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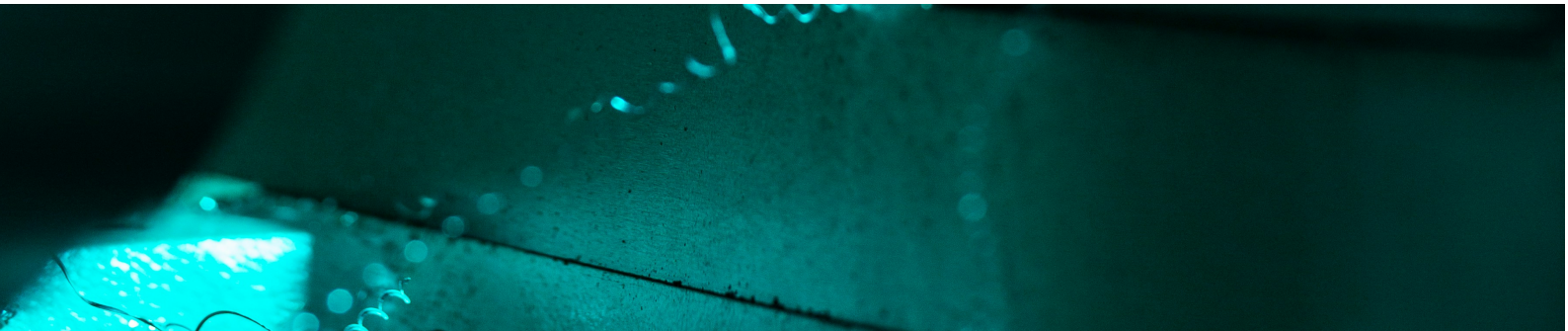
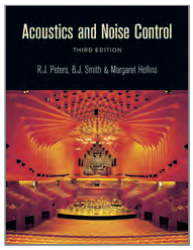


Contents

3RD EDITION

Acoustics and Noise Control



R J Peters

Acoustics and Noise Control provides a detailed and comprehensive introduction to the principles and practice of acoustics and noise control. Since the last edition was published in 1996 there have been many changes and additions to standards, laws and regulations, codes of practice relating to noise, and in noise measurement techniques and noise control technology so this new edition has been fully revised and updated throughout. The book assumes no previous knowledge of the subject and requires only a basic knowledge of mathematics and physics. There are worked examples in the text to aid understanding and a range of experiments help students use complicated apparatus. Thoroughly revised to cover the latest changes in standards, codes of practice and legislation, this new edition covers much of the Institute of Acoustics Diploma syllabus and has an increased emphasis on the legal issues relating to noise control.

Routledge
June 2011:400
Hb: 978-1-138-12912-2: **£130**
Pb: 978-0-273-72468-1: **£76.99**
eBook: 978-1-315-84714-6
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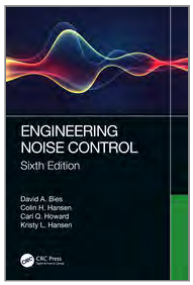
6TH EDITION

Engineering Noise Control



David A. Bies, Colin H. Hansen, Carl Howard, Kristy L. Hansen

This textbook sets out the foundations of noise control technology in detail, and can be used to solve the real world problems encountered by consultants and engineers. It covers the fundamentals of acoustics, theoretical concepts, and practical application of current noise control technology. This new edition particularly develops material on sound propagation, especially outdoor noise; subjective response to noise; resonator mufflers; and porous absorbers. Detail is added on microphones and sensors; free-field simulation; and wind turbine sound. It is well illustrated with practical examples, with further problems on www.causalsystems.com

CRC Press
August 2023:922
Hb: 978-0-367-41479-5: **£145**
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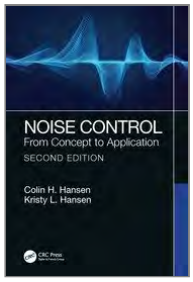
2ND EDITION

Noise Control

From Concept to Application



Colin H. Hansen, Kristy L. Hansen

The second edition of Noise Control: From Concept to Application, newly expanded and thoroughly updated, now includes 180 graded problems with solutions, plus 100 end-of-chapter problems with solutions available for instructors on the authors' website. Working from basic scientific principles, the authors show how an understanding of sound can be applied to real-world settings, working through numerous examples in detail and covering good practice in noise control for both new and existing facilities.

CRC Press
August 2021:482
Hb: 978-1-138-36901-6: **£155**
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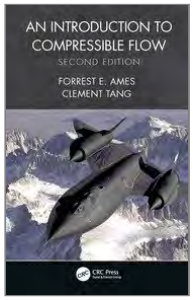
2ND EDITION

An Introduction to Compressible Flow



Forrest E. Ames, Clement C. Tang

An Introduction to Compressible Flow, Second Edition covers the material typical of a single-semester course in compressible flow. The book begins with a brief review of thermodynamics and control volume fluid dynamics, then proceeds to cover isentropic flow, normal shock waves, shock tubes, oblique shock waves, Prandtl-Meyer expansion fans, Fanno-line flow, Rayleigh-line flow, and conical shock waves. The book is intended for senior undergraduate engineering students studying thermal-fluids and practicing engineers in the areas of aerospace or energy conversion. It also provides supplemental coverage of compressible flow material in gas turbine and aerodynamics courses.

CRC Press
July 2023:296
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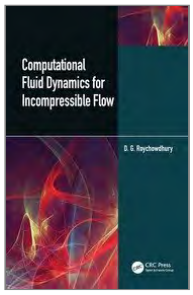
Computational Fluid Dynamics for Incompressible Flows



D.G. Roychowdhury

Presenting fundamental as well as advanced concepts in the field of computational fluid dynamics in an easy to understand manner, this textbook will be useful for senior undergraduate and graduate students in the field of mechanical and aerospace engineering. It discusses various finite difference methods and finite volume methods including Von Neumann's method, Lax equivalence theorem, time, dependent method, one-step method, Dufort-Frankel method, and MacCormack method.

CRC Press
February 2022:416
Hb: 978-0-367-40806-0: **£130**
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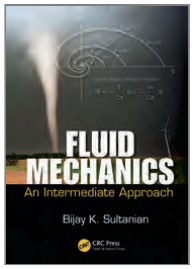
Fluid Mechanics

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
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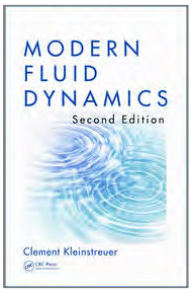
2ND EDITION

Modern Fluid Dynamics



Clement Kleinstreuer

Modern Fluid Dynamics, Second Edition provides up-to-date coverage of intermediate and advanced fluids topics. The text emphasizes fundamentals and applications, supported by worked examples and case studies. Scale analysis, non-Newtonian fluid flow, surface coating, convection heat transfer, lubrication, fluid-particle dynamics, microfluidics, entropy generation, and fluid-structure interactions are among the topics covered. Part A presents fluids principles, and prepares readers for the applications of fluid dynamics covered in Part B, which includes computer simulations and project writing. A review of the engineering math needed for fluid dynamics is included in an appendix.

CRC Press
April 2018:459
Hb: 978-1-138-19810-4: **£160**
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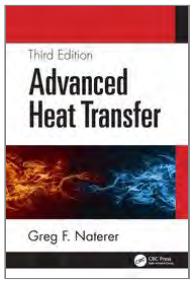
3RD EDITION

Advanced Heat Transfer



Greg F. Naterer

Avanced Heat Transfer provides a single source of technical content for the prediction, solution, and analysis of advanced heat transfer problems, including conduction, convection, radiation and phase change, and chemically reactive modes of heat transfer. The book offers a comprehensive source for single and multiphase systems of heat transfer for graduate students taking courses in Advanced Heat Transfer; Multiphase Heat Transfer; Advanced Thermodynamics. With more than 20 new sections, case studies, examples, and problems, the new edition broadens the scope of thermal engineering applications, including biomedical fields, micro- and nanotechnology, and machine learning.

CRC Press
December 2021:577
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eBook: 978-1-003-20612-5
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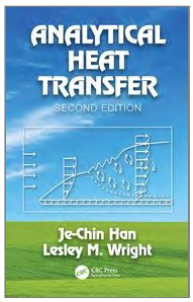
2ND EDITION

Analytical Heat Transfer



Je-Chin Han, Lesley Wright

The book explains how to analyze and solve conduction, convection, and radiation heat transfer problems. It fills the gap between basic heat transfer undergraduate courses and advanced heat transfer graduate courses for one semester of intermediate heat transfer; advanced conduction/convection heat transfer; or radiation heat transfer. The text enables students to tackle complex engineering heat transfer problems prevalent in practice. New chapters and content include Duhamel's superposition method, Green's function method for transient heat conduction, finite-difference method for steady state and transient heat conduction in cylindrical coordinates, and laminar mixed convection.

CRC Press
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Heat Transfer

A Systematic Learning Approach

Naseem Uddin

Heat Transfer: A Systematic Learning Approach presents valuable tools in understanding heat transfer mechanisms and provides a clear understanding of complex turbulent flows. It provides a comprehensive introduction to topics of heat transfer, including conduction, convection, thermal radiation, and nanofluids. The book includes numerous end-of-chapter problems to enhance student understanding and different solving approaches. The book is intended for senior undergraduate mechanical, aerospace, and chemical engineering students taking courses in Heat Transfer.

CRC Press
January 2024:534
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2ND EDITION

Inverse Heat Transfer

Fundamentals and Applications

M. Necat Ozisik, Helcio R.B. Orlande

Series: Heat Transfer

This book introduces the fundamental concepts of inverse heat transfer solutions and their application for solving problems in convective, conductive, radiative, and multi-physics problems. By modernizing the classic work of the late Dr. Ozisik, and adding new examples and problems, this new edition provides a powerful tool for instructors, researchers, and graduate students studying thermal-fluid systems and heat transfer. The textbook includes based on generalized coordinates for the solution of inverse heat conduction problems in two-dimensional regions, involving the introduction of techniques within the Bayesian framework of statistics for solution of inverse problems.

CRC Press
April 2021:297
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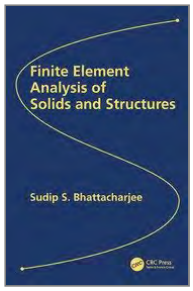
Finite Element Analysis of Solids and Structures



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
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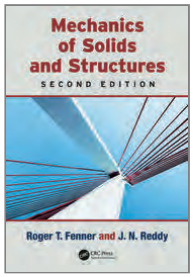
2ND EDITION

Mechanics of Solids and Structures



Roger T. Fenner, J.N. Reddy

Series: Applied and Computational Mechanics

A revision of a popular textbook, this volume emphasizes the development of analysis techniques from basic principles for a broad range of practical problems, including simple structures, pressure vessels, beams, and shafts. The book integrates numerical and computer techniques with programs for carrying out analyses, facilitating design, and solving the problems found at the end of each chapter. It also presents the underlying theory and traditional manual solution methods along with these techniques. This new second edition covers relationships between stress and strain, torsion, statically determinate systems, instability of struts and columns, and compatibility equations.

CRC Press
June 2012:705
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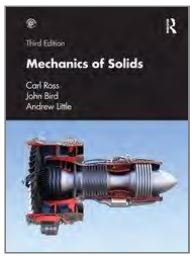
3RD EDITION

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.

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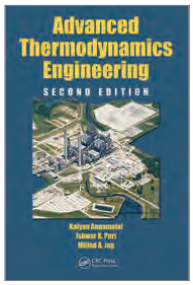
2ND EDITION

Advanced Thermodynamics Engineering



Kalyan Annamalai, Ishwar K. Puri, Milind A. Jog

Series: Applied and Computational Mechanics

Designed for readers who need to understand and apply the engineering physics of thermodynamic concepts, this volume features physical explanations along with mathematical equations so that the principles can be applied to real-world problems. Employing almost 300 illustrations to enhance clarity, the book first presents the phenomenological approach to a problem and then delves into the details. Using a self-teaching format, the authors forego esoteric material in favor of concrete examples and applications. The book includes several tables containing thermodynamic properties and other useful information, and additional material is available for download.

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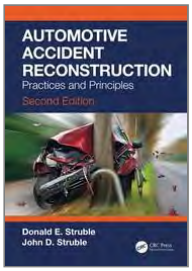
Automotive Accident Reconstruction

Practices and Principles, Second Edition



Donald E. Struble, John D. Struble

Series: Ground Vehicle Engineering

This fully updated edition presents practices and principles applicable for the reconstruction of automobile and commercial truck crashes. Like the First Edition, it starts at the very beginning with fundamental principles, information sources, and data gathering and inspection techniques for accident scenes and vehicles. It goes on to show how to analyze photographs and crash test data. The book presents tire fundamentals and shows how to use them in spreadsheet-based reverse-trajectory analysis.

CRC Press
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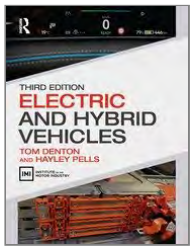
Electric and Hybrid Vehicles



Tom Denton, Hayley Pells

Endorsed by the Institute of the Motor Industry, this full colour textbook introduces the subject for further education and undergraduate students, technicians, and drivers. This edition is extensively updated, especially regarding batteries, charging and the high voltage pathway, and with new case studies and illustrations. It covers the different types of hybrid and electric vehicle, costs and emissions, and the charging infrastructure, before explaining how the vehicles work, plus the maintenance and repair procedures. It particularly suits students studying for IMI Levels 2, 3 and 4 Awards in Hybrid Electric Vehicles, IMI Accreditation, C&G and all other EV/Hybrid courses.

Routledge
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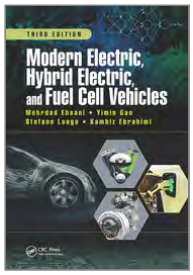
3RD EDITION

Modern Electric, Hybrid Electric, and Fuel Cell Vehicles



Mehrdad Ehsani, Yimin Gao, Stefano Longo, Kambiz Ebrahimi

The book deals with the fundamentals, theoretical bases, and design methodologies of conventional internal combustion engine (ICE) vehicles, electric vehicles (EVs), hybrid electric vehicles (HEVs), and fuel cell vehicles (FCVs). The design methodology is described in mathematical terms, step-by-step, and the topics are approached from the overall drive train system, not just individual components. Furthermore, in explaining the design methodology of each drive train, design examples are presented with simulation results.

CRC Press
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Hb: 978-1-498-76177-2: **£130**
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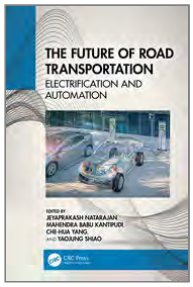
The Future of Road Transportation

Electrification and Automation



Edited by **Jeyaprakash Natarajan, Mahendra Babu Kantipudi, Che-Hua Yang, Yaojung Shiao**

The Future of Road Transportation presents rapidly growing research towards electrified and automated vehicles. It explains the workings and drawbacks of a conventional vehicle's powertrain, braking, and steering systems before exploring ADAS equipment and driverless car technologies. The book is intended for automotive and electrical engineers and researchers working on electric vehicle technology, autonomous and automated vehicles, automotive sustainability. It will also be useful for mechanical and electrical engineering students taking courses in Automotive/Vehicle Engineering and Automotive Systems and Design.

CRC Press
November 2023:322
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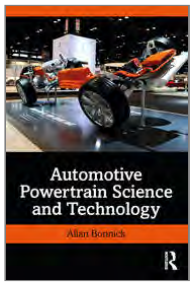
Automotive Powertrain Science and Technology



Allan Bonnick

A motor vehicle's powertrain consists of the components which generate power and enable it to move – its engine, exhaust system, transmission, drive shaft, suspension and wheels. Any automotive engineering student going beyond basic mechanics will need a sound knowledge of the mathematics and scientific principles, particularly calculus and algebra, which underpin powertrain technology. This textbook supports a series of courses, for instance BTEC unit 28 "Further Mathematics for Engineering Technicians", and BTEC higher unit 25 "Engine and Vehicle Design and Performance", without giving full coverage of automotive technology.

Routledge
March 2020:208
Hb: 978-0-367-33111-5: **£91.99**
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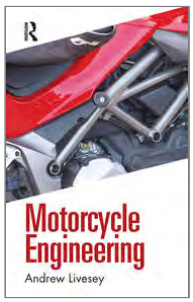
Motorcycle Engineering



Andrew Livesey

Motorcycle Engineering is written to give the reader a good all-round knowledge of how a motorcycle works. The complex engineering behind the machines is explained in easy-to-understand terms and supported by 350 images. It covers a range of motorcycle types, and will be particularly useful for students on motorcycle and motorsport courses such as those run by the IMI and City & Guilds, as well as BTEC programmes, and will serve as an excellent introductory text for HND and degree students on automotive type programmes.

Routledge
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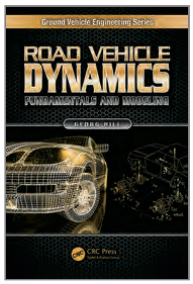
Road Vehicle Dynamics

Fundamentals and Modeling



Georg Rill

Series: Ground Vehicle Engineering

Presenting the terminology of automotive engineering, this book introduces the basic mechanics and analytical methods used in vehicle dynamics. The text provides insight into tire force and torque generation and surveys the components of drive train and suspension systems. It also covers the fundamentals of vehicle dynamics and includes a tire model, as well as dynamic models of force elements. Using simple vehicle models, the author provides a deeper understanding of the dynamics of road vehicles. Many MATLAB® examples are used to verify theoretical predictions. Electronic lecture notes and a full solutions manual are available with qualifying course adoption.

CRC Press
September 2011:362
Hb: 978-1-439-83898-3: **£115**
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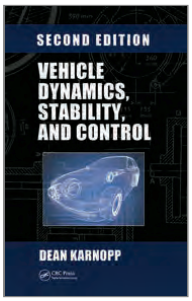
2ND EDITION

Vehicle Dynamics, Stability, and Control



Dean Karnopp

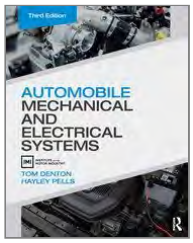
Series: Mechanical Engineering

The second edition of a bestseller, this book applies basic dynamics concepts to vehicle dynamics and stability. It covers a wide range of vehicles - autos and other ground vehicles, railroad locomotives and cars, and aerospace vehicles. The author presents and develops mathematical models with numerous worked examples and careful explanations brought in to explain and demonstrate the equations of motion; and applied engineering situations to show practical applications. It includes chapter problems and a Solutions Manual is available to qualified adopting professors. Bond graph methods are covered in an appendix.

CRC Press
January 2013:326
Hb: 978-1-466-56085-7: **£165**
eBook: 978-0-429-09682-2
* For **full contents** and more information, visit: **www.routledge.com/9781466560857**

3RD EDITION

Automobile Mechanical and Electrical Systems



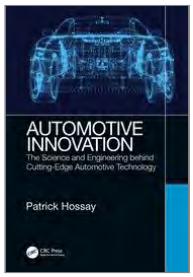
Tom Denton, Hayley Pells

This concentrates on core technologies of how new vehicle systems work, from the engine through to the chassis and electronics. Now with fresh coverage of HVAC (heating, ventilation and air conditioning), water pumps, thermal management, EV/HV awareness, safety management and hygiene, occupant restraints, and lighting systems. It outlines the necessary tools and equipment for effective car maintenance and repair in full colour with copious photographs, diagrams, flow charts and quick reference tables with definitions, key facts and 'safety first' considerations and is supported by the author's website www.automotive-technology.org

Routledge
November 2022:420
Hb: 978-1-032-28909-0: **£96.99**
Pb: 978-1-032-28908-3: **£33.99**
eBook: 978-1-003-29906-6
* For **full contents** and more information, visit: **www.routledge.com/9781032289083**

Automotive Innovation

The Science and Engineering behind Cutting-Edge Automotive Technology



Patrick Hossay

Automotive Innovation: The Science and Engineering behind Cutting-Edge Automotive Technology provides a survey of innovative automotive technologies in the industry. Automobiles are rapidly changing, and this text explores these trends. IC engines, transmissions, and chassis are being improved, and there are breakthroughs in digital control, manufacturing, and materials. New vehicles demonstrate improved performance, safety and efficiency factors; and electric vehicles represent a new alternative; sensing technologies and computer processors redefine the nature of driving. The text explores these changes, the engineering and science behind them, and directions for the future.

CRC Press
July 2019:323
Hb: 978-1-138-61176-4: **£91.99**
eBook: 978-0-429-46499-7
* For **full contents** and more information, visit: **www.routledge.com/9781138611764**

2ND EDITION

Automotive Technician Training: Theory

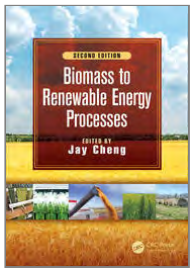
Tom Denton, Hayley Pells

Automotive Technician Training is the definitive textbook for automotive engineering. Produced alongside the ATT online learning resources, this textbook covers all the theory and technology sections that students need to learn in order to pass levels 1, 2 and 3 automotive courses. It is recommended by the Institute of the Motor Industry and is ideal for exams run by other awarding bodies. The revised edition overhauls the coverage of workshop skills and advanced diagnostic techniques. It also includes a new chapter about electric and hybrid vehicles and advanced driver-assistance systems, along with new online learning activities.

Routledge
September 2021:578
Hb: 978-1-032-00233-0: **£110**
Pb: 978-1-032-00220-0: **£39.99**
eBook: 978-1-003-17323-6
* For **full contents** and more information, visit: **www.routledge.com/9781032002200**

2ND EDITION

Biomass to Renewable Energy Processes



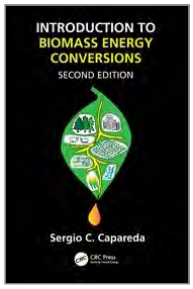
Edited by **Jay Cheng**

Biomass to Renewable Energy Processes, Second Edition, explains the theories of biological processes, biomass materials and logistics, and conversion technologies for bioenergy products such as biogas, ethanol, butanol, biodiesel, and synthetic gases. The book discusses anaerobic digestion of waste materials for biogas and hydrogen production, bioethanol and biobutanol production from starch and cellulose, and biodiesel production from plant oils. It addresses thermal processes, including gasification and pyrolysis of agricultural residues and woody biomass. The text also covers pretreatment technologies, enzymatic reactions, fermentation, and microbiological metabolisms and pathways.

CRC Press
October 2017:450
Hb: 978-1-498-77879-4: **£120**
eBook: 978-1-315-15286-8
* For **full contents** and more information, visit: **www.routledge.com/9781498778794**

2ND EDITION

Introduction to Biomass Energy Conversions



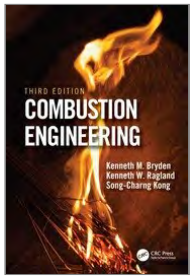
Sergio Capareda

Introduction to Biomass Energy Conversions explores biomass energy conversions and characterization using practical examples and real-world scenarios. It begins with biomass resource estimation and extends to commercialization pathways for economical biomass conversion into high value materials, chemicals, and fuels. The book is intended for senior undergraduate students taking Renewable Energy Conversions, Bio Energy, Biomass Energy, Introduction to Biofuels, and Sustainability Engineering courses. The book features end-of-chapter problems, exercises, and case studies with a Solutions Manual available for instructors.

CRC Press
November 2023:572
Hb: 978-1-032-27833-9: **£115**
* For **full contents** and more information, visit: **www.routledge.com/9781032278339**

3RD EDITION

Combustion Engineering



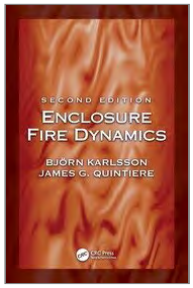
Kenneth Bryden, Kenneth W. Ragland, Song-Charng Kong

Combustion Engineering, Third Edition introduces the analysis, design, and building of combustion energy systems. It discusses current global energy, climate, and air pollution challenges and considers the increasing importance of renewable energy sources, such as biomass fuels. This text is intended for undergraduate and first-year graduate mechanical engineering students taking introductory courses in combustion. Practicing heating engineers, utility engineers, and engineers consulting in energy and environmental areas will find this book a useful reference. Instructors will be able to utilize an updated Solutions Manual and figure slides for their course.

CRC Press
May 2022:492
Hb: 978-1-138-06538-3: **£135**
eBook: 978-1-315-15972-0
* For **full contents** and more information, visit: **www.routledge.com/9781138065383**

2ND EDITION

Enclosure Fire Dynamics, Second Edition

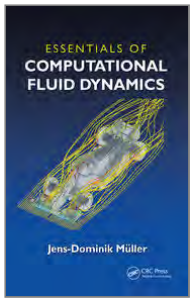


Björn Karlsson, James G. Quintiere

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**

Essentials of Computational Fluid Dynamics



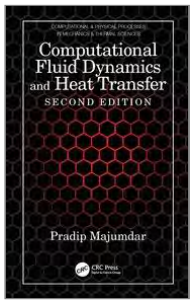
Jens-Dominik Mueller

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: **£175**
Pb: 978-1-482-22730-7: **£96.99**
eBook: 978-0-429-18868-8
* For **full contents** and more information, visit: **www.routledge.com/9781482227307**

2ND EDITION

Computational Fluid Dynamics and Heat Transfer



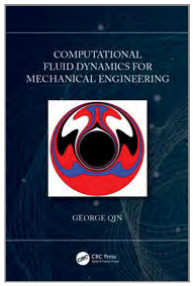
Pradip Majumdar

Series: Computational & Physical Processes in Mechanics & Thermal Scienc

This book provides a thorough understanding of fluid dynamics and heat and mass transfer. It contains new chapters on mesh generation and computational modeling of turbulent flow. Combining theory and practice in classic problems and computer code, the text includes examples in ANSYS, STAR CCM+, and COMSOL. The text will be valuable to Engineering instructors and students taking courses in computational heat transfer and computational fluid dynamics. With detailed explanations on how to implement computational methodology into a computer code, students will be able to solve complex problems on their own, including problems in heat transfer, mass transfer, and fluid flows.

CRC Press
December 2021:696
Hb: 978-1-498-70374-1: **£150**
eBook: 978-0-429-18300-3
* For **full contents** and more information, visit: **www.routledge.com/9781498703741**

Computational Fluid Dynamics for Mechanical Engineering



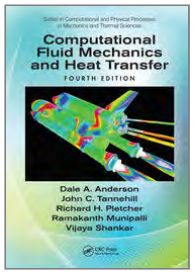
George Qin

This textbook presents the basic methods, numerical schemes, and algorithms of computational fluid dynamics (CFD). Readers will learn to compose MATLAB® programs to solve realistic fluid flow problems. The textbook was written for a first course in computational fluid dynamics (CFD) taken by undergraduate students in a Mechanical Engineering major. Newer research results on stability and boundedness of various numerical schemes are incorporated. The book emphasizes large eddy simulation (LES) in the chapter on turbulent flow simulation besides the two-equation models. Volume of fraction (VOF) and related methods will be the focus of the chapter on two-phase flows.

CRC Press
October 2021:384
Hb: 978-0-367-68729-8: **£86.99**
eBook: 978-1-003-13882-2
* For **full contents** and more information, visit: **www.routledge.com/9780367687298**

4TH EDITION

Computational Fluid Mechanics and Heat Transfer



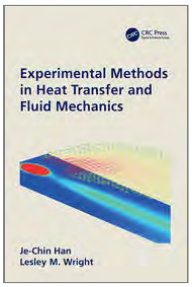
Dale Anderson, John C. Tannehill, Richard H. Pletcher, Ramakanth Munipalli, Vijaya Shankar

Series: Computational and Physical Processes in Mechanics and Thermal Sciences

This book is a fully updated version of the classic text on finite-difference and finite-volume computational methods. As an introductory text for advanced undergraduates and first-year graduate students, the new edition provides the background necessary for solving complex problems in fluid mechanics and heat transfer. Divided into two parts, the text covers essential concepts in the first part, and then moves on to fluids equations in the second. Designed as a valuable resource for practitioners and students, new examples and homework problems have been added to further enhance the student's understanding of the fundamentals and applications.

CRC Press
December 2020:974
Hb: 978-0-815-35712-4: **£135**
eBook: 978-1-351-12402-7
* For **full contents** and more information, visit: **www.routledge.com/9780815357124**

Experimental Methods in Heat Transfer and Fluid Mechanics



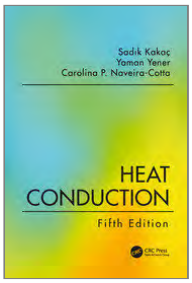
Je-Chin Han, Lesley Wright

Experimental Methods in Heat Transfer and Fluid Mechanics focuses on how to analyze and solve the classic heat transfer and fluid mechanics measurement problems in one volume. This work serves the need of graduate students and researchers looking for advanced measurement techniques for thermal, flow, and heat transfer engineering applications. The text focuses on analyzing and solving classic heat transfer and fluid mechanics measurement problems, emphasizing fundamental principles, measurement techniques, data presentation and uncertainty analysis. Overall, the text builds a strong and practical background for solving complex engineering heat transfer and fluid flow problems.

CRC Press
February 2022:382
Hb: 978-0-367-89792-5: **£105**
Pb: 978-0-367-49780-4: **£39.99**
eBook: 978-1-003-02117-9
* For **full contents** and more information, visit: **www.routledge.com/9780367497804**

5TH EDITION

Heat Conduction, Fifth Edition



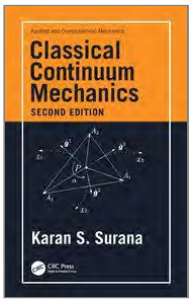
Sadık Kakac, Yaman Yener, Carolina P. Naveira-Cotta

Heat Conduction, Fifth Edition, upholds its reputation as the leading text in the field for graduate students, and as a resource for practicing engineers. The text begins with fundamental concepts, introducing the governing equation of heat conduction, and progresses through solutions for one-dimensional conduction, orthogonal functions, Fourier series and transforms, and multidimensional problems. Integral equations, Laplace transforms, finite difference numerical methods, and variational formulations are then covered. Nanoscale conductive heat transfer coverage has been added in this new edition, along with new and revised problems, and complete problem solutions for instructors.

CRC Press
July 2018:542
Hb: 978-1-138-94384-1: **£155**
eBook: 978-1-315-17871-4
* For **full contents** and more information, visit: **www.routledge.com/9781138943841**

2ND EDITION

Classical Continuum Mechanics



Karan S. Surana

Series: Applied and Computational Mechanics

Updated throughout for the second edition, the book adds new material aimed at defining classical continuum mechanics, discussing its limitations, and illustrating key concepts. New to the second edition is a chapter on advanced topics in classical continuum mechanics, defining and illustrating the type of physics that can be considered under calculus of variations and energy methods. Placing special emphasis on both matrix and vector notations, it presents material using these notations whenever possible.

CRC Press
January 2022:532
Hb: 978-0-367-61296-2: **£120**
eBook: 978-1-003-10533-6
* For **full contents** and more information, visit: **www.routledge.com/9780367612962**

4TH EDITION

Continuum Mechanics for Engineers

G. Thomas Mase, Ronald E. Smelser, Jenn Stroud Rossmann

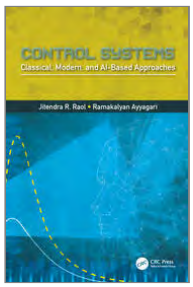
Series: Applied and Computational Mechanics

A bestselling textbook in its first three editions, Continuum Mechanics for Engineers, Fourth Edition provides engineering students with a complete, concise, and accessible introduction to advanced engineering mechanics. It provides information that is useful in emerging engineering areas, such as micro-mechanics and biomechanics. Through a mastery of this volume's contents and additional rigorous finite element training, readers will develop the mechanics foundation necessary to skilfully use modern, advanced design tools.

CRC Press
May 2020:450
Hb: 978-1-482-23868-6: **£115**
eBook: 978-0-429-17439-1
* For **full contents** and more information, visit: **www.routledge.com/9781482238686**

Control Systems

Classical, Modern, and AI-Based Approaches



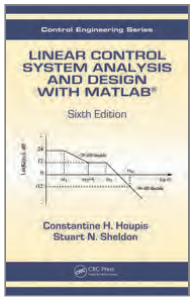
Jitendra R. Raol, Ramakalyan Ayyagari

This book provides a broad and comprehensive study of the principles, mathematics, and applications for studying basic control in Mechanical, Electrical, Aerospace, and other engineering disciplines. The text builds a strong mathematical foundation of control theory, introducing linear, non-linear, digital, optimal, and robust control systems, and builds upon that foundation to address applications in emerging areas such as unmanned aicraft systems, robotic systems, and spacecraft. Numerical coverage with MATLAB® is integrated, and numerous examples and exercises are included in each chapter; and MATLAB® code will be available.

CRC Press
July 2019:668
Hb: 978-0-815-34630-2: **£125**
eBook: 978-1-351-17080-2
* For **full contents** and more information, visit: **www.routledge.com/9780815346302**

6TH EDITION

Linear Control System Analysis and Design with MATLAB®



Constantine H. Houpis, Stuart N. Sheldon

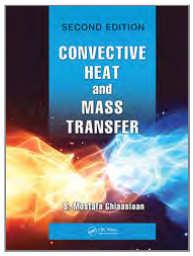
Series: Automation and Control Engineering

This book uses numerous in-depth explanations, diagrams, calculations, and tables to provide an intensive overview of modern control theory and control system design. Mathematics is kept to a minimum, and engineering applications are stressed throughout. Completely updated and packed with student-friendly features, the sixth edition presents a range of updated examples using MATLAB®, as well as an appendix listing MATLAB functions for optimizing control system analysis and design. Over 75 percent of the problems presented in the previous edition have been revised or replaced.

CRC Press
October 2013:729
Hb: 978-1-466-50426-4: **£140**
eBook: 978-0-429-09619-8
* For **full contents** and more information, visit: **www.routledge.com/9781466504264**

2ND EDITION

Convective Heat and Mass Transfer



S. Mostafa Ghiaasiaan

Series: Heat Transfer

Convective Heat and Mass Transfer, Second Edition, is ideal for the graduate level study of convection heat and mass transfer, with coverage of well-established theory and practice as well as trending topics such as transpiration cooling, flow in micro-channels, CFD, and diffusion and convection transport of particles. Its broad scope makes the text ideal for both Mechanical and Chemical Engineering, with mass transfer content presented so that it can be easily skipped. Numerous examples and end-of-chapter exercises are included, along with 18 appendices that cover essential property and mathematical information. Solutions and PowerPoint slides are available to qualified instructors.

CRC Press
June 2018:652
Hb: 978-0-815-36141-1: **£175**
eBook: 978-1-351-11275-8
* For **full contents** and more information, visit: **www.routledge.com/9780815361411**

3RD EDITION

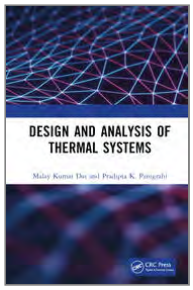
Convective Heat Transfer

Sadik Kakac, Yaman Yener, Anchasa Pramuanjaroenkij

With clear, concise coverage of the basics of convection, this textbook is written for senior/graduate students, from mechanical and other engineering majors, who have taken a basic heat transfer course. Balancing basic concepts with engineering applications, the new edition is ideal for those wanting to learn more heat transfer for research work and advanced coursework. Convective heat transfer is important for many areas, including biomedical applications and energy technologies. This third edition features a complete new chapter on microscale and nanoscale convective heat transfer, and more coverage of numerical/computer methods.

CRC Press
December 2013:622
Hb: 978-1-466-58344-3: **£165**
eBook: 978-0-429-10290-5
* For **full contents** and more information, visit: **www.routledge.com/9781466583443**

Design and Analysis of Thermal Systems



Malay Kumar Das, Pradipta K. Panigrahi

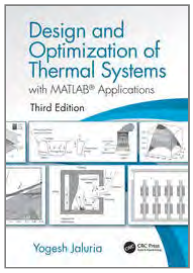
Thermal systems are essential features of all domestic and industrial applications involving heat and fluid flow and focus of the proposed book is on the design of thermal systems. The proposed book bridges the gap between the theories of thermal science and design of practical thermal systems. Further, it discusses thermodynamic design principle, mathematical and CFD tools that will enable students as well as professional engineers to quickly analyse and design practical thermal systems. The major emphasis is on practical problems related to contemporary energy- and environment-related thermal systems including discussion of computational fluid dynamics used in thermal system design.

CRC Press
May 2023:424
Hb: 978-0-367-50254-6: £125
eBook: 978-1-003-04927-2
* For **full contents** and more information, visit: **www.routledge.com/9780367502546**

3RD EDITION

Design and Optimization of Thermal Systems, Third Edition

with MATLAB Applications



Yogesh Jaluria

Series: Mechanical Engineering

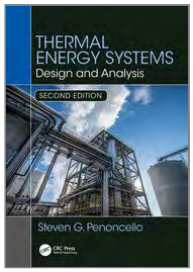
Providing systematic approaches to thermal systems design, Design and Optimization of Thermal Systems, Third Edition, delivers the guidance needed to solve design problems. It presents concepts and procedures for conceptual design, formulation, modeling, simulation, feasible design, and optimization. Emphasizing modeling and simulation, the Third Edition covers the areas of manufacturability, material selection, and sensitivity, genetic and gradient search methods, and knowledge-based design methodology. This edition also features many new and revised examples and problems, and coverage of computer design analysis with MATLAB.

CRC Press
September 2019:614
Hb: 978-1-498-77823-7: **£105**
eBook: 978-0-429-08578-9
* For **full contents** and more information, visit: **www.routledge.com/9781498778237**

2ND EDITION

Thermal Energy Systems

Design and Analysis, Second Edition



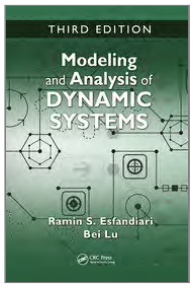
Steven G. Penoncello

Thermal Energy Systems: Design and Analysis, Second Edition presents basic concepts for simulation and optimization, and introduces simulation and optimization techniques for system modeling. This text addresses engineering economy, optimization, hydraulic systems, energy systems, and system simulation. Computer modeling is presented, and a companion website provides specific coverage of EES and Excel in thermal-fluid design. Assuming prior coursework in basic thermodynamics and fluid mechanics, this fully updated and improved text will guide students in Mechanical and Chemical Engineering as they apply their knowledge to systems analysis and design, and to capstone design project work.

CRC Press
October 2018:623
Hb: 978-1-138-73589-7: **£145**
eBook: 978-1-315-18626-9
* For **full contents** and more information, visit: **www.routledge.com/9781138735897**

3RD EDITION

Modeling and Analysis of Dynamic Systems



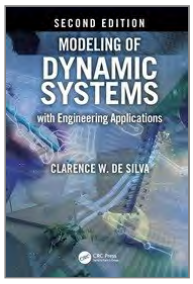
Ramin S. Esfandiari, Bei Lu, Bei Lu

Modeling and Analysis of Dynamic Systems, Third Edition introduces MATLAB®, Simulink®, and Simscape™ and then utilizes them to perform symbolic, graphical, numerical, and simulation tasks. Written for senior level courses/modules, the textbook meticulously covers techniques for modeling a variety of engineering systems, methods of response analysis, and introductions to mechanical vibration, and to basic control systems. These features combine to provide students with a thorough knowledge of the mathematical modeling and analysis of dynamic systems. The Third Edition now includes Case Studies, expanded coverage of system identification, and updates to the computational tools included.

CRC Press
February 2018:617
Hb: 978-1-138-72642-0: **£115**
eBook: 978-1-315-19129-4
* For **full contents** and more information, visit: **www.routledge.com/9781138726420**

2ND EDITION

Modeling of Dynamic Systems with Engineering Applications

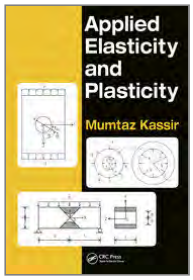


Clarence W. de Silva

Providing a clear discussion of system dynamics, the book enables students and professionals to both understand and subsequently model mechanical, thermal, fluid, electrical, and multi-domain systems in a systematic, unified and integrated manner. Concepts of through- and across-variables, and flow- and effort-variables are introduced and applied, alongside tools of modeling and model-representation such as linear graphs, bond graphs, and block diagrams. The book uses and illustrates popular software tools such as SIMULINK, throughout, and additionally makes use of innovative worked examples and case studies, alongside problems and exercises based on practical situations.

CRC Press
July 2022:420
Hb: 978-0-367-64421-5: **£135**
eBook: 978-1-003-12447-4
* For **full contents** and more information, visit: **www.routledge.com/9780367644215**

Applied Elasticity and Plasticity



Mumtaz Kassir

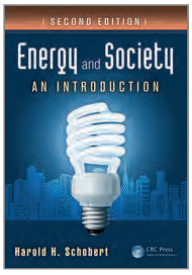
Applied Elasticity and Plasticity is a comprehensive work that introduces graduate students and professionals in civil, mechanical, aeronautical and metallurgical engineering to the basic theories of elasticity, plasticity and their practical applications.

CRC Press
October 2017:564
Hb: 978-1-138-06191-0: **£150**
eBook: 978-1-315-16199-0
* For **full contents** and more information, visit: **www.routledge.com/9781138061910**

2ND EDITION

Energy and Society

An Introduction, Second Edition



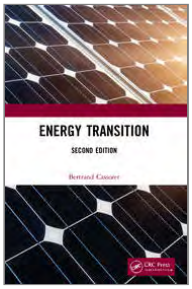
Harold H. Schobert

This book covers the development of energy technology from the time of early humans through antiquity, medieval times, and the Industrial Revolution. It addresses the development of nuclear energy, energy supply and demand, geopolitics of energy, and the various environmental issues associated with energy use in general. This edition offers simple updates, as well as completely rewritten material, regarding the last decade in areas including global climate change, oil prices, renewable and alternative fuels, and diversion of civil nuclear energy programs into nuclear weapons proliferation.

CRC Press
March 2014:720
Hb: 978-1-138-42298-8: **£180**
Pb: 978-1-439-82645-4: **£89.99**
eBook: 978-0-429-06769-3
* For **full contents** and more information, visit: **www.routledge.com/9781439826454**

2ND EDITION

Energy Transition



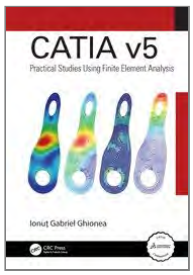
Bertrand Cassoret

This book presents both the importance of energy transition and its associated difficulties and dangers. It discusses the current state of energy consumption and the links between the economy and energy. The book also offers commentary on energy pollution. Reviewing future energy resources, it evaluates several transition scenarios. It will interest engineers working in various fields of energy, producers of fossil, gas, oil, coal, electric, renewable, and nuclear energy. In addition, undergraduate and graduate students studying energy and power should consider the global discussion to develop better processes, from energy sources to production to consumption.

CRC Press
February 2021:163
Hb: 978-0-367-54278-8: **£145**
Pb: 978-0-367-54277-1: **£56.99**
eBook: 978-1-003-08848-6
* For **full contents** and more information, visit: **www.routledge.com/9780367542771**

CATIA v5

Practical Studies Using Finite Element Analysis



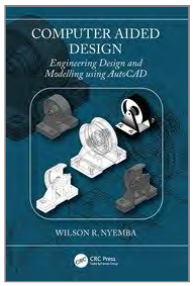
Ionuț Gabriel Ghionea

This tutorial textbook presents, through many CAD examples, the main characteristics and working possibilities of the modern CAD software solution CATIA v5 and step by step practical studies for FEM practice. This book is essential reading for students from faculties with a mechanical or industrial engineering profile, as well as production and design engineers from various industries (automotive, military, heavy machinery, medical technology, etc.).

CRC Press
June 2024:328
Hb: 978-1-032-71164-5: **£120**
* For **full contents** and more information, visit: **www.routledge.com/9781032711645**

Computer Aided Design

Engineering Design and Modeling using AutoCAD

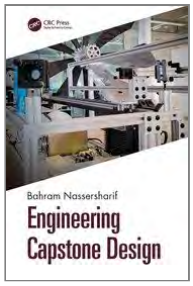


Wilson R Nyemba

The text covers different aspects of computer-aided design, from the basic 2-dimensional constructions through modifications, use of layers, and dimensioning to advanced aspects such as 3-dimensional modeling and customization of the package to suit different applications and disciplines. It further discusses important concepts including orthographic projections, isometric projections, 3D wireframe modeling, 3D surface modeling, solid extrusion, and solid of revolution. It will serve as ideal study material for senior undergraduate, and graduate students in the fields of mechanical engineering, industrial engineering, aerospace engineering, and manufacturing engineering.

CRC Press
December 2022:314
Hb: 978-1-032-26513-1: **£115**
* For **full contents** and more information, visit: **www.routledge.com/9781032265131**

Engineering Capstone Design

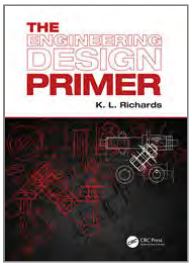


Bahram Nassersharif

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 essentials 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**

The Engineering Design Primer



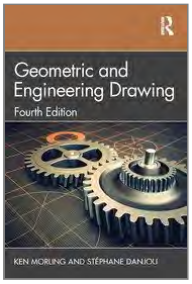
K. L. Richards

Created to support senior-level courses/modules in product design, K. L. Richard's ENGINEERING DESIGN PRIMER reflects the author's deep experience in engineering product management and design. The combination of specific engineering design processes within the boader context of creative, team-based product design, makes this the ideal resource for project-based coursework. Starting with design concepts and tasks, the text then explores materials selection, optimisation, reliability, statistics, testing, and economic factors- all supported with real-life examples. Student readers will gain a practical perspective of the work they'll be doing as their engineering careers begin.

CRC Press
February 2020:324
Hb: 978-0-367-21013-7: **£130**
eBook: 978-0-429-26491-7
* For **full contents** and more information, visit: **www.routledge.com/9780367210137**

4TH EDITION

Geometric and Engineering Drawing



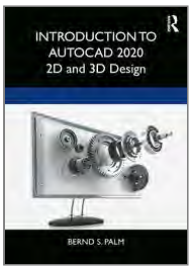
Ken Morling, Stéphane Danjou

This introduction to descriptive geometry and contemporary drafting guides the student through the essential principles to create engineering drawings that comply with international standards of technical product specification. This heavily updated new edition now applies to CAD as well as conventional drawing. Extensive new coverage is given to international drafting conventions, methods of spatial visualisation such as multi-view projection, dimensional and geometric tolerancing, and representation of workpiece and machine elements. It is ideal for undergraduates in engineering or product design, as well as students of vocational courses in engineering communication.

Routledge
June 2022:422
Hb: 978-0-367-43127-3: **£110**
Pb: 978-0-367-43123-5: **£45.99**
eBook: 978-1-003-00138-6
* For **full contents** and more information, visit: **www.routledge.com/9780367431235**

Introduction to AutoCAD 2020

2D and 3D Design



Bernd Palm

Master the complexities of the world's bestselling 2D and 3D software with Introduction to AutoCAD 2020. Ideally suited to new users of AutoCAD, this book will be a useful resource for drawing modules in both vocational and introductory undergraduate courses in engineering and construction. Experienced users will also find the updated images, commands and software information to be essential reading in order to adapt to the latest AutoCAD interface. Further education students will find this an invaluable textbook for City & Guilds AutoCAD qualifications, Computer Aided Drawing units of BTEC National Engineering, Higher National Engineering and Construction courses from Edexcel.

Routledge
February 2020:436
Hb: 978-0-367-41740-6: **£84.99**
Pb: 978-0-367-41739-0: **£45.99**
eBook: 978-0-367-81602-5
* For **full contents** and more information, visit: **www.routledge.com/9780367417390**

Introduction to Product Design and Development for Engineers

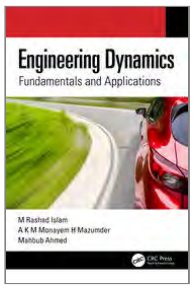
Dr. Ali Jamnia

Introduction to Product Design and Development for Engineers provides guidelines and best practices for the design, development, and evaluation of engineered products. Created to serve fourth year undergraduate students in Engineering Design modules with a required project, the text covers the entire product design process and product life-cycle, from the initial concept to the design and development stages, and through to product testing, design documentation, manufacturability, marketing, and sustainability. Reflecting the author's long career as a design engineer, this text will also serve as a practical guide for students working on their capstone design projects.

CRC Press
June 2018:446
Hb: 978-1-138-55421-4: £130
eBook: 978-1-315-14893-9
* For **full contents** and more information, visit: **www.routledge.com/9781138554214**

Engineering Dynamics

Fundamentals and Applications



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

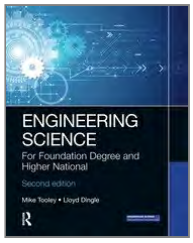
This textbook is intended for the first course of engineering dynamics for undergraduate students. Engineering dynamics is a rigorous topic that typically involves the intensive use of vector mathematics and calculus. This book, however, uses plain language with less vector mathematics and calculus to 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**

2ND EDITION

Engineering Science

For Foundation Degree and Higher National



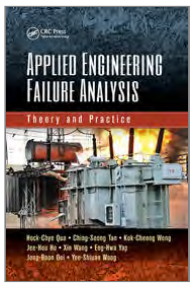
Mike Tooley, Lloyd Dingle

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**

Applied Engineering Failure Analysis

Theory and Practice

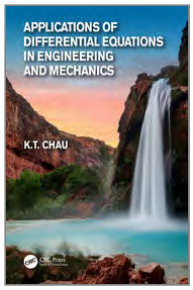


Hock-Chye Qua, Ching-Seong Tan, Kok-Cheong Wong, Jee-Hou Ho, Xin Wang, Eng-Hwa Yap, Jong-Boon Ooi, Yee-Shiuan Wong

This book fills the gap between failure analysis theory and the actual conducts of the failure cases. The book demonstrates the main methodologies that have evolved over time and includes examples from the 1970s to date. Engineering calculations and estimation of system stresses and strengths are given in the relevant chapters. It presents a wide range of cases studies, ranging from mechanical engineering, metallurgy, mining, civil/structural engineering, electrical power systems, and radiation damage.

CRC Press
July 2017:370
Hb: 978-1-482-22218-0: **£190**
Pb: 978-1-138-74786-9: **£69.99**
eBook: 978-0-429-17024-9
* For **full contents** and more information, visit: **www.routledge.com/9781138747869**

Applications of Differential Equations in Engineering and Mechanics

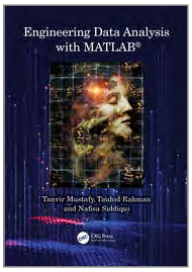


Kam Tim Chau

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**

Engineering Data Analysis with MATLAB®



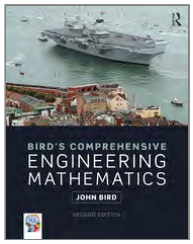
Tanvir Mustafy, Tauhid Rahman, Nafisa Siddiqui

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 2024:764
Hb: 978-1-032-50658-6: **£140**
Pb: 978-1-032-50771-2: **£69.99**
* For **full contents** and more information, visit: **www.routledge.com/9781032507712**

2ND EDITION

Bird's Comprehensive Engineering Mathematics

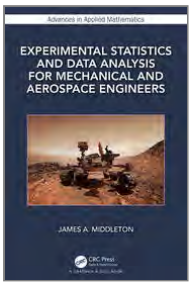


John Bird

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**

Experimental Statistics and Data Analysis for Mechanical and Aerospace Engineers



James A. Middleton

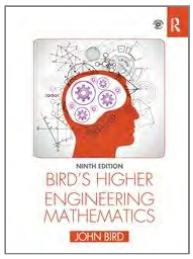
Series: Advances in Applied Mathematics

This text will introduce students to key concepts in probability and statistics with applications in mechanical and aerospace engineering. Emphasis is placed on modelling variation in observations, characterizing its distribution, and making inferences with regards to quality assurance and control. Fitting multivariate models, experimental design and hypothesis testing are all critical skills developed in the course. All topics are developed utilizing data from engineering projects, simulations, and laboratory experiences. MatLab is used throughout.

Chapman & Hall
November 2021:586
Hb: 978-0-367-55596-2: **£105**
eBook: 978-1-003-09422-7
* For **full contents** and more information, visit: **www.routledge.com/9780367555962**

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**

Spreadsheet Problem Solving and Programming for Engineers and Scientists

David E. Clough, Steven C. Chapra

Beginning with a thorough five chapters on the basics of spreadsheets and programming, the book is well set out, building on the authors' combined decades of experience teaching spreadsheets and programming. Following on from this, three chapters cover engineering economics, key numerical methods, and applied statistics. With each chapter including examples and a set of exercises, the book is an ideal companion for all engineering courses and also for self-study. Based on the latest version of Excel, it is also compatible with earlier versions dating back to 2013. Including case studies, the book will be of interest to students and professionals working in all areas of engineering.

CRC Press
October 2023:452
Hb: 978-1-032-42053-0: **£91.99**
eBook: 978-1-003-36105-3
* For **full contents** and more information, visit: **www.routledge.com/9781032420530**

Theory of Differential Equations in Engineering and Mechanics

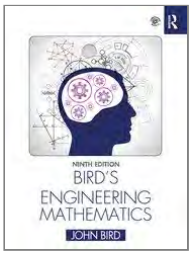
Kam Tim Chau

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**

9TH EDITION

Bird's Engineering Mathematics



John Bird

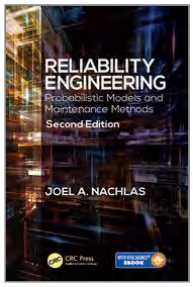
Engineering Mathematics has helped thousands of students to succeed in their exams, using worked examples and interactive problems. Mathematics is explained in a straightforward manner, supported by over 550 practical engineering examples and applications which relate theory to practice. This is a great text for a range of Level 2 and 3 engineering courses, and for A level revision. Its companion website provides resources for both students and lecturers, including lists of essential formulae and multiple-choice tests and full solutions for all 1900 further questions; and illustrations and answers to revision tests for adopting course instructors.

Routledge
March 2021:758
Hb: 978-0-367-64379-9: **£110**
Pb: 978-0-367-64378-2: **£45.99**
eBook: 978-1-003-12423-8
* For **full contents** and more information, visit: **www.routledge.com/9780367643782**

2ND EDITION

Reliability Engineering

Probabilistic Models and Maintenance Methods, Second Edition

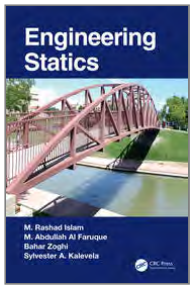


Joel A. Nachlas

Without proper reliability and maintenance planning, even the most efficient and seemingly cost-effective designs can incur enormous expenses due to repeated or catastrophic failure and subsequent search for the cause. Today's engineering students face increasing pressure from employers, customers, and regulators to produce cost-efficient designs that are less prone to failure and that are safe and easy to use. An understanding of reliability principles and maintenance planning can help accomplish these goals. With a blend of mathematical rigor and readability, this book is the ideal introductory textbook for graduate students.

CRC Press
December 2016:394
Hb: 978-1-498-75247-3: £130
eBook: 978-1-315-30759-6
* For **full contents** and more information, visit: **www.routledge.com/9781498752473**

Engineering Statics



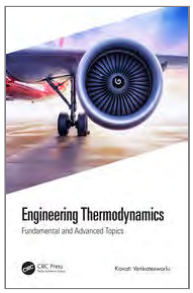
M. Rashad Islam, M. Abdullah Al Faruque, Bahar Zoghi, Sylvester A. Kalevela

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: **£105**
eBook: 978-1-003-09815-7
* For **full contents** and more information, visit: **www.routledge.com/9780367561062**

Engineering Thermodynamics

Fundamental and Advanced Topics



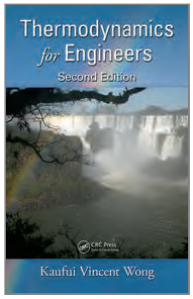
Kavati Venkateswarlu

The proposed textbook covers fundamental and advanced concepts of engineering thermodynamics with the help of pedagogical features including solved problems and unsolved exercises. It presents detailed discussion of vapor power cycles including reheat Rankine cycle, regenerative Rankine cycle and Carnot vapor cycle. It will be a valuable resource for senior undergraduate and graduate students in the field of mechanical engineering, civil engineering and aerospace engineering.

CRC Press
December 2020:487
Hb: 978-0-367-64628-8: £130
eBook: 978-1-003-12836-6
* For **full contents** and more information, visit: **www.routledge.com/9780367646288**

2ND EDITION

Thermodynamics for Engineers



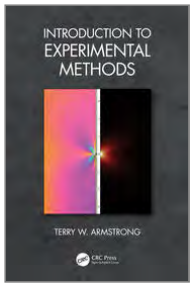
Kaufui Vincent Wong

Series: Mechanical and Aerospace Engineering Series

This second edition presents a comprehensive treatment of engineering thermodynamics from a classical point of view to prepare engineering students for professional practice. Taking an accessible, straightforward, and cohesive approach, the book exposes readers to the "big picture" of thermodynamics, and its streamlined presentation allows glimpses into important concepts and methods rarely offered by texts at this level. This edition includes a new chapter on thermodynamic property relations and every chapter has updated, expanded problem sets. The author has developed a unique, practical guide to classical thermodynamics that can be used for reference or for a one-semester course.

CRC Press
August 2011:450
Hb: 978-1-439-84559-2: £130
eBook: 978-0-429-18488-8
* For **full contents** and more information, visit: **www.routledge.com/9781439845592**

Introduction to Experimental Methods

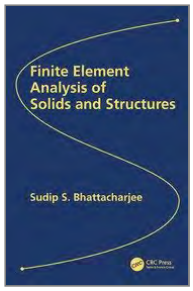


Terry W. Armstrong

Introduction to Experimental Methods explains fundamental engineering concepts in mechanics, dynamics, heat transfer, and fluid dynamics. From conceptualizing an engineering experiment to presenting the results with lab experiments, this book enables students to work through the design process and analyze experimental results. The book is intended for senior undergraduate engineering students taking courses in Experimental Methods. Offering a complete overview of instruction for engineering lab methodology, the book includes practical lab manuals for student use. It discusses how to write lab reports, various instruments and equipment, as well as failures in experimentation.

CRC Press
July 2023:488
Hb: 978-1-032-35893-2: £115
eBook: 978-1-003-32923-7
* For **full contents** and more information, visit: **www.routledge.com/9781032358932**

Finite Element Analysis of Solids and Structures



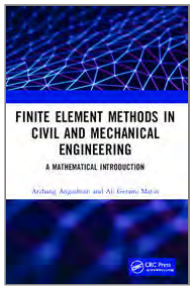
Sudip S. Bhattacharjee

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**

Finite Element Methods in Civil and Mechanical Engineering

A Mathematical Introduction



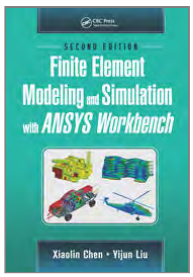
Arzhang Angoshtari, Ali Gerami Matin

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**

2ND EDITION

Finite Element Modeling and Simulation with ANSYS Workbench, Second Edition

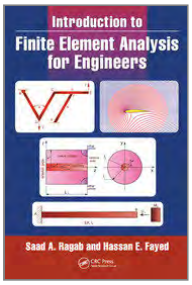


Xiaolin Chen, Yijun Liu

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**

Introduction to Finite Element Analysis for Engineers



Saad A. Ragab, Hassan E. Fayed

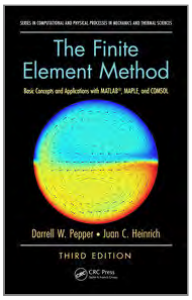
Finite Element Analysis for Engineers introduces FEA as a technique for solving differential equations, and for application to problems in Civil, Mechanical, Aerospace and Biomedical Engineering and Engineering Science & Mechanics. Intended primarily for senior and first-year graduate students, the text is mathematically rigorous, but in line with students' math courses. Organized around classes of differential equations, the text includes MATLAB code for selected examples and problems. Both solid mechanics and thermal/fluid problems are considered. Based on the first author's class-tested notes, the text builds a solid understanding of FEA concepts and modern engineering applications.

CRC Press
July 2017:566
Hb: 978-1-138-03017-6: **£150**
eBook: 978-1-315-40570-4
* For **full contents** and more information, visit: **www.routledge.com/9781138030176**

3RD EDITION

The Finite Element Method

Basic Concepts and Applications with MATLAB, MAPLE, and COMSOL, Third Edition



Darrell W. Pepper, Juan C. Heinrich

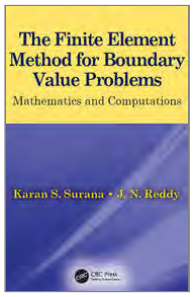
Series: Computational and Physical Processes in Mechanics and Thermal Sciences

The third edition of the book introduces the fundamentals of the finite element method through simple examples and an applications-oriented approach using the latest computational tools. Using the transport equation for heat transfer as the foundation for the governing equations, text demonstrates the versatility of the method of weighted residuals for a wide range of applications including structural analysis and fluid flow. It introduces the boundary element method and meshless, or mesh-free, methods through two additonal chapters. User-friendly computer codes written in MATLAB, MAPLE and FORTRAN are listed.

CRC Press
March 2017:628
Hb: 978-1-498-73860-6: **£130**
eBook: 978-1-315-39510-4
* For **full contents** and more information, visit: **www.routledge.com/9781498738606**

The Finite Element Method for Boundary Value Problems

Mathematics and Computations



Karan S. Surana, J. N. Reddy

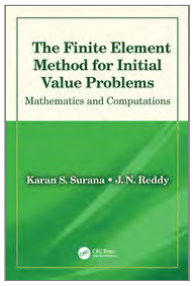
Series: Applied and Computational Mechanics

Written by two well-respected experts in the field, The Finite Element Method for Boundary Value Problems: Mathematics and Computations bridges the gap between applied mathematics and application-oriented studies of FEM. Mathematically rigorous, it uses examples, applications, and illustrations from various areas of engineering, applied mathematics, and the physical sciences. Readers are able to grasp the mathematical foundations of FEM, as well as its versatility; unlike many finite element texts this work is not limited to solid mechanics problems. Based around use of the finite element method for solving boundary values problems (BVPs), the text is organized around three categories of differential operators: self-adjoint, non-self adjoint, and non-linear. These operators are utilized with various methods of approximation, including the Galerkin, Petrov-Galerkin, and other methods.

CRC Press
November 2016:824
Hb: 978-1-498-78050-6: **£175**
eBook: 978-1-315-36571-8
* For **full contents** and more information, visit: **www.routledge.com/9781498780506**

The Finite Element Method for Initial Value Problems

Mathematics and Computations

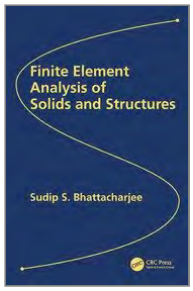


Karan S. Surana, J. N. Reddy

Unlike most finite element books that cover time dependent processes (IVPs) in a cursory manner, The Finite Element Method for Initial Value Problems: Mathematics and Computations focuses on the mathematical details as well as applications of space-time coupled and space-time decoupled finite element methods for IVPs. Space-time operator classification, space-time methods of approximation, and space-time calculus of variations are used to establish unconditional stability of space-time methods during the evolution. Space-time decoupled methods are also presented with the same rigor.

CRC Press
October 2017:630
Hb: 978-1-138-57637-7: **£180**
eBook: 978-1-351-27000-7
* For **full contents** and more information, visit: **www.routledge.com/9781138576377**

Finite Element Analysis of Solids and Structures



Sudip S. Bhattacharjee

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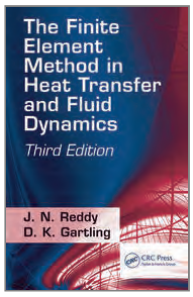
CRC Press
July 2021:340
Hb: 978-0-367-43705-3: **£105**
eBook: 978-1-003-02784-3
* For **full contents** and more information, visit: **www.routledge.com/9780367437053**

3RD EDITION

The Finite Element Method in Heat Transfer and Fluid Dynamics



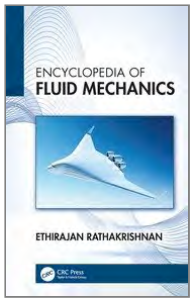
J. N. Reddy, D.K. Gartling

Series: Applied and Computational Mechanics

Considered to be among the very best in the field, this masterwork from renowned experts J. N. Reddy and David Gartling is the latest version of a book that has long been relied upon by practicing engineers, researchers, and graduate students. Noted for its powerful methodology and clear explanations of the subject, this third edition contains considerably more workable exercises and examples associated with problems in heat conduction, incompressible viscous flow, and convection heat transfer. It also uses applied examples to show realistic examples of FEM in thermal and fluid design analysis.

CRC Press
April 2010:524
Hb: 978-1-420-08598-3: **£185**
eBook: 978-0-429-11142-6
* For **full contents** and more information, visit: **www.routledge.com/9781420085983**

Encyclopedia of Fluid Mechanics



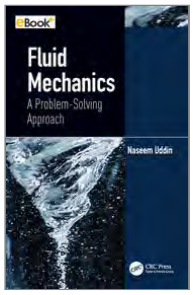
Ethirajan Rathakrishnan

This book, being developed using the course material used in teaching the courses on the fluid mechanics, high-speed flows, aerodynamics, high-enthalpy flows, experimental methods, aircraft design, heat transfer, introduction to engineering, wind engineering, precisely presents the theoretical and application aspects of the terms associated with those. It will serve as ideal study material for senior undergraduate and graduate students in the fields of mechanical engineering, aerospace engineering, flow physics, civil engineering, automotive engineering, and manufacturing engineering.

CRC Press
December 2022:570
Hb: 978-1-032-39101-4: **£240**
Pb: 978-1-032-38238-8: **£91.99**
eBook: 978-1-003-34840-5
* For **full contents** and more information, visit: **www.routledge.com/9781032382388**

Fluid Mechanics

A Problem-Solving Approach



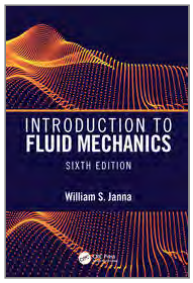
Naseem Uddin

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**

6TH EDITION

Introduction to Fluid Mechanics, Sixth Edition



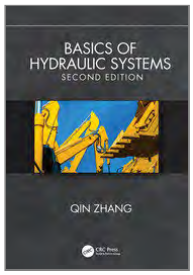
William S. Janna

Introduction to Fluid Mechanics, Sixth Edition, is intended for a first course in Fluid Mechanics, as taken by a range of engineering majors. Beginning with dimensions, units, and fluid properties, the text continues with explanation of key equations and coverage of the control-volume approach.

CRC Press
April 2020:754
Hb: 978-0-367-34127-5: **£155**
eBook: 978-0-429-32453-6
* For **full contents** and more information, visit: **www.routledge.com/9780367341275**

2ND EDITION

Basics of Hydraulic Systems, Second Edition



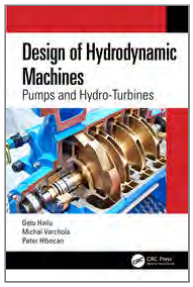
Qin Zhang

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**

Design of Hydrodynamic Machines

Pumps and Hydro-Turbines



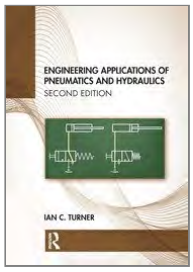
Getu Hailu, Michal Varchola, Peter Hlbocan

Design of Hydrodynamic Machines provides a broad, yet concise, theoretical background on the relationship between fluid dynamics and geometry. It covers the most important types of turbomachinery used in power generation industrial processes, utilities, and the oil and gas industry. Intended for final year undergraduates and postgraduates in mechanical, civil, and aeronautical engineering, the book will also be useful for those involved in the hydraulic design, analysis, and testing of turbomachinery. The book offers guidance on the hydraulic design aspect of different parts of turbomachinery, such as impellers, diffusers, volute casing, inlet and outlets.

CRC Press
May 2022:268
Hb: 978-0-367-43961-3: **£120**
eBook: 978-1-003-00714-2
* For **full contents** and more information, visit: **www.routledge.com/9780367439613**

2ND EDITION

Engineering Applications of Pneumatics and Hydraulics



Ian C. Turner

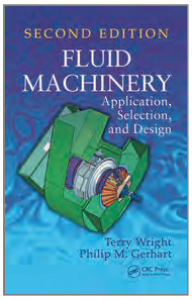
Requiring only a very basic knowledge of the physics of fluids, this book provides a sound understanding of fluid power systems and their uses. It takes a strongly practical approach and covers maintenance and trouble-shooting, with a particular emphasis on safety systems and regulations. This second edition completely updates the guidance on safety legislation, codes of practice, technical standards and standardisation organisations, reflecting advances in technology. It is written for students from Levels 3 to 5, and for a wide range of practising engineers: especially plant, operations, and measurement and control engineers.

Routledge
August 2020:184
Hb: 978-0-367-46085-3: **£81.99**
Pb: 978-0-367-46084-6: **£45.99**
eBook: 978-1-003-02681-5
* For **full contents** and more information, visit: **www.routledge.com/9780367460846**

2ND EDITION

Fluid Machinery

Application, Selection, and Design, Second Edition



Terry Wright, Philip Gerhart

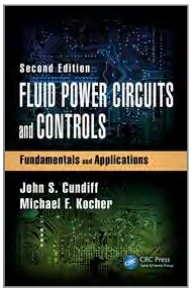
The second edition of a classic, this work provides a comprehensive introduction to the fluid mechanics of turbomachinery. By focusing on the preliminary design and selection of equipment to meet performance specifications, the authors promote a basic yet thorough understanding of the subject. Topics covered include gas and hydraulic turbines as well as industrial equipment, such as pumps and fans, making the text ideal for undergraduate mechanical engineering students. This book presents illustrations, examples, and exercises that emphasize real-world industrial applications of fluid machinery.

CRC Press
December 2009:454
Hb: 978-1-420-08294-4: **£130**
eBook: 978-0-429-14121-8
* For **full contents** and more information, visit: **www.routledge.com/9781420082944**

2ND EDITION

Fluid Power Circuits and Controls

Fundamentals and Applications, Second Edition

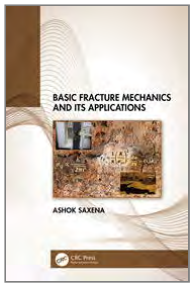


John S. Cundiff, Michael F. Kocher

Fluid Power Circuits and Controls: Fundamentals and Applications, Second Edition, is designed for a first course in fluid power for undergraduate engineering students. After an introduction to the design and function of components, students apply what they've learned, and consider how the component operating characteristics interact with the rest of the circuit. The Second Edition offers many new worked examples, and additional exercises and problems in each chapter. Half of these new problems involve basic analysis of specific elements, and the rest are design-oriented, emphasizing analysis of system performance. A complete Solutions Manual is available for qualified adopting instructors.

CRC Press
December 2019:554
Hb: 978-1-498-77001-9: **£115**
eBook: 978-0-429-18370-6
* For **full contents** and more information, visit: **www.routledge.com/9781498770019**

Basic Fracture Mechanics and its Applications



Ashok Saxena

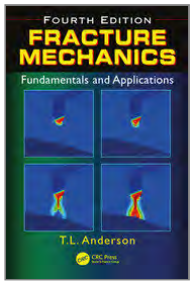
Beginning with four foundational chapters, discussing the theory in depth, the book also presents specific aspects of fracture mechanics and fatigue. Other topics include material testing and selection for damage tolerant design, alongside a discussion of ensuring the structural integrity of components. Alongside a strong focus on the practical applications of fracture mechanics and fatigue, the book will also provide a clear working of the theory and includes appendices with additional background to ensure a comprehensive understanding. Every chapter ends with both solved and unsolved example problems and end of chapter problems, and instructor support materials are also available.

CRC Press
December 2022:342
Hb: 978-1-032-26719-7: **£76.99**
eBook: 978-1-003-29229-6
* For **full contents** and more information, visit: **www.routledge.com/9781032267197**

4TH EDITION

Fracture Mechanics

Fundamentals and Applications, Fourth Edition

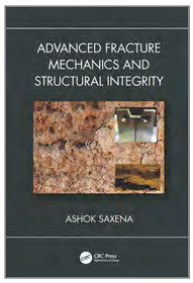


Ted L. Anderson

Fracture Mechanics: Fundamentals and Applications, Fourth Edition is the most useful and comprehensive guide to fracture mechanics available. It has been adopted by more than 150 universities worldwide and used by thousands of engineers and researchers. This new edition reflects the latest research, industry practices, applications, and computational analysis and modeling. It encompasses theory and applications, linear and nonlinear fracture mechanics, solid mechanics, and materials science with a unified, balanced, and in-depth approach. Numerous chapter problems have been added or revised, and additional resources are available for those teaching college courses or training sessions.

CRC Press
February 2017:684
Hb: 978-1-498-72813-3: **£135**
eBook: 978-1-315-37029-3
* For **full contents** and more information, visit: **www.routledge.com/9781498728133**

Advanced Fracture Mechanics and Structural Integrity

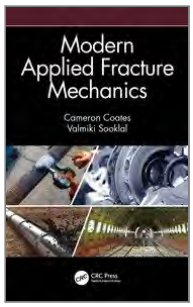


Ashok Saxena

Advanced Fracture Mechanics and Structural Integrity is organized to cover quantitative descriptions of crack growth and fracture phenomena. The mechanics of fracture are explained, emphasizing elastic-plastic and time-dependent fracture mechanics. Applications are presented, using examples from power generation, aerospace, marine, and chemical industries, with focus on predicting the remaining life of structural components and advanced testing metods for structural materials. Numerous examples and end-of-chapter problems are provided, along with references to encourage further study.The book is written for use in an advanced graduate course on fracture mechanics or structural integrity.

CRC Press
February 2019:323
Hb: 978-1-138-54426-0: £130
eBook: 978-1-351-00406-0
* For **full contents** and more information, visit: **www.routledge.com/9781138544260**

Modern Applied Fracture Mechanics



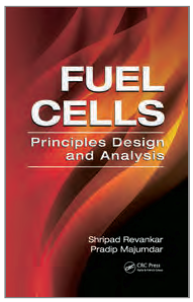
Cameron Coates, Valmiki Sooklal

Modern Applied Fracture Mechanics presents a practical, accessible guide to understanding and applying basic linear elastic fracture mechanics (LEFM) techniques to problems commonly seen in industry, including fatigue analysis, failure analysis, and damage tolerance. The textbook is appropriate for undergraduate students, preparing them for the industry, and for advanced studies in fracture mechanics at the graduate level. Industry professionals and researchers will find this book a valuable resource for understanding basic fracture mechanics principles and methods.

CRC Press
August 2022:242
Hb: 978-0-367-50125-9: £110
eBook: 978-1-003-05205-0
* For **full contents** and more information, visit: **www.routledge.com/9780367501259**

Fuel Cells

Principles, Design, and Analysis



Shripad T. Revankar, Pradip Majumdar

Series: Mechanical and Aerospace Engineering Series

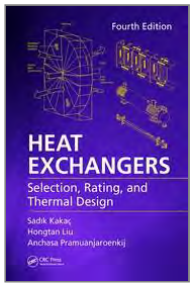
This resource combines coverage of the basic principles, analysis, analytical techniques, and design aspects of the fuel cell. It presents fuel cell design at component and system levels, and then elaborates on analysis methods for various phenomena associated with components and systems. With its examples, problems, and simulation activities, it makes an excellent graduate text or reference for researchers, engineers, and others involved in energy development. The text guides the reader from foundations and fundamental principles through analysis methods and fuel cell design.

CRC Press
May 2014:750
Hb: 978-1-420-08968-4: **£150**
eBook: 978-0-429-16243-5
* For **full contents** and more information, visit: **www.routledge.com/9781420089684**

4TH EDITION

Heat Exchangers

Selection, Rating, and Thermal Design, Fourth Edition



Sadik Kakaç, Hongtan Liu, Anchasa Pramuanjaroenkij

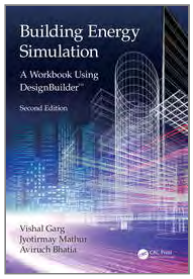
Heat exchangers are essential in a wide range of engineering applications, including power plants, automobiles, airplanes, process and chemical industries, and heating, air conditioning and refrigeration systems. Revised and updated with new problem sets, the fourth edition presents a fully updated and systematic treatment of heat exchangers, focusing on selection, thermal-hydraulic design, and rating. The fourth edition is designed for student readers taking courses/modules in process heat transfer, thermal systems design, and heat exchanger technology, this text includes full coverage of all widely-used heat exchanger types.

CRC Press
February 2020:546
Hb: 978-1-138-60186-4: £110
eBook: 978-0-429-46986-2
* For **full contents** and more information, visit: **www.routledge.com/9781138601864**

2ND EDITION

Building Energy Simulation

A Workbook Using DesignBuilder™



Vishal Garg, Jyotirmay Mathur, Aviruch Bhatia

The 2nd edition of Building Energy Simulation includes study of various components and systems of a building and their effect on energy consumption, with the help of DesignBuilderTM, a front-end for EnergyPlus simulation engine, supported by examples and exercises. Following a "learning by doing" methodology, it explains simulation input parameters and how to do analysis of the simulation output explaining building physics and energy simulation. Divided into three sections, it covers fundamentals of energy simulation followed by advanced topics in energy simulation and simulation for compliance of building codes and detailed case studies for whole building energy simulation.

CRC Press
September 2020:740
Hb: 978-0-367-37470-9: **£280**
Pb: 978-0-367-37468-6: **£110**
eBook: 978-0-429-35463-2
* For **full contents** and more information, visit: **www.routledge.com/9780367374686**

2ND EDITION

Energy-Efficient Electrical Systems for Buildings

Moncef Krarti

Series: Mechanical and Aerospace Engineering Series

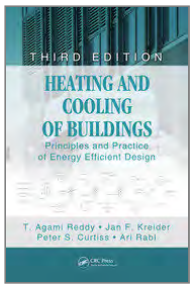
Energy-Efficient Electrical Systems for Buildings, Second Edition offers systematic and practical approaches to design and analyze electrical distribution and utilization systems in buildings. It considers safety and energy efficiency, focusing on sustainability and resiliency, to design electrical distribution systems for buildings. The book is intended for senior undergraduate mechanical, civil, and electrical engineering students taking courses in Electrical Systems for Buildings and Design of Building Electrical Systems. It features a new chapter on the optimal design energy efficient and resilient power systems and new chapter problems, examples, and case studies.

CRC Press
August 2023:580
Hb: 978-1-032-23383-3: **£115**
* For **full contents** and more information, visit: **www.routledge.com/9781032233833**

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 Rabl

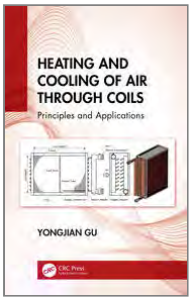
Series: Mechanical and Aerospace Engineering Series

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
Hb: 978-1-439-89989-2: **£170**
eBook: 978-1-315-37456-7
* For **full contents** and more information, visit: **www.routledge.com/9781439899892**

Heating and Cooling of Air Through Coils

Principles and Applications

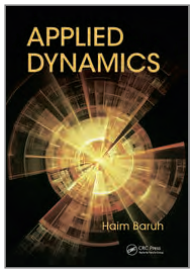


Yongjian Gu

Heating and Cooling of Air Through Coils combines theory and practice to cover the fundamentals in the processes of heating and cooling of air through coils and the key aspects in coil fluid piping systems, coils, and energy sources for the fluid in the coils. The book will interest engineers and researchers involved in the design and operation of heat exchangers and HVAC systems. It can also serve as a textbook for undergraduate students taking courses in Advanced Heat Transfer, HVAC, and Energy Management. The book covers various coil types, coil tube constructions and arrangements, and fluid flow characteristics in the coils.

CRC Press
September 2023:288
Hb: 978-1-032-26663-3: **£115**
eBook: 978-1-003-28932-6
* For **full contents** and more information, visit: **www.routledge.com/9781032266633**

Applied Dynamics



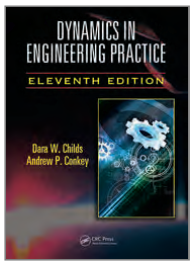
Haim Baruh

This modern study of engineering dynamics covers an array of topics, from basic principles to two- and three-dimensional motion, general kinematics and kinetics, analytical mechanics, vehicle motion, vibration response, and stability. By including examples from everyday life, the book makes concepts relatable and accessible. However, no effort is made to reduce rigor, as the text provides thorough coverage of the fundamental concepts of Newtonian and Lagrangian mechanics, three-dimensional motion, Kane's equations, as well as the stability and response of dynamical systems.

CRC Press
December 2014:876
Hb: 978-1-482-25073-2: **£145**
eBook: 978-0-429-09044-8
* For **full contents** and more information, visit: **www.routledge.com/9781482250732**

11TH EDITION

Dynamics in Engineering Practice



Dara W. Childs, Andrew P. Conkey

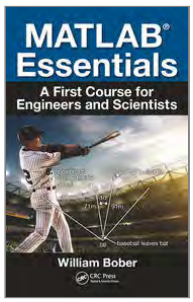
Series: Applied and Computational Mechanics

Written by a renowned teacher, researcher, and professional consultant in applied dynamics, this book represents a revolutionary approach to modern engineering dynamics analysis—one you can assimilate quickly and easily to get immediate results. The eleventh edition includes a new chapter on Lagrangian Dynamics, and many new and revised examples and chapter problems. The book begins by establishing the premise that most dynamics engineers are developing and analyzing models to predict motion, and that the subject of differential equations is the natural language for dynamics.

CRC Press
April 2015:474
Hb: 978-1-482-25025-1: **£130**
eBook: 978-0-429-16210-7
* For **full contents** and more information, visit: **www.routledge.com/9781482250251**

MATLAB® Essentials

A First Course for Engineers and Scientists



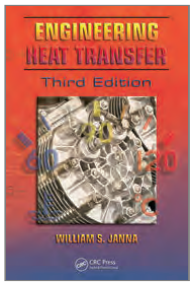
William Bober

All disciplines of science and engineering use numerical methods for complex problem analysis, due to the highly mathematical nature of the field. Analytical methods alone are unable to solve many complex problems engineering students and professionals confront. Introduction to MATLAB® Programming for Engineers and Scientists examines the basic elements of code writing, and describes MATLAB® methods for solving common engineering problems and applications across the range of engineering disciplines. The text uses a class-tested learning approach and accessible two-color page design to guide students from basic programming to the skills needed for future coursework and engineering practice.

CRC Press
September 2017:275
Hb: 978-1-138-56328-5: **£145**
Pb: 978-1-138-03237-8: **£130**
eBook: 978-1-315-16200-3
* For **full contents** and more information, visit: **www.routledge.com/9781138032378**

3RD EDITION

Engineering Heat Transfer



William S. Janna

Series: Heat Transfer

Adhering to the pedagogy that made previous editions into perennial bestsellers, this updated classic offers a student-savvy presentation of an otherwise abstract topic. Drawings and graphs are provided in abundance, as are examples and problems. The examples amplify theory and show how derived equations are used to model physical problems. This text covers practical applications in a way that deemphasizes mathematical techniques, but preserves physical interpretation of heat transfer fundamentals and modeling of heat transfer phenomena. End-of-chapter problems proceed from short simple confidence builders to difficult ones that help students develop a rigorous approach to problem solving.

CRC Press
January 2009:692
Hb: 978-1-420-07202-0: **£160**
eBook: 978-1-315-27538-3
* For **full contents** and more information, visit: **www.routledge.com/9781420072020**

2ND EDITION

Introduction to Materials Science and Engineering

Yip-Wah Chung, Monica Kapoor

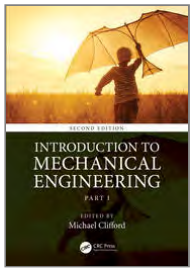
Updated to reflect the many societal and technological changes in the field since publication of the first edition, Introduction to Materials Science and Engineering, Second Edition offers an interdisciplinary view, emphasizing the importance of materials to engineering applications, and builds the basis needed to select, modify, and create materials to meet specific criteria. Written for advanced undergraduate students and readers interested in introductory materials science and engineering concepts, this concise textbook provides a strong foundation in MSE and its applications. The textbook offers a solutions manual and PowerPoint lecture slides for adopting professors.

CRC Press
April 2022:386
Hb: 978-1-032-10144-6: **£84.99**
* For **full contents** and more information, visit: **www.routledge.com/9781032101446**

2ND EDITION

Introduction to Mechanical Engineering

Part 1



Edited by **Michael Clifford**

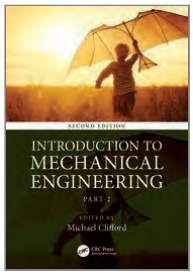
An Introduction to Mechanical Engineering: Part 1, Second Edition, provides a grounding in the core subjects of solid mechanics, materials, fluid mechanics, thermodynamics,electronics, and machine design. Printed in color, this updated bestseller has a full range of learning features, and online resources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

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
September 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**

4TH EDITION

Mechanical Engineering Principles

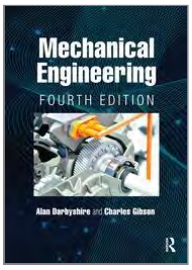
John Bird, Carl Ross

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**

4TH EDITION

Mechanical Engineering



Alan Darbyshire, Charles Gibson

This established textbook is revised in line with the technical qualifications of new engineering apprenticeship standards at Level 3. Four new chapters cover dynamic engineering systems, fluid systems and additive manufacturing. Mathematical theory is backed up with numerous worked examples and student activities, with quizzes throughout the text and end-of-unit questions for revision and course work. It covers eight units of the BTEC L3 Advanced Manufacturing Engineering Development Technical Knowledge qualification, as well as content in the BTEC National Engineering Syllabus and BTEC L3 Aerospace and Aviation Engineering specialist qualifications.

Routledge
July 2022:518
Hb: 978-1-032-18854-6: **£84.99**
Pb: 978-1-032-18853-9: **£45.99**
eBook: 978-1-003-25657-1
* For **full contents** and more information, visit: **www.routledge.com/9781032188539**

T Level Engineering

Technology, Manufacture and Maintenance

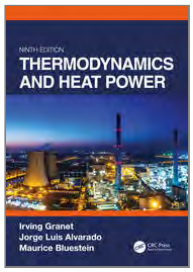
Andrew Livesey

This text covers the core content for the new T Level qualifications, as well as most other Level 3 qualifications in engineering manufacturing and maintenance. It starts with the design process, progresses through the science and mathematics of engineering processes, and lastly examines the management of engineering organisations. It is ideal for students and instructors on T Level courses, as well as a handy reference book for the practising engineer.

Routledge
May 2023:260
Hb: 978-1-032-25751-8: **£76.99**
Pb: 978-1-032-25750-1: **£33.99**
eBook: 978-1-003-28483-3
* For **full contents** and more information, visit: **www.routledge.com/9781032257501**

9TH EDITION

Thermodynamics and Heat Power, Ninth Edition



Irving Granet, Jorge Alvarado, Maurice Bluestein

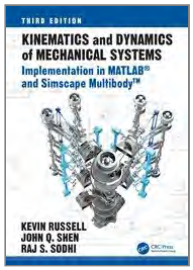
The ninth edition of Thermodynamics and Heat Power offers a revised sequence of thermodynamics concepts, processes, and energy systems to enable learning outcomes for Engineering and Engineering Technology students taking an introductory course. Built around an easily understandable approach, this updated text focuses on thermodynamics fundamentals and explores renewable energy generation, IC engines, power plants, HVAC, and applied heat transfer. Energy, heat, and work are examined in relation to thermodynamics cycles, and the effects of fluid properties on system performance are explained. Numerous step-by-step examples and problems make this text ideal for student readers.

CRC Press
September 2023:864
Hb: 978-0-367-28091-8: **£145**
Pb: 978-0-367-56184-0: **£56.99**
eBook: 978-0-429-29962-9
* For **full contents** and more information, visit: **www.routledge.com/9780367561840**

3RD EDITION

Kinematics and Dynamics of Mechanical Systems

Implementation in MATLAB® and Simscape Multibody™



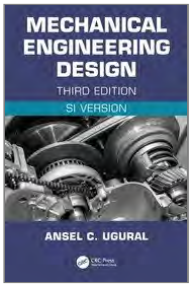
Kevin Russell, John Q. Shen, Raj Sodhi

Updated throughout for the third edition, Kinematics and Dynamics of Mechanical Systems: Implementation in MATLAB™ and Simscape Multibody™ offers step-by-step instruction on the fundamentals of mechanism kinematics, synthesis, statics and dynamics, alongside demonstrating its real-world applications. Following updates made by MATLAB™, replacing Simmechanics with new system Simscape Multibody, this textbook provides updated instructions and example problems to fully enable the reader to use this new and improved system. New features includes enhanced rendering, 3D geometry in animations of user-generated solutions for planar linkages, spatial linkages and robotic systems.

CRC Press
December 2022:544
Hb: 978-1-032-32831-7: **£145**
eBook: 978-1-003-31696-1
* For **full contents** and more information, visit: **www.routledge.com/9781032328317**

3RD EDITION

Mechanical Engineering Design (SI Edition)



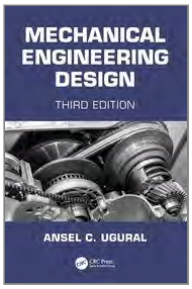
Ansel C. Ugural

Mechanical Engineering Design, Third Edition strikes a balance between theory and application, and prepares students for more advanced study or professional practice. Updated throughout, it outlines basic concepts and provides the necessary theory to gain insight into mechanics with numerical methods in design. Divided into three sections, the text presents background topics, addresses failure prevention across a variety of machine elements, and covers the design of machine components as well as entire machines.

CRC Press
May 2022:836
Hb: 978-1-032-17004-6: **£135**
eBook: 978-1-003-25137-8
* For **full contents** and more information, visit: **www.routledge.com/9781032170046**

3RD EDITION

Mechanical Engineering Design



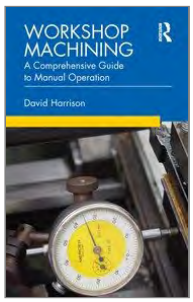
Ansel C. Ugural

Mechanical Engineering Design, Third Edition strikes a balance between theory and application, and prepares students for more advanced study or professional practice. Updated throughout, it outlines basic concepts and provides the necessary theory to gain insight into mechanics with numerical methods in design. Divided into three sections, the text presents background topics, addresses failure prevention across a variety of machine elements, and covers the design of machine components as well as entire machines. Optional sections treating special and advanced topics are also included.

CRC Press
December 2020:852
Hb: 978-0-367-51347-4: **£115**
eBook: 978-1-003-09928-4
* For **full contents** and more information, visit: **www.routledge.com/9780367513474**

Workshop Machining

A Comprehensive Guide to Manual Operation



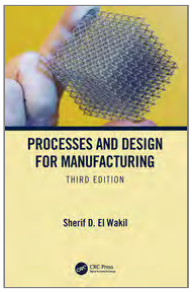
David Harrison

Workshop Machining is a comprehensive textbook that explains the fundamental principles of manually operating machinery to form shapes in a variety of materials. It bridges the gap between traditional toolmaking skills and programming and operation of CNC machines in a production environment. Everything is covered from the basic machine controls to advanced cutting operations using a wide range of tooling and work holding devices. Theory and practice are shown viaa mixture of diagrams, text and illustrated worked examples, as well as through exercises.

Routledge
December 2021:474
Hb: 978-0-367-27840-3: **£120**
Pb: 978-0-367-27839-7: **£45.99**
eBook: 978-0-429-29819-6
* For **full contents** and more information, visit: **www.routledge.com/9780367278397**

3RD EDITION

Processes and Design for Manufacturing, Third Edition



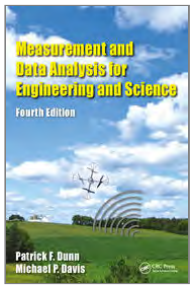
Sherif D. El Wakil

Processes and Design for Manufacturing, Third Edition examines manufacturing processes from the viewpoint of the product designer, examining the selection of manufacturing methods in the early phases of design, and how this affects the constructional features of a product. Stages from design process to product development are examined, integrating evaluation of cost factors. The text emphasizes both a general design orientation and a systems approach, and covers topics such as additive manufacturing, concurrent engineering, polymeric and composite materials, cost estimation, design for assembly, and environmental factors. Appendices with materials engineering data are also included.

CRC Press
April 2019:551
Hb: 978-1-138-58108-1: **£145**
eBook: 978-0-429-50663-5
* For **full contents** and more information, visit: **www.routledge.com/9781138581081**

4TH EDITION

Measurement and Data Analysis for Engineering and Science



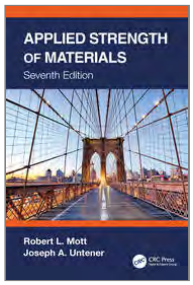
Patrick F Dunn, Michael P. Davis

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**

7TH EDITION

Applied Strength of Materials



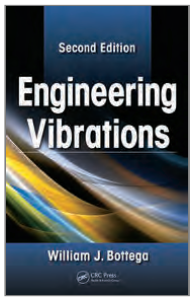
Robert L. Mott, Joseph A. Untener

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**

2ND EDITION

Engineering Vibrations



William J. Bottega

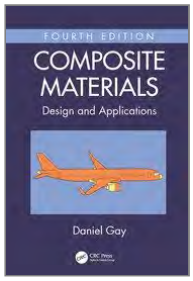
This text emphasizes fundamental principles along with practical problem solving with a mathematically rigorous yet accessible approach. It uses illustrative examples and case studies to reinforce the concepts, encourages effective interpretation of results, and assists in learning the techniques and procedures. It includes more than 500 illustrations, tabulated results of case studies, a table of operators of various one-dimensional continua, and an in depth discussion of two-dimensional continua. It also offers problem-solving flowcharts for solving forced vibration problems for discrete and continuous systems.

CRC Press
December 2014:928
Hb: 978-1-439-83035-2: £160
eBook: 978-0-429-15202-3
* For **full contents** and more information, visit: **www.routledge.com/9781439830352**

4TH EDITION

Composite Materials

Design and Applications

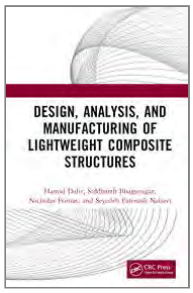


Daniel Gay

For decades, Composite Materials: Design and Applications has guided readers on the efficient design of structural composite parts and has illustrated challenges encountered in modern engineering practice. The Fourth Edition of this best-seller retains its pedagogical structure, featuring a technical level that rises in difficulty as the text progresses, while allowing each part to be explored independently, but has been updated to mirror recent advances and developments in manufacturing processes and applications. This book serves as a textbook for advanced students studying composite materials design, as well as a handy reference for industry professionals working with composite materials.

CRC Press
September 2022:640
Hb: 978-1-032-04308-1: **£120**
eBook: 978-1-003-19578-8
* For **full contents** and more information, visit: **www.routledge.com/9781032043081**

Design, Analysis, and Manufacturing of Lightweight Composite Structures



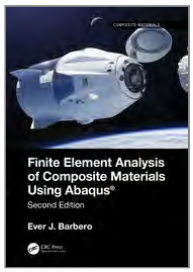
Hamid Dalir, Siddharth Bhaganagar, Nicholas Frimas, Seyedeh Fatemah Nabavi

Discussing the mechanical properties of advanced composites & their materials, the book describes testing, evaluation & sustainability in mfg. Looking at how composite materials can form structural components, it focuses on how to design & analyse these materials as appropriate to different applications. It discusses micromechanics, stiffness matrices & numerical calculations using MATLAB, Excel and Python. It covers failure, strain and stress, alongside finite element analysis of composites. The book is suitable for students & researchers in the field of composites, mechanical design, micromechanics, mechanics of solids & material science.

CRC Press
February 2024:214
Hb: 978-1-032-55140-1: **£84.99**
eBook: 978-1-003-42919-7
* For **full contents** and more information, visit: **www.routledge.com/9781032551401**

2ND EDITION

Finite Element Analysis of Composite Materials using Abaqus®



Ever J. Barbero, Ever J. Barbero

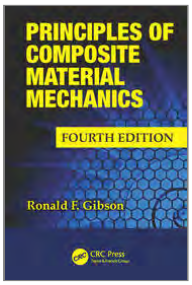
Series: Composite Materials

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**

4TH EDITION

Principles of Composite Material Mechanics



Ronald F. Gibson

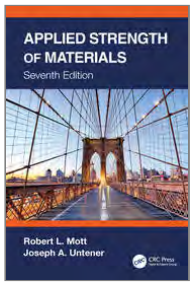
Series: Mechanical Engineering

This book covers a unique blend of classical and modern mechanics of composites technologies. The fourth edition reflects the current state of the art, fresh insight gleaned from the author's ongoing composites research, and pedagogical improvements based on feedback from students, colleagues, and the author's own course notes. New worked-out examples and homework problems are added in most chapters, example problems and homework problems are now integrated within the chapters, and answers to selected homework problems are featured in the back of the book.

CRC Press
February 2016:698
Hb: 978-1-498-72069-4: **£120**
eBook: 978-0-429-19058-2
* For **full contents** and more information, visit: **www.routledge.com/9781498720694**

7TH EDITION

Applied Strength of Materials



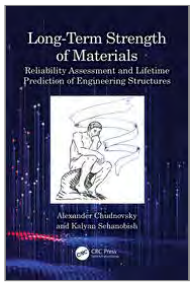
Robert L. Mott, Joseph A. Untener

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**

Long-Term Strength of Materials

Reliability Assessment and Lifetime Prediction of Engineering Structures

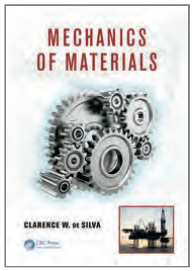


Alexander Chudnovsky, Kalyan Sehanobish

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: **£125**
Pb: 978-1-032-41813-1: **£45.99**
eBook: 978-1-003-35984-5
* For **full contents** and more information, visit: **www.routledge.com/9781032418131**

Mechanics of Materials



Clarence W. de Silva

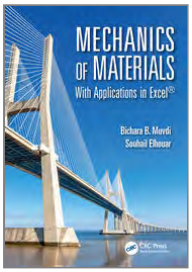
Series: Applied and Computational Mechanics

This book incorporates the fundamentals into analytical methods, modeling approaches, numerical methods, experimental procedures, and design techniques throughout. Concepts, approaches, and tools are demonstrated through a large number of examples and case studies. It is an outgrowth of the author's experience in teaching courses in mechanics of materials, statics, dynamics, modeling, vibration, instrumentation, testing, design, and control. The practical considerations, design issues, engineering techniques, and applications, and the simplified snapshot-style presentation of advanced theory and concepts, make this a useful reference for professionals as well.

CRC Press
August 2013:466
Hb: 978-1-439-87736-4: **£115**
eBook: 978-0-429-06562-0
* For **full contents** and more information, visit: **www.routledge.com/9781439877364**

Mechanics of Materials

With Applications in Excel



Bichara B. Muvdi, Souhail Elhouar

This text covers the fundamentals of the mechanics of materials—or strength of materials—in a clear and easily understandable way, incorporating numerous examples, homework problems, and review problems to ensure comprehension. It also instills practical skills for developing Microsoft® Excel® applications to solve mechanics of materials problems using numerical techniques. The book includes editable Excel spreadsheets representing all the examples featured in the text, PowerPoint® lecture slides, multimedia simulations, graphics files, and a solutions manual with qualifying course adoption.

CRC Press
June 2016:723
Hb: 978-1-466-57071-9: **£120**
eBook: 978-1-315-37431-4
* For **full contents** and more information, visit: **www.routledge.com/9781466570719**

Introduction to Mechanism Design

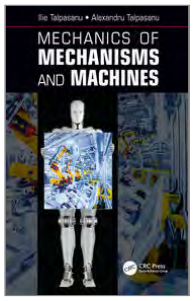
with Computer Applications

Eric Constans, Karl B. Dyer

Introduction to Mechanism Design: with Computer Applications provides an updated approach to undergraduate Mechanism Design and Kinematics courses/modules for engineering students. The use of web-based simulations, solid modeling, and software such as MATLAB and Excel is employed to link the design process with the latest software tools for the design and analysis of mechanisms and machines. While a mechanical engineer might brainstorm with a pencil and sketch pad, the final result is developed and communicated through CAD and computational visualizations. This modern approach to mechanical design processes has not been fully integrated in most books, as it is in this new text.

CRC Press
August 2018:760
Hb: 978-1-138-74065-5: **£130**
eBook: 978-1-315-18326-8
* For **full contents** and more information, visit: **www.routledge.com/9781138740655**

Mechanics of Mechanisms and Machines



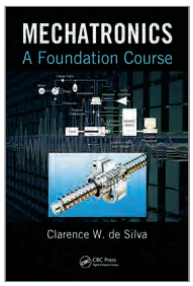
Ilie Talpasanu, Alexandru Talpasanu

Mechanics of Mechanisms and Machines provides a practical approach to machine dynamics and kinematics for undergraduate students and mechanical engineers. It starts by analyzing simple mechanisms, and progresses to more complex examples. It will be the only textbook to cover mechanism design through the use of graphs and generation of independent equations from a matroid form.

CRC Press
December 2018:610
Hb: 978-1-498-73547-6: **£130**
eBook: 978-0-429-39830-8
* For **full contents** and more information, visit: **www.routledge.com/9781498735476**

Mechatronics

A Foundation Course



Clarence W. de Silva

Designed for students across all of engineering, this text offers the multidisciplinary approach needed to develop a foundation in mechatronics. It covers electrical and mechanical components, sensors and instrumentation, drives and actuators, controls, signal processing, component interfacing, modeling, and design. Practical applications and tools introduced up front are uniformly integrated throughout the book. Cases studies and worked examples that make use of MATLAB®, Simulink®, and LabView® application and case studies are included, as are numerous exercises, most based on real engineering practice.

CRC Press
June 2010:898
Hb: 978-1-420-08211-1: **£150**
eBook: 978-0-429-13947-5
* For **full contents** and more information, visit: **www.routledge.com/9781420082111**

Mechatronics

An Integrated Approach

Clarence W. de Silva

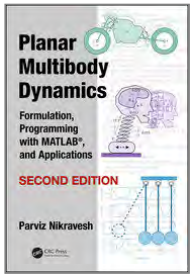
Intended as an engineering textbook that is versatile enough to span several courses in mechatronics, this book offers a strong foundation in such core subjects as dynamic system modeling, electrical components and analysis, mechanical components and analysis, robotics, drives and actuators, control systems, digital processing and hardware, communication and interfacing, software tools, design, and prototyping. The appendices cover Laplace and Fourier transform techniques and software tools including MATLAB, SIMULINK, and LabVIEW. It also emphasizes practical situations and applications with numerous worked examples, problems, and exercises and offers an entire chapter devoted to case studies.

CRC Press
November 2004:1348
Hb: 978-0-849-31274-8: **£160**
eBook: 978-0-429-21068-6
* For **full contents** and more information, visit: **www.routledge.com/9780849312748**

2ND EDITION

Planar Multibody Dynamics

Formulation, Programming with MATLAB®, and Applications, Second Edition



Parviz Nikravesh

Planar Multibody Dynamics: Formulation, Programming, and Applications, Second Edition enhances the quality and ease of design education with extensive use of the latest computerized design tools combined with coverage of classical design and dynamics of machinery principles. Using clear, concise language, the text introduces fundamental theories, computational methods, and program development for analyzing simple to complex mechanical systems. MATLAB® is used throughout, with examples begin with basic commands before introducing students to more advanced programming techniques. The routines developed in each chapter come together to form complete programs for different types of analysis.

CRC Press
October 2018:430
Hb: 978-1-138-09612-7: **£150**
eBook: 978-1-315-10543-7
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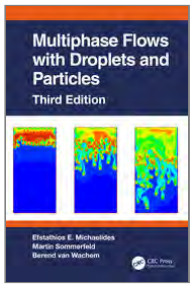
3RD EDITION

Multiphase Flows with Droplets and Particles, Third Edition

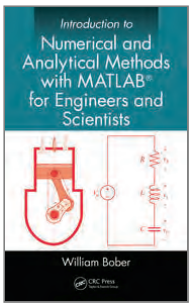


Efstathios E. Michaelides, Martin Sommerfeld, Berend van Wachem

Multiphase Flows with Droplets and Particles, Third Edition provides an organized, pedagogical study of multiphase flows with particles and droplets. The revision presents new information on particle interactions; particle collisions; thermophoresis and Brownian movement; computational techniques and codes; the treatment of irregularly-shaped particles. An entire chapter is devoted to the flow of nanoparticles and applications of nanofluids. Designed to complement a graduate course in multiphase flows, the book can also serve as a supplement in short courses for engineers or as a stand-alone reference for engineers and scientists who work in this area.

CRC Press
December 2022:478
Hb: 978-0-367-54431-7: **£155**
eBook: 978-1-003-08927-8
* For **full contents** and more information, visit: **www.routledge.com/9780367544317**

Introduction to Numerical and Analytical Methods with MATLAB® for Engineers and Scientists

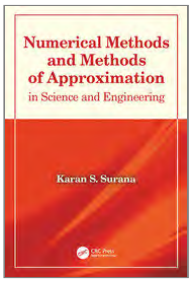


William Bober

This textbook teaches students how to write computer programs on the MATLAB® platform and to use many of MATLAB's built-in functions to solve engineering-type problems. To students, MATLAB's built-in functions are black boxes. By combining a textbook on MATLAB with basic numerical and analytical analysis, the mystery of what the black boxes contain is somewhat alleviated. Within each chapter there are exercises related to the topics just covered. The text contains many examples from mechanical, civil, aeronautical, and electrical engineering.

CRC Press
November 2013:556
Hb: 978-1-466-57602-5: **£130**
eBook: 978-0-429-10161-8
* For **full contents** and more information, visit: **www.routledge.com/9781466576025**

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**
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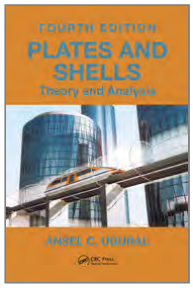
4TH EDITION

Plates and Shells

Theory and Analysis, Fourth Edition



Ansel C. Ugural

Series: Applied and Computational Mechanics

Noted for its practical, accessible approach to senior and graduate-level engineering mechanics, Plates and Shells: Theory and Analysis is a long-time bestselling text on the subjects of elasticity and stress analysis. Many new examples and applications are included to review and support key foundational concepts. Advanced methods are discussed and analyzed, accompanied by illustrations. Problems are carefully arranged from the basic to the more challenging level. Computer/numerical approaches (Finite Difference, Finite Element, MATLAB) are introduced, and MATLAB code for selected illustrative problems and a case study is included.

CRC Press
October 2017:618
Hb: 978-1-138-03245-3: **£180**
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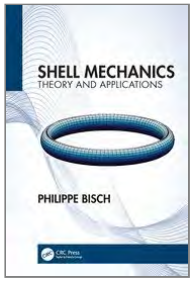
* For **full contents** and more information, visit: **www.routledge.com/9781138032453**

Shell Mechanics

Theory and Applications

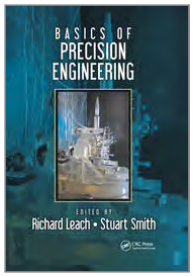


Philippe Bisch

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**

Basics of Precision Engineering



Edited by **Richard Leach, Stuart T. Smith**

BASICS OF PRECISION MACHINERY provides students and professionals a comprehensive and up-to-date survey of the field. The text reviews basic dynamics of machinery and kinematics concepts, and the design of mechanisms. Engineering materials selection and behavior is examined, along with environmental isolation. Metrology principles and applications, and dimensional metrology, are presented in detail, since these topics are essential to precision engineering; uncertainty analysis and probability are covered as well. Numerous figures, tables, examples and problems are included throughout the text, and a Solutions Manual and Figure Slides are available for professors who adopt the textbook.

CRC Press
March 2021:676
Hb: 978-1-498-76085-0: **£150**
Pb: 978-0-367-78139-2: **£45.99**
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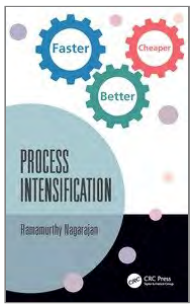
Process Intensification

Faster, Better, Cheaper



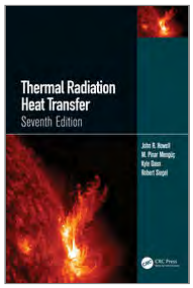
Ramamurthy Nagarajan

Process Intensification: Faster, Better, Cheaper presents basic concepts and applications of Process Intensification (PI) and links their common effects across processes. It defines two fundamental parameters, PI factor, and Cost Impact (CI) factor, and uses these to analyze various applications where PI has been carried out. The book is intended for senior undergraduate chemical and mechanical engineering students taking courses in Process Design, Process Optimization, Process Synthesis, and Process Intensification. Each chapter investigates a specific application, discusses the key PI principles, and includes problem sets and examples.

CRC Press
April 2023:270
Hb: 978-1-032-25477-7: **£91.99**
* For **full contents** and more information, visit: **www.routledge.com/9781032254777**

7TH EDITION

Thermal Radiation Heat Transfer



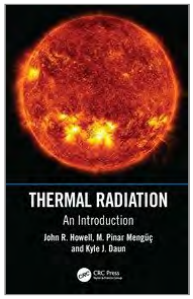
John R. Howell, M. Pinar Mengüc, Kyle Daun, Robert Siegel

The Seventh Edition of this classic text outlines the fundamental physical principles of thermal radiation, as well as analytical and numerical techniques for quantifying radiative transfer between surfaces and within participating media. The textbook includes newly expanded sections on surface properties, electromagnetic theory, scattering and absorption of particles, near-field radiative transfer, and emphasizes the broader connections to thermodynamic principles. Sections on inverse analysis and Monte Carlo methods have been updated, along with new material on manufacturing, renewable energy, climate change, building energy efficiency, and biomedical applications.

CRC Press
December 2020:1040
Hb: 978-0-367-34707-9: **£130**
eBook: 978-0-429-32730-8
* For **full contents** and more information, visit: **www.routledge.com/9780367347079**

Thermal Radiation

An Introduction

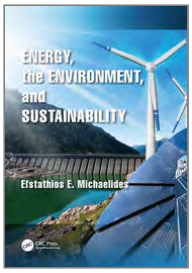


John R. Howell, M. Pinar Mengüc, Kyle J. Daun

This book is a complete text for a one-semester introductory graduate course on radiative energy transfer. It bridges the gap between a basic introduction and comprehensive coverage of thermal radiation, focusing on insight into radiative transfer as practiced by engineers. The textbook is intended for instructors and graduate students in a first-year course on radiative heat transfer or advanced heat transfer. Covering radiative transfer among surfaces, with an introduction to the effects of participating media between surfaces, the book includes surface and medium property characteristics and solution of the radiative transfer equation in simple geometries.

CRC Press
March 2023:476
Hb: 978-1-032-01531-6: **£86.99**
* For **full contents** and more information, visit: **www.routledge.com/9781032015316**

Energy, the Environment, and Sustainability



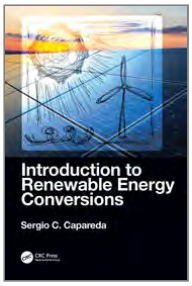
Efstathios E. Michaelides

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: **£150**
Pb: 978-1-138-03844-8: **£135**
eBook: 978-1-315-17735-9
* For **full contents** and more information, visit: **www.routledge.com/9781138038448**

Introduction to Renewable Energy Conversions



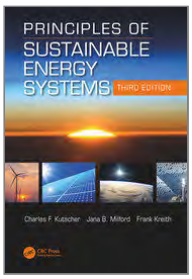
Sergio Capareda

Introduction to Renewable Energy Conversions examines all the major renewable energy conversion technologies, with the goal of enabling readers to formulate realistic resource assessments. The text provides step-by-step procedures for assessing renewable energy options, and then moves to the design of appropriate renewable energy strategies. The goal is for future engineers to learn the process of making resource estimates, through the introduction of more than 140 solved problems (and equal number of solved problems for teachers), over 165 engineering related equations, more than 120 figures and numerous tables to explain each renewable energy conversion type.

CRC Press
August 2019:456
Hb: 978-0-367-18850-4: **£105**
eBook: 978-0-429-19910-3
* For **full contents** and more information, visit: **www.routledge.com/9780367188504**

3RD EDITION

Principles of Sustainable Energy Systems, Third Edition



Charles F. Kutscher, Jana B. Milford

Series: Mechanical and Aerospace Engineering Series

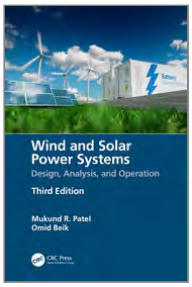
Principles of Sustainable Energy Systems, 3rd Edition surveys the range of sustainable energy sources and the tools that engineers, scientists, and policy makers use to analyze energy generation, usage, and future trends. The text provides complete and up-to-date coverage of all renewable technologies, 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: **£185**
eBook: 978-0-429-48558-9
* For **full contents** and more information, visit: **www.routledge.com/9781498788922**

3RD EDITION

Wind and Solar Power Systems

Design, Analysis, and Operation

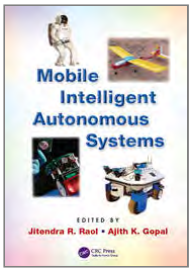


Mukund R. Patel, Omid Beik

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**

Mobile Intelligent Autonomous Systems



Edited by **Jitendra R. Raol, Ajith K. Gopal**

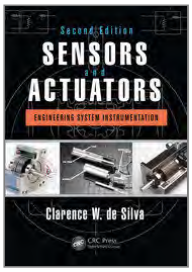
Going beyond the traditional field of robotics to include other mobile vehicles, this reference and "recipe book" describes important theoretical concepts, techniques, and applications that can be used to build truly mobile intelligent autonomous systems (MIAS). With the infusion of neural networks, fuzzy logic, and genetic algorithm paradigms for MIAS, it blends modeling, sensors, control, estimation, optimization, signal processing, and heuristic methods in MIAS and robotics, and includes examples and applications throughout. Offering a comprehensive view of important topics, it helps readers understand the subject from a system-theoretic and practical point of view.

CRC Press
March 2017:832
Hb: 978-1-439-86300-8: **£190**
Pb: 978-1-138-07245-9: **£74.99**
eBook: 978-0-429-10481-7
* For **full contents** and more information, visit: **www.routledge.com/9781138072459**

2ND EDITION

Sensors and Actuators

Engineering System Instrumentation, Second Edition



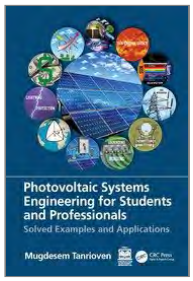
Clarence W. de Silva

This introductory textbook on engineering system instrumentation emphasizes sensors, transducers, actuators, and devices for component interconnection. The book deals with "instrumenting" an engineering system through the incorporation of suitable sensors, actuators, and associated interface hardware including filters, amplifiers and other signal modifiers. In view of the practical considerations, design issues, and industrial techniques that are presented throughout the book, and in view of the simplified and snap-shot style presentation of more advanced theory and concepts, it also serves as a useful reference for engineers, technicians, project managers, and other practicing professionals in industry and in research laboratories.

CRC Press
July 2015:848
Hb: 978-1-466-50681-7: **£165**
eBook: 978-0-429-09643-3
* For **full contents** and more information, visit: **www.routledge.com/9781466506817**

Photovoltaic Systems Engineering for Students and Professionals

Solved Examples and Applications



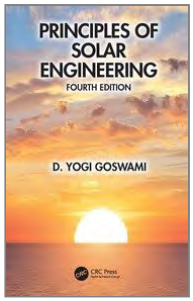
Mugdesem Tanrioven

Photovoltaic Systems Engineering for Students and Professionals: Solved Examples and Applications examines photovoltaic (PV) power plants in a holistic way. PV installations of all types and sizes- from the smallest plant element to the largest system components- are approached from an electrical engineering perspective, and further explained through worked examples. It presents the different forms of energy and the energy conversions between them in a clear and understandable way. The book is both an essential resource for students as well as practicing engineers working in the solar photovoltaic areas and critical work for all electrical engineers.

CRC Press
October 2023:620
Hb: 978-1-032-54185-3: **£120**
eBook: 978-1-003-41557-2
* For **full contents** and more information, visit: **www.routledge.com/9781032541853**

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**

Collision Actions on Structures

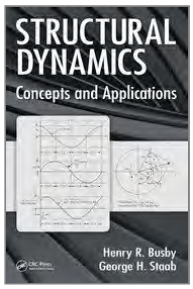
Arnold C.Y. Yong, Nelson T.K. Lam, Scott J. Menegon

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**

Structural Dynamics

Concepts and Applications

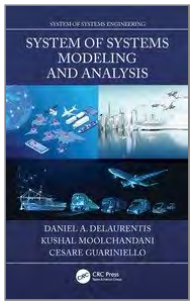


Henry R. Busby, George H. Staab

Structural Dynamics: Concepts and Applications focuses on dynamic problems in mechanical, civil and aerospace engineering through the equations of motion. The text explains structural response from dynamic loads and the modeling and calculation of dynamic responses in structural systems. A range of applications is included, from various engineering disciplines. Coverage progresses consistently from basic to advanced, with emphasis placed on analytical methods and numerical solution techniques. Stress analysis is discussed, and MATLAB applications are integrated throughout. A solutions manual and figure slides for classroom projection are available for instructors.

CRC Press
August 2017:598
Hb: 978-1-498-76594-7: **£170**
eBook: 978-1-315-12002-7
* For **full contents** and more information, visit: **www.routledge.com/9781498765947**

System of Systems Modeling and Analysis



Daniel A. DeLaurentis, Kushal Moolchandani, Cesare Guariniello

Series: System of Systems Engineering

System-of-Systems Modeling and Analysis provides the reader with motivation, theory, methodology, and examples of modeling and analysis for system of system problems. The book is intended for senior undergraduate students in engineering programs studying System-of-Systems Modeling, System-of-Systems Analysis, and System-of-Systems Engineering courses. Professional engineers will also benefit from Methods, Tools, and Processes (MTP) and examples as a baseline for specific user applications. Providing a bridge between theory and practice for modeling and analysis of SoS, this book includes generalized concepts and Methods, Tools, and Processes (MTP) applicable to SoS.

CRC Press
December 2022:287
Hb: 978-1-032-13830-5: **£105**
eBook: 978-1-003-23101-1
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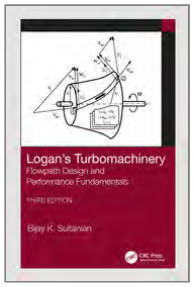
3RD EDITION

Logan's Turbomachinery

Flowpath Design and Performance Fundamentals, Third Edition



Bijay Sultanian

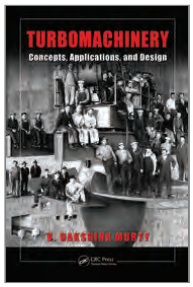
Series: Mechanical Engineering

Logan's Turbomachinery: Flowpath Design and Performance Fundamentals, Third Edition is the long-awaited revision of this classic textbook, thoroughly updated by Dr. Bijay Sultanian. While the basic concepts remain constant, turbomachinery design has advanced since the Second Edition was published in 1993. Airfoils in modern turbomachines feature three-dimensional geometries, Computational Fluid Mechanics (CFD) has become a standard design tool, and major advances have been made in the materials and manufacturing technologies that affect turbomachinery design. The new edition adresses these trends to best serve today's students, and design engineers working in turbomachinery industries.

CRC Press
January 2019:341
Hb: 978-1-138-19820-3: **£110**
eBook: 978-1-315-22648-4
* For **full contents** and more information, visit: **www.routledge.com/9781138198203**

Turbomachinery

Concepts, Applications, and Design

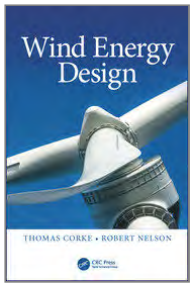


V. Dakshina Murty

Turbomachinery: Concepts, Applications, and Design is an introductory turbomachinery textbook aimed at seniors and first year graduate students, giving balanced treatment of both the concepts and design aspects of turbomachinery, based on sound analysis and a strong theoretical foundation. The text has three sections, Basic Concepts, Incompressible Fluid Machines; and Compressible Fluid Machines. Emphasis is on straightforward presentation of key concepts and applications, with numerous examples and problems that clearly link theory and practice over a wide range of engineering areas. Problem solutions and figure slides are available for instructors adopting the text for their classes.

CRC Press
January 2018:326
Hb: 978-1-138-64069-6: **£160**
eBook: 978-1-315-20512-0
* For **full contents** and more information, visit: **www.routledge.com/9781138640696**

Wind Energy Design



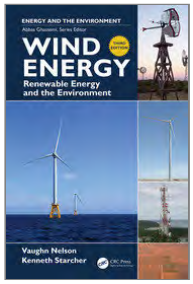
Thomas Corke, Robert Nelson

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**

3RD EDITION

Wind Energy: Renewable Energy and the Environment



Vaughn Nelson, Kenneth 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
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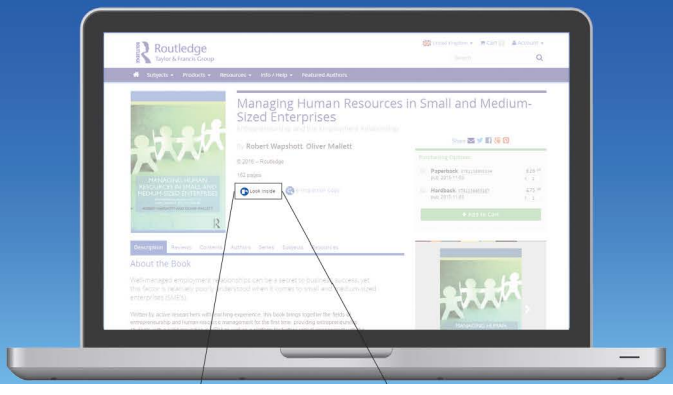

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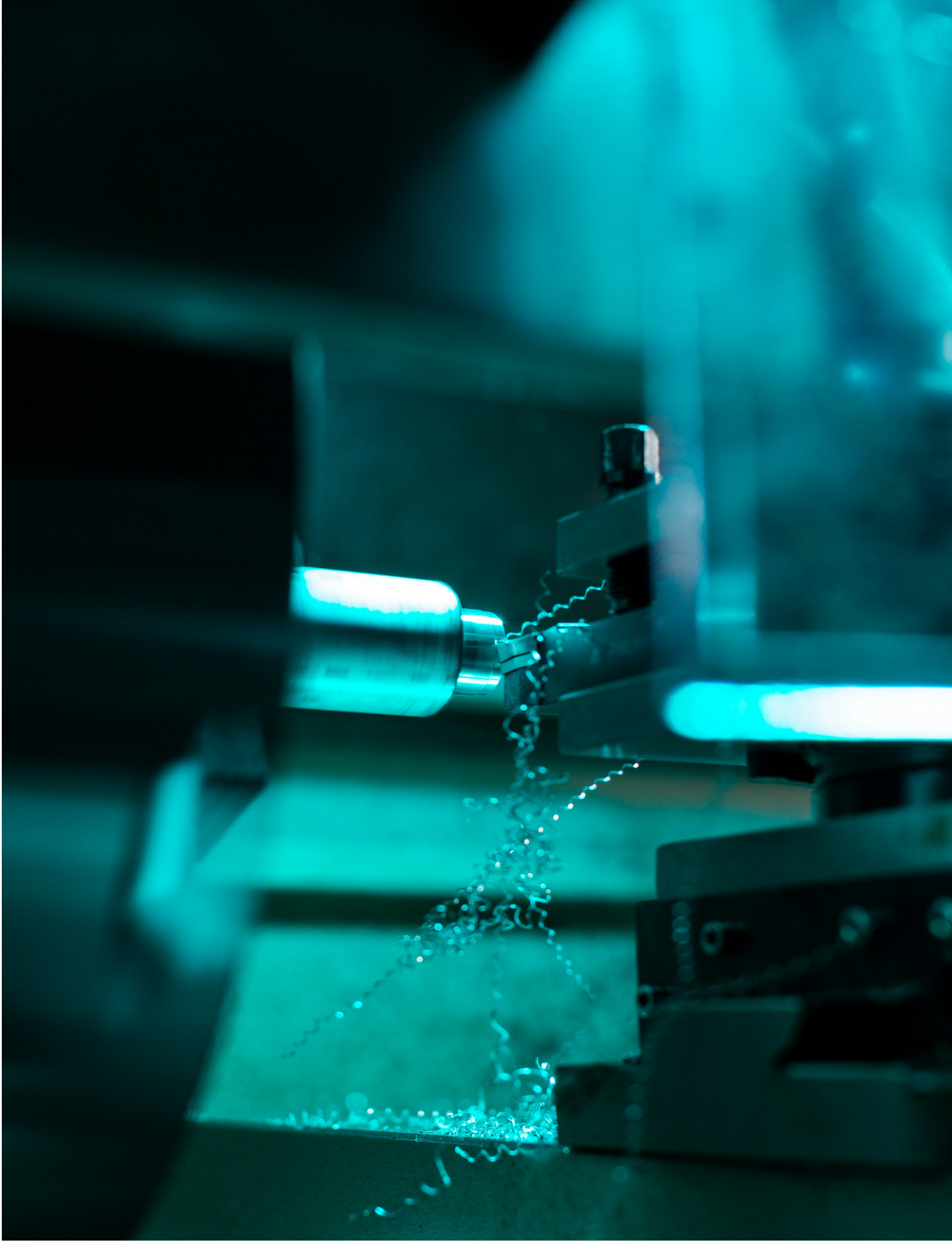

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