com/9781498741019](http://www.routledge.com/9781498741019)

## Practical Rock Mechanics



**Steve Hencher**

*Series: Applied Geotechnics*

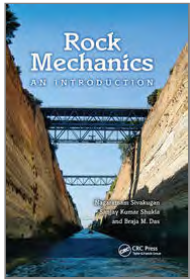
This text provides an introduction for graduate students, as well as engineering geologists and geotechnical engineers. It is also relevant to those working in nuclear waste disposal and oil and gas production. The early chapters deal with fundamental mechanics and physics as they apply to rock masses. 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: 378  
Hb: 978-1-138-43039-6: **£180**  
Pb: 978-1-482-21726-1: **£69.99**  
eBook: 978-0-429-06831-7

\* For full contents and more information, visit: [www.routledge.com/9781482217261](http://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: 256  
Hb: 978-0-415-80923-8: **£82.99**  
Pb: 978-0-367-86675-4: **£44.99**  
eBook: 978-0-429-21719-7

\* For full contents and more information, visit: [www.routledge.com/9780367866754](http://www.routledge.com/9780367866754)

5TH EDITION

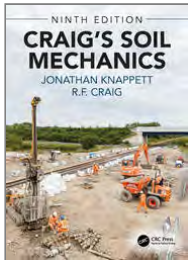
**Advanced Soil Mechanics, Fifth Edition****Braja M. Das**

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 2020:734  
Hb: 978-0-815-37913-3: **£130**  
Pb: 978-0-367-73010-9: **£44.99**  
eBook: 978-1-351-21518-3

\* For full contents and more information, visit: [www.routledge.com/9780367730109](http://www.routledge.com/9780367730109)

9TH EDITION

**Craig's Soil Mechanics****Jonathan Knappett, R.F. Craig**

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 2019:654  
Hb: 978-1-138-07005-9: **£120**  
Pb: 978-1-138-07006-6: **£39.99**  
eBook: 978-1-351-05274-0

\* For full contents and more information, visit: [www.routledge.com/9781138070066](http://www.routledge.com/9781138070066)

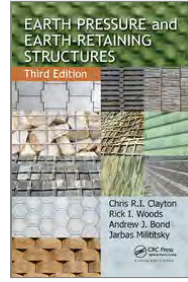
**Design of Shallow and Deep Foundations****Roger Frank, Fahd Cuiru, Sébastien Burlon**

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 2021:232  
Hb: 978-1-032-01687-0: **£84.99**  
Pb: 978-1-032-01688-7: **£44.99**  
eBook: 978-1-003-17959-7

\* For full contents and more information, visit: [www.routledge.com/9781032016887](http://www.routledge.com/9781032016887)

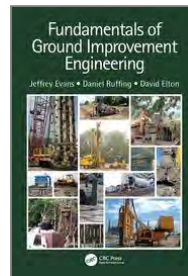
3RD EDITION

**Earth Pressure and Earth-Retaining Structures****Chris R.I. Clayton, Rick I. Woods, Andrew Bond, Jarbas Milititsky**

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 2014:608  
Hb: 978-1-138-42729-7: **£180**  
Pb: 978-1-466-55211-1: **£58.99**  
eBook: 978-0-429-13090-8

\* For full contents and more information, visit: [www.routledge.com/9781466552111](http://www.routledge.com/9781466552111)

**Fundamentals of Ground Improvement Engineering****Jeffrey Evans, 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 2021:430  
Hb: 978-0-367-41960-8: **£145**  
Pb: 978-0-415-69515-2: **£49.99**  
eBook: 978-0-367-81699-5

\* For full contents and more information, visit: [www.routledge.com/9780415695152](http://www.routledge.com/9780415695152)

3RD EDITION

**Groundwater Lowering in Construction**

A Practical Guide to Dewatering

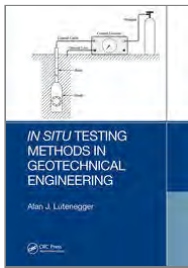
**Pat Cashman, Martin Preene***Series: Applied Geotechnics*

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 2022:956  
Hb: 978-0-367-50474-8: **£155**  
Pb: 978-0-367-50475-5: **£76.99**  
eBook: 978-1-003-05002-5

\* For full contents and more information, visit: [www.routledge.com/9780367504755](http://www.routledge.com/9780367504755)

## In Situ Testing Methods in Geotechnical Engineering



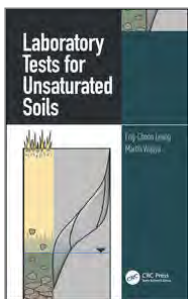
**Alan J. Lutenecker**

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 2022:370  
Hb: 978-0-367-43241-6: **£130**  
Pb: 978-0-367-75874-5: **£48.99**  
eBook: 978-1-003-00201-7

\* For full contents and more information, visit: [www.routledge.com/9780367758745](http://www.routledge.com/9780367758745)

## Laboratory Tests for Unsaturated Soils



**Eng-Choon Leong, Martin Wijaya**

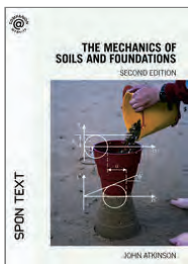
Testing of unsaturated soils is particularly difficult and time-consuming, and guidance for engineers is minimal. This is the first book to systematically collate the various laboratory tests. It covers general background and theory along with test procedures and the interpretation of test results. Test 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 2023:436  
Hb: 978-1-138-09382-9: **£130**  
Pb: 978-0-367-86058-5: **£72.99**  
eBook: 978-1-315-10514-7

\* For full contents and more information, visit: [www.routledge.com/9780367860585](http://www.routledge.com/9780367860585)

2ND EDITION

## The Mechanics of Soils and Foundations



**John Atkinson**

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.

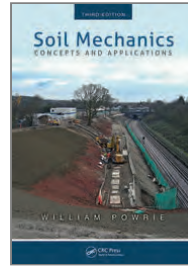
CRC Press  
May 2007:474  
Hb: 978-0-415-36255-9: **£175**  
Pb: 978-0-415-36256-6: **£47.99**  
eBook: 978-1-315-27354-9

\* For full contents and more information, visit: [www.routledge.com/9780415362566](http://www.routledge.com/9780415362566)

3RD EDITION

## Soil Mechanics

Concepts and Applications, Third Edition



**William Powrie**

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 2013:682  
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](http://www.routledge.com/9781466552098)



## Computational Multiphase Geomechanics



**Fusao Oka, Sayuri Kimoto**

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 2024:354

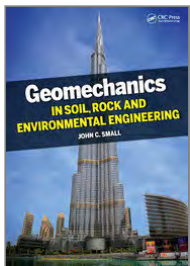
Hb: 978-1-032-05955-6: £130

Pb: 978-1-032-05957-0: £69.99

eBook: 978-1-003-20003-1

\* For full contents and more information, visit: [www.routledge.com/9781032059570](http://www.routledge.com/9781032059570)

## Geomechanics in Soil, Rock, and Environmental Engineering



**John Small**

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 2016:563

Hb: 978-1-138-43020-4: £175

Pb: 978-1-498-73929-0: £84.99

eBook: 978-1-315-38227-2

\* For full contents and more information, visit: [www.routledge.com/9781498739290](http://www.routledge.com/9781498739290)

4TH EDITION

## The Behaviour and Design of Steel Structures to EC3



**Nick Trahair, Mark A Bradford, David Nethercot, 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 2007:512

Hb: 978-0-415-41865-2: £205

Pb: 978-0-415-41866-9: £56.99

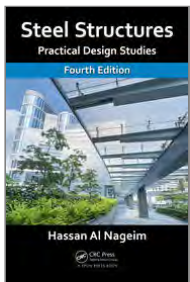
eBook: 978-1-315-27351-8

\* For full contents and more information, visit: [www.routledge.com/9780415418669](http://www.routledge.com/9780415418669)

4TH EDITION

## Steel Structures

Practical Design Studies, Fourth Edition



**Hassan Al Nageim**

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 2016:454

Hb: 978-1-138-38175-9: £135

Pb: 978-1-482-26355-8: £64.99

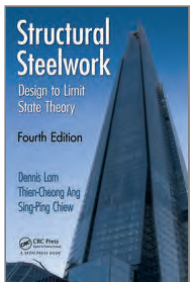
eBook: 978-1-315-38169-5

\* For full contents and more information, visit: [www.routledge.com/9781482263558](http://www.routledge.com/9781482263558)

4TH EDITION

## Structural Steelwork

Design to Limit State Theory, Fourth Edition



**Dennis Lam, Thien Cheong Ang, Sing-Ping Chiew**

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 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

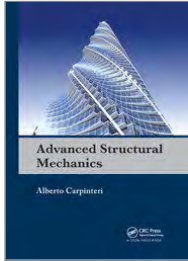
September 2013:378

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](http://www.routledge.com/9780415531917)

## Advanced Structural Mechanics



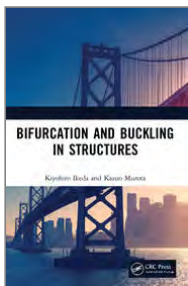
**Alberto Carpinteri**

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 2019:548  
Hb: 978-0-415-58037-3: **£150**  
Pb: 978-0-367-86473-6: **£44.99**  
eBook: 978-1-315-37529-8

\* For full contents and more information, visit: [www.routledge.com/9780367864736](http://www.routledge.com/9780367864736)

## Bifurcation and Buckling in Structures



**Kiyohiro Ikeda, Kazuo Murota**

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 fundamental 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 2021:278  
Hb: 978-0-367-63161-1: **£180**  
Pb: 978-0-367-63160-4: **£77.99**  
eBook: 978-1-003-11236-5

\* For full contents and more information, visit: [www.routledge.com/9780367631604](http://www.routledge.com/9780367631604)

## Collision Actions on Structures



**Arnold C.Y. Yong, Nelson T.K. Lam, Scott J. Manegon**

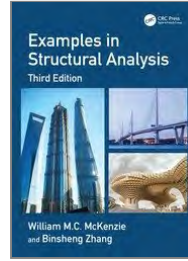
This book is concerned with collision of a moving, fallen or flying object on a rigid barrier or a structural element, and the transmission of the transient action to the rest of a structural system. Engineers typically have little to draw on for analysis and design. Modelling software, such as FEM, 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  
September 2022:378  
Hb: 978-0-367-67817-3: **£96.99**  
eBook: 978-1-003-13303-2

\* For full contents and more information, visit: [www.routledge.com/9780367678173](http://www.routledge.com/9780367678173)

3RD EDITION

## Examples in Structural Analysis



**William M.C. McKenzie, Binsheng Zhang**

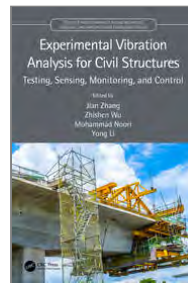
This comprehensive and extensive collection of fully worked and graded examples shows how to analyse different types of structure and the principal analysis techniques in the design process. Its use is illustrated using examples in a step-by-step approach, and where appropriate, detailed mathematical 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 2022:970  
Hb: 978-1-032-04937-3: **£165**  
Pb: 978-1-032-04936-6: **£64.99**  
eBook: 978-1-003-19524-5

\* For full contents and more information, visit: [www.routledge.com/9781032049366](http://www.routledge.com/9781032049366)

## Experimental Vibration Analysis for Civil Structures

Testing, Sensing, Monitoring, and Control



*Edited by* **Jian Zhang, Zhishen Wu, Mohammad Noori, Yong Li**

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

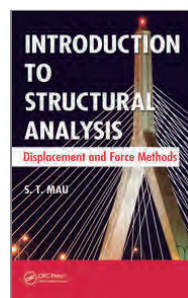
Experimental Vibration Analysis for Civil Structures: Testing, Sensing, Monitoring, and Control covers a wide range of topics in the areas of vibration testing, instrumentation, and analysis of civil engineering and critical infrastructure. It explains how recent research, development, and applications 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  
November 2020:610  
Hb: 978-0-367-54746-2: **£105**  
eBook: 978-1-003-09056-4

\* For full contents and more information, visit: [www.routledge.com/9780367547462](http://www.routledge.com/9780367547462)

## Introduction to Structural Analysis

Displacement and Force Methods



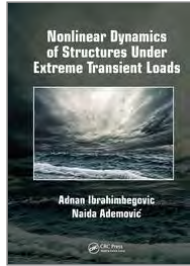
**S. T. Mau**

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 2012:328  
Hb: 978-1-466-50416-5: **£120**  
eBook: 978-0-429-09617-4

\* For full contents and more information, visit: [www.routledge.com/9781466504165](http://www.routledge.com/9781466504165)

## Nonlinear Dynamics of Structures Under Extreme Transient Loads



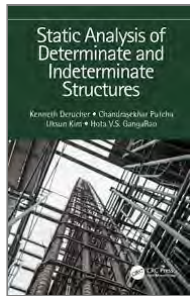
**Adnan Ibrahimbegovic, Naida Ademovic**

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

\* For full contents and more information, visit: [www.routledge.com/9780367728786](http://www.routledge.com/9780367728786)

## Static Analysis of Determinate and Indeterminate Structures



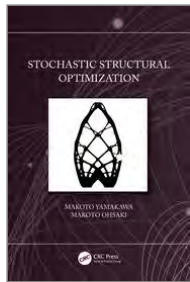
**Kenneth Derucher, Chandrasekhar Putcha, Uksun Kim, Hota V.S. GangaRao**

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  
January 2022:202  
Hb: 978-1-032-15982-9: **£82.99**  
eBook: 978-1-003-24663-3

\* For full contents and more information, visit: [www.routledge.com/9781032159829](http://www.routledge.com/9781032159829)

## Stochastic Structural Optimization



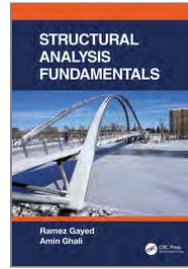
**Makoto Yamakawa, Makoto Ohsaki**

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 2023:266  
Hb: 978-0-367-72039-1: **£82.99**  
eBook: 978-1-003-15316-0

\* For full contents and more information, visit: [www.routledge.com/9780367720391](http://www.routledge.com/9780367720391)

## Structural Analysis Fundamentals



**Ramez Gayed, Amin Ghali**

This covers all that is taught in graduate and undergraduate courses in the analysis required for of 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.

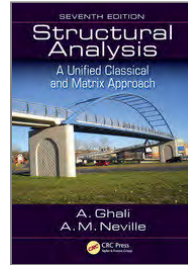
CRC Press  
September 2021:680  
Hb: 978-0-367-25262-5: **£115**  
Pb: 978-0-367-25261-8: **£48.99**  
eBook: 978-0-429-28685-8

\* For full contents and more information, visit: [www.routledge.com/9780367252618](http://www.routledge.com/9780367252618)

7TH EDITION

## Structural Analysis

A Unified Classical and Matrix Approach, Seventh Edition



**Amin Ghali, A. Neville, T. Brown**

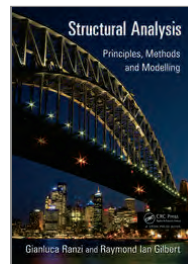
This comprehensive textbook is widely used by civil and structural engineering lecturers and students because of its clear and thorough style and content. Independent of codes of practice, the book is used internationally, regardless of the adopted system of units. This new edition updates and enhances 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 2017:962  
Hb: 978-1-138-37374-7: **£125**  
Pb: 978-1-498-72506-4: **£64.99**  
eBook: 978-1-315-26693-0

\* For full contents and more information, visit: [www.routledge.com/9781498725064](http://www.routledge.com/9781498725064)

## Structural Analysis

Principles, Methods and Modelling



**Gianluca Ranzi, Raymond Ian Gilbert**

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.

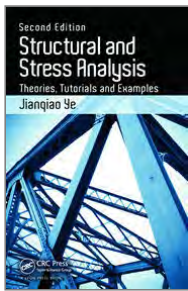
CRC Press  
July 2014:576  
Pb: 978-0-415-52644-9: **£82.99**  
eBook: 978-1-315-27518-5

\* For full contents and more information, visit: [www.routledge.com/9780415526449](http://www.routledge.com/9780415526449)

2ND EDITION

## Structural and Stress Analysis

Theories, Tutorials and Examples, Second Edition



**Jianqiao Ye**

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 2015:278

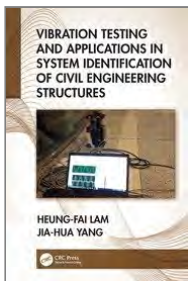
Hb: 978-1-138-37370-9: £130

Pb: 978-1-482-22033-9: £82.99

eBook: 978-0-429-17008-9

\* For full contents and more information, visit: [www.routledge.com/9781482220339](http://www.routledge.com/9781482220339)

## Vibration Testing and Applications in System Identification of Civil Engineering Structures



**Heung-Fai Lam, Jia-Hua Yang**

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

September 2022:424

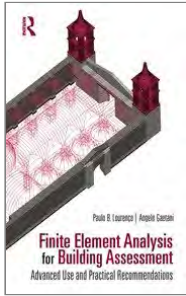
Hb: 978-1-138-33288-1: £135

eBook: 978-0-429-44586-6

\* For full contents and more information, visit: [www.routledge.com/9781138332881](http://www.routledge.com/9781138332881)

## Finite Element Analysis for Building Assessment

Advanced Use and Practical Recommendations



**Paulo B. Lourenço, Angelo Gaetani**

*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 advice on the material properties to be adopted in the analyses, and is illustrated with case 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 2022:422

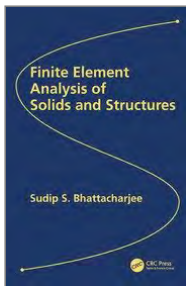
Hb: 978-0-367-35767-2: **£150**

Pb: 978-1-032-22839-6: **£66.99**

eBook: 978-0-429-34156-4

\* For full contents and more information, visit: [www.routledge.com/9781032228396](http://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

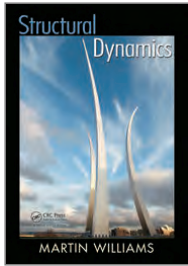
July 2021:340

Hb: 978-0-367-43705-3: **£105**

eBook: 978-1-003-02784-3

\* For full contents and more information, visit: [www.routledge.com/9780367437053](http://www.routledge.com/9780367437053)

## Structural Dynamics



**Martin Williams**

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

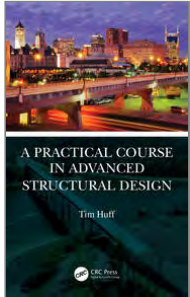
April 2016:283

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](http://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.

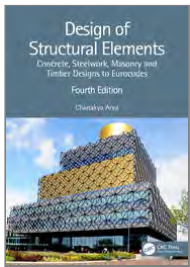
CRC Press  
April 2021:338  
Hb: 978-0-367-74666-7: **£99.99**  
eBook: 978-1-003-15899-8

\* For full contents and more information, visit: [www.routledge.com/9780367746667](http://www.routledge.com/9780367746667)

4TH EDITION

## Design of Structural Elements

Concrete, Steelwork, Masonry and Timber Designs to Eurocodes



**Chanakya Arya**

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

\* For full contents and more information, visit: [www.routledge.com/9781032076317](http://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.

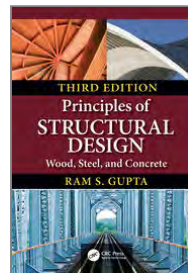
CRC Press  
May 2022:318  
Hb: 978-1-032-24657-4: **£84.99**  
eBook: 978-1-003-28193-1

\* For full contents and more information, visit: [www.routledge.com/9781032246574](http://www.routledge.com/9781032246574)

3RD EDITION

## Principles of Structural Design

Wood, Steel, and Concrete, Third Edition



**Ram S. Gupta**

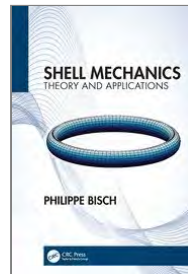
Timber, steel, and concrete are common engineering materials used in structural design. Material choice depends upon the type of structure, availability of material, and the preference of the designer. The design practices the code requirements of each material are very different. In this updated edition, 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 2019:617  
Hb: 978-1-138-49353-7: **£115**  
eBook: 978-1-351-02770-0

\* For full contents and more information, visit: [www.routledge.com/9781138493537](http://www.routledge.com/9781138493537)

## Shell Mechanics

Theory and Applications



**Philippe Bisch**

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 2023:562  
Hb: 978-1-138-31059-9: **£130**  
eBook: 978-0-429-44040-3

\* For full contents and more information, visit: [www.routledge.com/9781138310599](http://www.routledge.com/9781138310599)

## Structural Design Against Deflection



**Tianjian Ji**

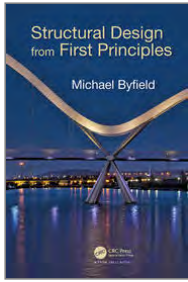
This presents qualitative relationships between internal forces and deflection and demonstrates principles and measures for designing structures against deflection in order to achieve more effective, efficient and elegant structures. Hand calculations and other practical examples are given for undergraduates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

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

\* For full contents and more information, visit: [www.routledge.com/9780367897932](http://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 2018:335

Hb: 978-1-138-50349-6: £135

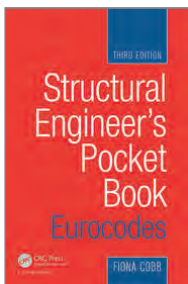
Pb: 978-1-498-74121-7: £49.99

eBook: 978-1-315-11691-4

\* For full contents and more information, visit: [www.routledge.com/9781498741217](http://www.routledge.com/9781498741217)

3RD EDITION

## Structural Engineer's Pocket Book: Eurocodes



**Fiona Cobb**

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 2014:464

Hb: 978-1-138-47018-7: £185

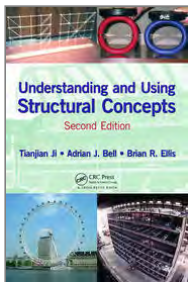
Pb: 978-0-080-97121-6: £37.99

eBook: 978-0-429-18490-1

\* For full contents and more information, visit: [www.routledge.com/9780080971216](http://www.routledge.com/9780080971216)

2ND EDITION

## Understanding and Using Structural Concepts



**Tianjian Ji, Adrian J. Bell, Brian R. Ellis**

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 2015:394

Hb: 978-1-138-47019-4: £180

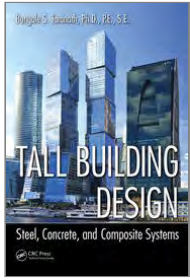
Pb: 978-1-498-70729-9: £66.99

eBook: 978-0-429-17215-1

\* For full contents and more information, visit: [www.routledge.com/9781498707299](http://www.routledge.com/9781498707299)

## Tall Building Design

Steel, Concrete, and Composite Systems



**Bungale S. Taranath**

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 2016:872

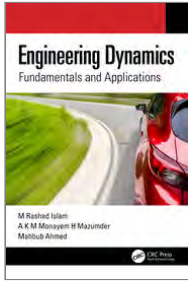
Hb: 978-1-466-55620-1: £170

eBook: 978-1-315-37446-8

\* For full contents and more information, visit: [www.routledge.com/9781466556201](http://www.routledge.com/9781466556201)

## Engineering Dynamics

Fundamentals and Applications



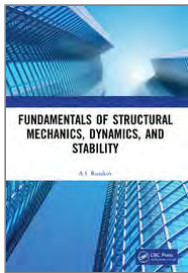
**M Rashad Islam, A K M Monayem H Mazumder,  
Mahbub Ahmed**

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  
August 2022:276  
Hb: 978-1-032-25557-6: **£105**  
eBook: 978-1-003-28395-9

\* For full contents and more information, visit: [www.routledge.com/9781032255576](http://www.routledge.com/9781032255576)

## Fundamentals of Structural Mechanics, Dynamics, and Stability



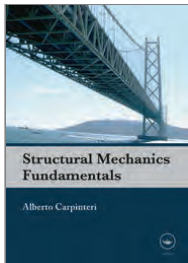
**A.I. Rusakov**

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 2023:468  
Hb: 978-1-498-77042-2: **£160**  
Pb: 978-0-367-61694-6: **£58.99**  
eBook: 978-0-429-15529-1

\* For full contents and more information, visit: [www.routledge.com/9780367616946](http://www.routledge.com/9780367616946)

## Structural Mechanics Fundamentals



**Alberto Carpinteri**

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 2013:512  
Hb: 978-1-138-58076-3: **£150**  
Pb: 978-0-415-58032-8: **£56.99**  
eBook: 978-1-315-27252-8

\* For full contents and more information, visit: [www.routledge.com/9780415580328](http://www.routledge.com/9780415580328)

6TH EDITION

## Engineering Surveying



**W Schofield, Mark Breach**

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 2007:638

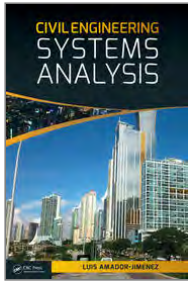
Hb: 978-1-138-37316-7: **£135**

Pb: 978-0-750-66949-8: **£64.99**

eBook: 978-1-315-14704-8

\* For full contents and more information, visit: [www.routledge.com/9780750669498](http://www.routledge.com/9780750669498)

## Civil Engineering Systems Analysis



**Luis Amador-Jimenez**

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 2016:272

Hb: 978-1-138-47020-0: £175

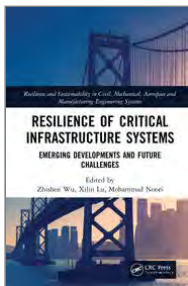
Pb: 978-1-482-26079-3: £56.99

eBook: 978-1-315-38142-8

\* For full contents and more information, visit: [www.routledge.com/9781482260793](http://www.routledge.com/9781482260793)

## Resilience of Critical Infrastructure Systems

Emerging Developments and Future Challenges



*Edited by* **Zhishen Wu, Xilin Lu, Mohammad Noori**

*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 2020:244

Hb: 978-0-367-47738-7: £99.99

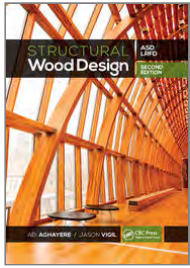
eBook: 978-0-367-47739-4

\* For full contents and more information, visit: [www.routledge.com/9780367477387](http://www.routledge.com/9780367477387)

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 2019:648

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

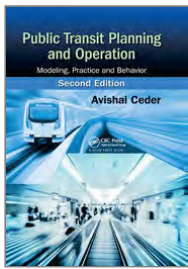
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2ND EDITION

## 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 2019:742

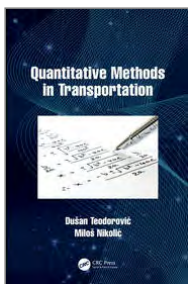
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eBook: 978-0-429-10024-6

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## Quantitative Methods in Transportation



**Dušan Teodorović, 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 2020:480

Hb: 978-0-367-25054-6: **£145**

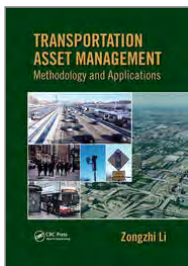
Pb: 978-0-367-25053-9: **£48.99**

eBook: 978-0-429-28691-9

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## 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 2020:760

Hb: 978-1-482-21052-1: **£130**

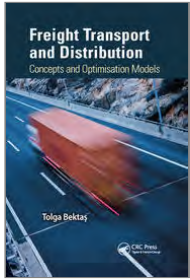
Pb: 978-0-367-65708-6: **£44.99**

eBook: 978-1-315-11796-6

\* For full contents and more information, visit: [www.routledge.com/9780367657086](http://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 2019:288

Hb: 978-1-482-25870-7: **£84.99**

Pb: 978-0-367-87087-4: **£44.99**

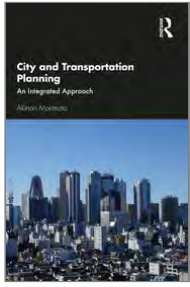
eBook: 978-1-315-17396-2

\* For full contents and more information, visit: [www.routledge.com/9780367870874](http://www.routledge.com/9780367870874)



## City and Transportation Planning

An Integrated Approach



**Akinori Morimoto**

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: 222

Hb: 978-0-367-63602-9: £105

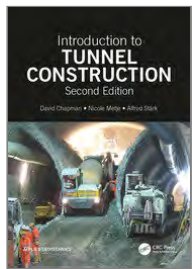
Pb: 978-0-367-63601-2: £48.99

eBook: 978-1-003-11991-3

\* For full contents and more information, visit: [www.routledge.com/9780367636012](http://www.routledge.com/9780367636012)

2ND EDITION

## Introduction to Tunnel Construction



**David N. Chapman, 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 2017:455

Hb: 978-1-498-76639-5: **£145**

Pb: 978-1-498-76624-1: **£64.99**

eBook: 978-1-315-12016-4

\* For full contents and more information, visit: [www.routledge.com/9781498766241](http://www.routledge.com/9781498766241)

## Soft Ground Tunnel Design



**Benoit Jones**

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 2021:582

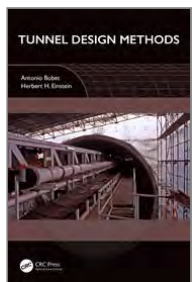
Hb: 978-0-367-41959-2: **£175**

Pb: 978-1-482-25467-9: **£68.99**

eBook: 978-0-429-47038-7

\* For full contents and more information, visit: [www.routledge.com/9781482254679](http://www.routledge.com/9781482254679)

## Tunnel Design Methods



**Antonio Bobet, Herbert H. Einstein**

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-excitation-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

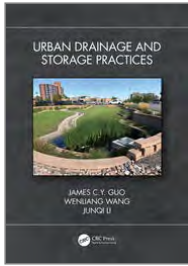
September 2023:626

Hb: 978-1-032-35844-4: **£115**

eBook: 978-1-003-32894-0

\* For full contents and more information, visit: [www.routledge.com/9781032358444](http://www.routledge.com/9781032358444)

## Urban Drainage and Storage Practices



**James C Y Guo, Wenliang Wang, Junqi Li**

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

September 2022:432

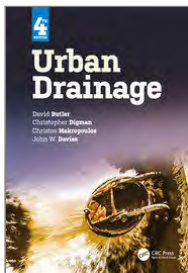
Hb: 978-1-032-25612-2: **£130**

eBook: 978-1-003-28423-9

\* For full contents and more information, visit: [www.routledge.com/9781032256122](http://www.routledge.com/9781032256122)

4TH EDITION

## Urban Drainage



**David Butler, Christopher James Digman, Christos Makropoulos, John W. Davies**

This new edition covers the drainage of rainwater and wastewater. It deals comprehensively with the analysis and design of new systems and of existing infrastructure. Combining principles, practice and research, it provides significant new material on modelling, risk, smart urban drainage, and the global and local context. This is an essential text for undergraduate and Masters students in water engineering, environmental and public health engineering, engineering hydrology, and related disciplines. It is written in line with BS EN, WaPUG, serving as a reference for drainage design and drainage operation engineers and consulting engineers. It is illustrated with extensive examples.

CRC Press

April 2018:592

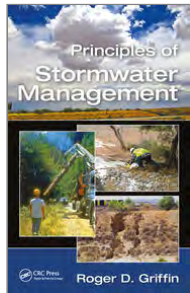
Hb: 978-1-498-75293-0: **£125**

Pb: 978-1-498-75058-5: **£54.99**

eBook: 978-1-351-17430-5

\* For full contents and more information, visit: [www.routledge.com/9781498750585](http://www.routledge.com/9781498750585)

## Principles of Stormwater Management



**Roger D. Griffin**

This book presents 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 2018:350

Hb: 978-1-138-09362-1: **£115**

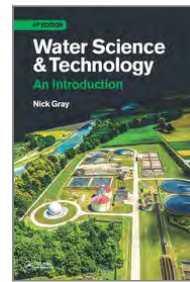
eBook: 978-1-351-11375-5

\* For full contents and more information, visit: [www.routledge.com/9781138093621](http://www.routledge.com/9781138093621)

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 2017:704

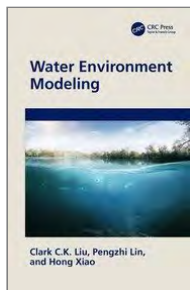
Hb: 978-1-138-63035-2: **£150**

Pb: 978-1-498-75345-6: **£74.99**

eBook: 978-1-315-21319-4

\* For full contents and more information, visit: [www.routledge.com/9781498753456](http://www.routledge.com/9781498753456)

## Water Environment Modeling



**Clark C.K. Liu, Pengzhi Lin, Hong Xiao**

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 2021:334

Hb: 978-0-367-44244-6: **£82.99**

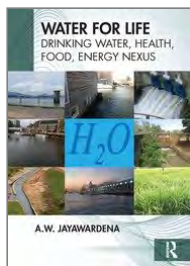
Pb: 978-0-367-44243-9: **£44.99**

eBook: 978-1-003-00849-1

\* For full contents and more information, visit: [www.routledge.com/9780367442439](http://www.routledge.com/9780367442439)

## Water for Life

Drinking Water, Health, Food, Energy Nexus



**A.W. Jayawardena**

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.

Routledge

December 2022:366

Hb: 978-1-032-36001-0: **£100**

Pb: 978-1-032-35888-8: **£42.99**

eBook: 978-1-003-32920-6

\* For full contents and more information, visit: [www.routledge.com/9781032358888](http://www.routledge.com/9781032358888)

2ND EDITION

## Fundamentals of Wastewater Treatment and Engineering

**Rumana Riffat, Taqsim Husnain**

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

April 2022:430

Hb: 978-0-367-68130-2: **£84.99**

eBook: 978-1-003-13437-4

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